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World Wide Proficiency Test: Determination of Natural and Artificial Radionuclides in Moss-Soil and Water

IAEA-CU-2009-03

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Worldwide Open Proficiency Test:
Determination of Natural and Artificial Radionuclides in Moss-Soil and Water
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IAEA Analytical Quality in Nuclear Applications No. IAEA/AQ/22

Worldwide Open Proficiency Test: Determination of Natural and Artificial Radionuclides in Moss-Soil and Water IAEA-CU-2009-03

INTERNATIONAL ATOMIC ENERGY AGENCY
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WORLDWIDE OPEN PROFICIENCY TEST:
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FOREWORD

Reliable determination of natural and artificial radionuclides in environmental samples is necessary to comply with radiation protection and environmental regulations. The IAEA assists Member State laboratories in maintaining and improving their readiness by producing reference materials, by developing standardized analytical methods, and by conducting interlaboratory comparisons and proficiency tests as tools for quality control. To fulfil this obligation and ensure a reliable, worldwide, rapid and consistent response, the IAEA Terrestrial Environment Laboratory in Seibersdorf, Austria, organizes interlaboratory comparisons and proficiency tests.

This summary report presents the results of the worldwide proficiency test IAEA-CU-2009-03 on the determination of natural and artificial radionuclides in moss-soil and spiked water. The methodologies, data evaluation approach, summary evaluation of each nuclide and individual evaluation reports for each laboratory are also described.

This proficiency test was designed to identify analytical problems, to support Member State laboratories to improve the quality of their analytical results and maintain their accreditation, and to provide a regular forum for discussion and technology transfer in this area. The number of samples, their matrix interferences and the concentration levels of the analytes were designed in a way that enables identification of potential analytical problems.

In addition to the IAEA Terrestrial Environment Laboratory, two expert laboratories took part in the characterization campaign of the moss-soil reference material IAEA-447, namely, the Radiological Reference Laboratory of the Hungarian Agricultural Authority in Budapest, Hungary (S. Tarjan), and the Jožef Stefan Institute in Ljubljana, Slovenia (M. Korun). The IAEA would like to express its appreciation for their contributions. The IAEA officer responsible for this publication was A. Shakhashiro of the IAEA Environment Laboratories.

EDITORIAL NOTE

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CONTENTS

1. INTRODUCTION

A reliable determination of artificial and naturally occurring radionuclides in environmental samples such as moss-soil is necessary to comply with the radiation protection and environmental regulations.

Mosses are small, soft plants, they are found mainly in areas of dampness and low light. Mosses are common in wooded areas and at the edges of streams. They are also found in cracks between paving stones in damp city streets and in abandoned stone mines. In this proficiency test, the IAEA-447 reference material prepared from a terrestrial moss-soil, *i.e.* the mosses with the adhered eroded soil to the plant, was used as a proficiency test material, since it is considered to be an excellent radioactivity bio-monitor.

This proficiency test (PT) is part of the series of world wide proficiency tests organised every year by the IAEA Terrestrial Environment Laboratory. This series of PTs is designed to identify analytical problems, to support Member State laboratories to maintain their accreditation and to provide a forum for discussions regarding the analysis of naturally occurring radionuclides. The range of sample types available for analysis has been mainly at environmental levels.

In this PT, the test item set consisted of four samples: one moss-soil (the IAEA-447 reference material) and three tap water samples spiked with gamma emitting radionuclides. The main task of the participating laboratories was to identify and traceably quantify the activity levels of radionuclides present in these matrices. The tasks of the IAEA were to prepare and distribute the samples to the participating laboratories, to collect and interpret analysis results, and to compile a comprehensive report.

The certified massic activity values of all radionuclides used in this PT were traceable to the International standards of radioactivity.

In this PT, 1200 test items (reference materials) were prepared and distributed in November 2009 to 300 laboratories from 69 countries. The deadline for receiving the results from the participants was set at 15 May 2010.

The participating laboratories were requested to analyse K-40, Co-60, Zn-65, Cs-134, Cs-137, Tl-208, Pb-210, Pb-214, Bi-214, Ra-226, Ac-228, Th-234, Am-241, Sr-90, Po-210, U-234, U-238, Pu-238 and Pu-239+240 in the moss-soil samples 01, and Mn-54, Co-57, Co-60, Zn-65, Cs-134, Cs-137, Ba-133 and Eu-152 in water samples 02, 03 and 04.

The participants were informed that not all radionuclides were present in the samples and they had to report on those radionuclides which could be measured reliably. The analytical results of the participating laboratories were compared with the reference values assigned to the reference materials, and a rating system was applied.

The laboratories which responded to this PT and contributed to the present work are highly appreciated and acknowledged.

The summary evaluation of this proficiency test demonstrated that 66% of the overall reported analytical results resulted in acceptable performance and fulfilled the evaluation criteria applied in this PT.

Figure 1 reports the summary of the analytical data evaluation of this proficiency test.

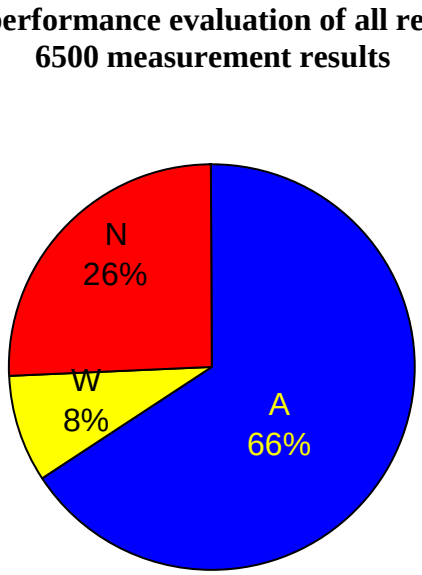


Figure 1. Summary of the analytical performance evaluation of the participating laboratories.

A: Acceptable performance

W: Acceptable with warning

N: Not acceptable performance

2. MATERIALS AND METHODS

2.1. Proficiency test objectives

The measurement of moss-soil and water samples containing a mixture of radionuclides with an unknown (to the participants) composition was aimed at (i) Assessment of the analytical performance of the participating laboratories in determining natural radionuclides in moss-soil and water matrices, (ii) testing the international comparability of radiological measurements and (iii) encouraging the participating laboratories in finding remedial actions where shortcomings in analytical performance are detected.

2.2. Participants

A total of 266 laboratories from 300 initially registered reported their results to the IAEA. A full listing of participating laboratories who reported their results in this PT is given in Appendix II.

2.3. Preparation of the proficiency test materials

The following proficiency test design was applied:

- Three water samples (500 mL) spiked with gamma emitting radionuclides,
- One moss-soil sample (150 g) containing natural and artificial radionuclides.

Figure 2 shows the PT material sets.

Figure 2. Distribution of the PT sets.

2.3.1. Preparation of the spiked water samples 02, 03 and 04

Tap water outsourced in one batch from Seibersdorf laboratories, was used to prepare all spiked water samples. The water was acidified and then analysed for the radionuclides of interest. It was found that the activity value of each measurand was below the detection limit of the analytical method which is far below the spiked activity value.

The water samples 02 and 04 were gravimetrically prepared in one batch. A portion of 320 kg of the blank water prepared above was spiked with an appropriate amount of a mixture of certified single radionuclide solutions of Co-57, Co-60, Cs-134, Cs-137 and Eu-152 traceable to the international standard of radioactivity. Table 1 shows the identification of the certified solutions of each radionuclide used in spiking the water samples in this PT.

For homogenising the spiked water, a pump with multiple outlets was used to mix the water in a tank of 600 litre. The homogenised spiked water was bottled in 500 mL portions in appropriate plastic bottles. The total mass of the bottle with the label was registered for further control. Three water sample portions at 100 g were analysed by gamma spectrometry. The relative standard deviation of each analyte was calculated. It was found that the relative standard deviations of all analytes were below the method repeatability relative standard deviation, which demonstrates satisfactory homogeneity of the water sample.

Table 2 lists the target values and the associated combined uncertainty in the water samples.

TABLE 1. IDENTIFICATION OF THE CERTIFIED SOLUTIONS OF EACH RADIONUCLIDE USED IN SPIKING THE WATER SAMPLES IN THIS PT

Nuclide	Manufacturer code	Source manufacturer
Co-57	9031-OL-090/09	Czech Metrological Institute
Co-60	Co60-ELSB50	Cerca
Cs-134	Cs134ELSR50	Cerca
Cs-137	CDZ64/S4/14/70	Amersham
Eu-152	Eu152-ELMB90	Cerca

TABLE 2. TARGET VALUES AND RESPECTIVE COMBINED STANDARD UNCERTAINTIES OF THE RADIONUCLIDES OF INTEREST IN WATER SAMPLES

Analytes	Water Samples 02 and 04 Activity (Bq/kg)	Uncertainty (Bq/kg)	Water Sample 03 Activity (Bq/kg)	Uncertainty (Bq/kg)	MAB (%)	LAP (%)
Co-57	7.5	0.15	2.5	0.05	10	10
Co-60	6.0	0.12	2.1	0.04	10	10
Cs-134	13.9	0.28	4.6	0.1	10	10
Cs-137	9.5	0.19	3.2	0.06	10	10
Eu-152	11.3	0.23	3.7	0.08	10	10

For all measurement results the reference date is 15 November 2009, the combined standard measurement result uncertainty is expressed at 1σ level.

2.3.2. Verification of the target activity values and homogeneity test

The final target activity value in water samples for each radionuclide was calculated from the certified activity values assigned to each radionuclide, taking into account the successive gravimetric dilution steps, the mass of spiking mixture and the amount of water being spiked as determined from weighing. The combined standard uncertainty includes two major components: uncertainty of the certified solution and weighing uncertainty.

To confirm the assigned target values and to study the homogeneity of the test items, two bottles from each water sample were analyzed at the IAEA Terrestrial Environment Laboratory. The measurement results obtained by the laboratory were in agreement with the

assigned target values and demonstrated that the homogeneity of the water samples was fit for the purpose of this proficiency test.

2.3.3. Preparation and characterization of sample 01 (IAEA-447 Moss-soil)

The IAEA-447 moss-soil reference material was collected in 2007 from an abandoned red marble mine in "Gerecse Mountain" located in the north-west of Hungary by the Reference Radiological Laboratory of the Ministry of Agriculture and Rural Development in Hungary in cooperation with the Reference Materials Group of the IAEA Terrestrial Environment Laboratory.
The mosses were naturally grown on large flat red marble stones surfaces which were extensively covered with mosses (see Figure 3). Both natural and artificial radionuclides from the fall-out have been accumulated during the last 40 years. Hence, the collected mosses with the eroded soil adhered to it, were representing an accumulated history or a memory record of the radionuclides fall out of the last 4 decades.

Three hundred kg of the collected bulk material was first air dried in an oven, then milled and homogenised in one lot in a clean atmosphere. The used homogenizer was a rolling-drum type of 300 litres capacity.

Bottling of IAEA-447 was done under normal laboratory conditions; 1100 secure bottles were filled in one day taking all precautions to avoid segregation. The bottles were labelled arranged into big plastic boxes and sterilized using gamma ray irradiation with a total dose of 25 kGy using a Co-60 source.

The secure bottle size was 450 mL with wide secure-sealed cover to preserve the integrity of the reference material in the bottle. The amount of the material in each bottle was 150 g.

Figure 3. The sampling field where the moss-soil was collected.

2.3.4. Homogeneity study and characterization of the IAEA-447

To assess the homogeneity of the IAEA-447 moss-soil reference material, 10 bottles covering the whole bottling range were randomly selected; three independent test portions of~30 g and ~0.5 g from each bottle were used to perform gamma spectrometry measurements and

radiochemical analysis, respectively. A gamma spectrometer equipped with broad energy detector was used to analyze K-40, Cs-137, Tl-208, Pb-210, Pb-212, Pb-214, Bi-214, Ra-226, Ac-228, Th-234 and Am-241. Po-210, Ra-226, U-234, U-238, Pu-239+240, Pu-238 and Am-241 were determined by isotope dilution alpha spectrometry; Pb-210 and Sr-90 by liquid scintillation spectrometry following sample dissolution by wet mixed acid dissolution or microwave digestion or molten salt fusion and sequential radiochemical separation procedures.
The analysis of homogeneity study was performed under repeatability conditions to minimize variations.

The outcome of the homogeneity study demonstrated that the uncertainties due to between and within bottles heterogeneity u_{bb} were within acceptable limits and the material could be considered sufficiently homogeneous for the tested radionuclides at the range of mass used.

2.3.4.1. Characterization and assignment of target values of the measurands of IAEA-447

The analysis related to the homogeneity study and characterization of the reference material were performed at the IAEA Terrestrial Environment Laboratory in Seibersdorf (Austria). Then the analytical results of the characterization were confirmed by two external expert laboratories.

The gamma emitting radionuclides were measured using a metal (radon tight) sample container. The spectrum was collected after 30 days when the Ra-226 Rn-222 equilibrium reached. A special low background n-type HPGe detector 30% relative efficiency with CARBON-EPOXI window was used for the spectrum collection. The shielding was made of 7 cm low background lead and 3 mm of copper. An example for the measurement of gamma emitting nuclides in the IAEA-447 the moss-soil reference material is shown on the Figure 4.

The property values of all radionuclides of the IAEA-447 were established on the basis of a robust approach proposed by David L. Duewer [1] and the Mixture Model Median (MM-median) of the analytical results reported by the IAEA Terrestrial Environment Laboratory was calculated. The MM-median is a direct analogue of the median. It is the location which divides the Mixture Model Probability Density Function (MM-PDF) into two sections of equal area. The MM-median is closely related to the median. It is robust to outliers and also accounts for the reported uncertainty of each measurement result.

To estimate the standard uncertainty associated with the property value the MM-median based Standard Deviation S(MM-median) was calculated from the span of the central 50% of the MM-PDF density function [1].

2.3.4.2. Determination of Pb-210 and Po-210 in the moss-soil reference material

Preparation of the samples

Half g aliquots of the sample from the different bottles were transferred into microwave containers, about 30 mg of Pb^{2+} carrier; about 0.4 Bq of Po-209 tracer and 15mL 65% HNO_3 were added. After digestion the sample solutions were then transferred to plastic centrifuge tubes and centrifuged for 10 minutes at 3000 rpm. The supernatants were transferred to Teflon beakers and the residues were transferred back into the microwave containers with 3 mL HNO_3 and 2 mL of 40% HF. The residues were digested again using the same microwave program achieving complete sample dissolution. The solutions of the residues were combined with their supernatants, and then evaporated with three portions of 5 mL of 65% HNO_3 to remove HF and than dissolved in 30 mL of 2M HCl and 0.1 g H_3BO_3.

Radiochemical Separations

After sample digestion, polonium and lead were separated using the method proposed by Vajda et al. [2]. The solution was loaded on Sr Resin column preconditioned in advance with 100 mL 2 M HCl. The column was rinsed with 100 mL of 2 M HCl and 25 mL 6 M HNO_3 to remove the non-retained ions. The effluent and washing solutions were combined and used for analysis of uranium and thorium. Polonium was stripped with 60 mL 6 M HNO_3, and then lead was eluted with 60 mL 6 M HCl. Polonium solution was carefully evaporated to dryness. The residue was taken with 10 mL 0.5 M HCl transferred into a Teflon deposition cell, the pH of the solution was adjusted to 1 using 6 M NaOH. Polonium was auto-deposited onto silver disc at 90°C for 90 min with stirring the solution, and then Po-210 was determined by isotope dilution alpha-spectrometry. The Pb fraction was evaporated 3 times with 2 mL of 65% HNO_3. The residue was dissolved in 20 mL 1 M HNO_3, add 0.400 g oxalic acid to warm solution and adjust the pH to 3-5 with $NH_{3(aq)}$ to precipitate Pb-oxalate. The Pb-oxalate precipitate was filtered through a pre-weighed filter paper (∅ 24 mm). The filter was washed with 3*1 mL water and 2 mL of ethanol, dried in oven at 40-50^{o}C, cooled in a dessicator and weighted to determine the mass of lead-oxalate and the chemical recovery gravimetrically. The lead-oxalate precipitate was transferred together with the filter into liquid scintillation vial, dissolved in 1 mL 6 M HNO_3 and mixed it with 14 mL 'INSTA-GEL PLUS' liquid scintillation cocktail. Pb-210 was determined by liquid scintillation spectrometry. Figure 5 illustrates the LSC spectrum of Pb-210 in moss-soil.

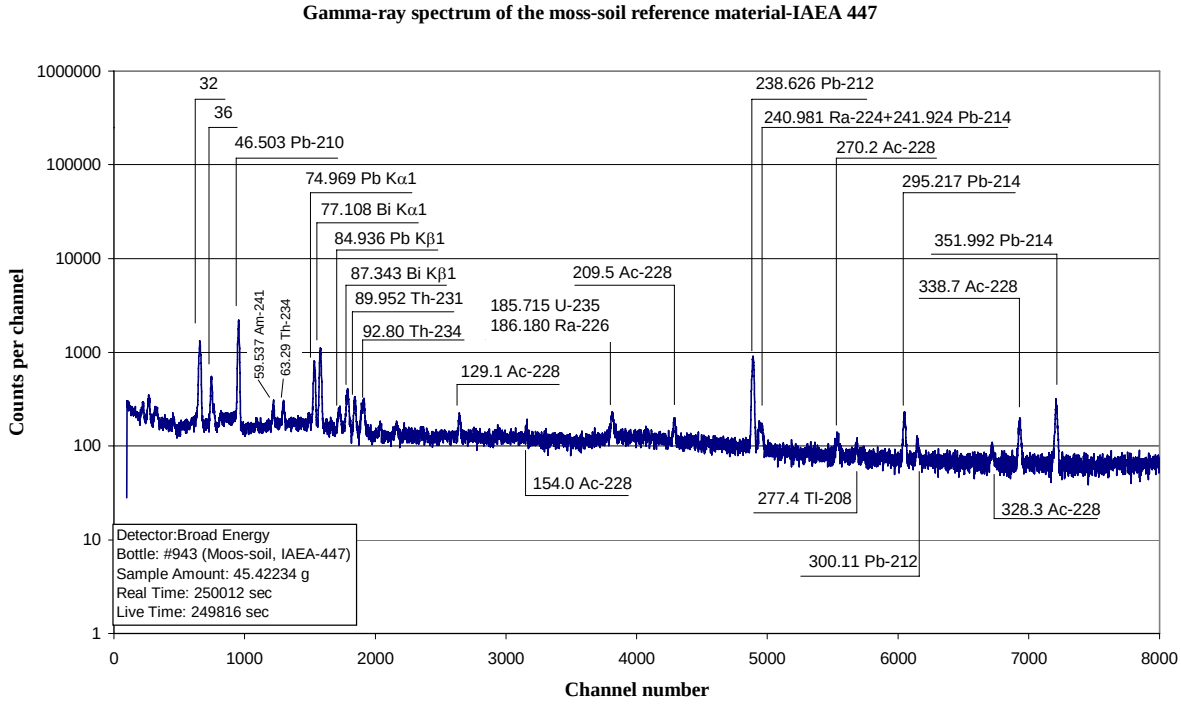


Figure 4. Gamma spectrum of the moss-soil IAEA-447 in the channel range 0-8000.

TABLE 3. TARGET VALUES, STANDARD UNCERTAINTIES AND ACCEPTANCE LIMITS FOR LAP (%) AND MAB (%) OF ANALYTES IN MOSS-SOIL (SAMPLE 01) USED IN THE EVALUATION

Analytes	The moss-soil reference material IAEA-447			
	Massic activity* (Bq/kg)	Uncertainty (Bq/kg)	MAB (%)	LAP (%)
K-40	550	20	20	20
Sr-90	5.0	0.3	20	20
Cs-137	425	10	20	20
Tl-208	13.0	0.5	20	20
Pb-210	420	20	20	20
Po-210	423	10	20	20
Pb-212	37.0	1.5	20	20
Pb-214	26.0	2.0	20	20
Bi-214	24.8	2.0	20	20
Ra-226	25.1	2.0	20	20
Ac-228	37.0	2.0	20	20
Th-234	25.5	3.0	20	25
U-234	21.8	0.8	20	30
U-238	22.2	0.8	20	30
Pu-238	0.15	0.015	20	35
Pu-239+240	5.3	0.16	20	20
Am-241	2.2	0.2	20	25

*Massic activities of daughter radionuclides are valid when secular equilibrium is maintained. The reference date for decay correction is 2009-November-15.

2.3.4.3. Determination of U-234, U-238, Pu-239+240, Pu-238, Am-241 and Sr-90 using the conventional sequential separation method

Preparation of the samples

The samples were ashed at 600^{o}C. Ten g weighed ash replicates were taken from the different bottles. Sample decomposition was carried out using the conventional wet digestion procedure, after addition of Sr carrier, Pu-242 and Am-243 tracers. Nine samples were spiked with U-232 tracer too, for the determination of U-238 and U-234.

Radiochemical separations

For the separation of uranium, the supernatant obtained from Ca-oxalate precipitation was evaporated to dryness, the oxalate was decomposed by digestion and repeated evaporation with 65% HNO_3. The residues were dissolved in 15-30 mL 3 M HNO_3, and then loaded on UTEVA resin column (Bed volume; 1.4 mL, column length: 26 mm) pre-conditioned with 20 mL 3M HNO_3. The column was washed with 30 mL 3 M HNO_3, followed by 20 mL 6 M HCl. Uranium fraction was eluted with 6 mL of H_2O eluted with 6 mL of H_2O, and then evaporated with 2 mL 65% HNO_3. After electro-deposition onto stainless steel discs, uranium was determined by alpha-spectrometry.

2.3.4.4. Determination of U-234, U-238, Pu-239+240, Pu-238, Am-241 using the rapid method

Preparation of the samples

The samples were ashed at 600^{o}C. Half g weighed ash replicates were taken from the different bottles. Sample decomposition was carried out by molten salt fusion with 2 g $LiBO_2$, 0.2 g $NaCO_3$ and 0.1 g KI after addition of Pu-242 and Am-243 and U-232 tracers.
The melt was pured into 100 mL 1MHCl and then dissolved.

Radiochemical separations

The actinides were preconcentrated after reduction with N_2H_4 by co-precipitation with calcium fluoride in acidic solution [3]. After dissolution of the precipitate the actinides were separated by selective extraction chromatography using a single column filled with TRU resin. Am, Pu and Th were stripped separately, while U and Np were stripped together. U fraction was purified by extraction chromatography using UTEVA resin.

Alpha sources were prepared from the chromatographic strip solutions directly by micro-co-precipitation with neodymium fluoride. Activities were determined by isotope dilution alpha spectrometry. Figures 6, 7, 8 and 9 shows the alpha spectra obtained from the moss-soil sample.

2.3.4.5. Instrumentation

Alpha-spectrometer system: EG & G ORTEC OCTETE, with EG & G Ultra BU-020-450-AS PIPS detectors, Canberra AMX 884 multiplexer, RPI 554, ADC 8701,and AIM556 modules were used. The alpha spectra were collected and evaluated using Canberra Genie 2000 software.

Liquid Scintillation Spectra were collected and evaluated using Wallac WINQ v. 1.1 and EASYview v.1.0.3.4.

Claisse Fluxer and Milestone MLS-Ethos plus microwave were used for sample peparation.

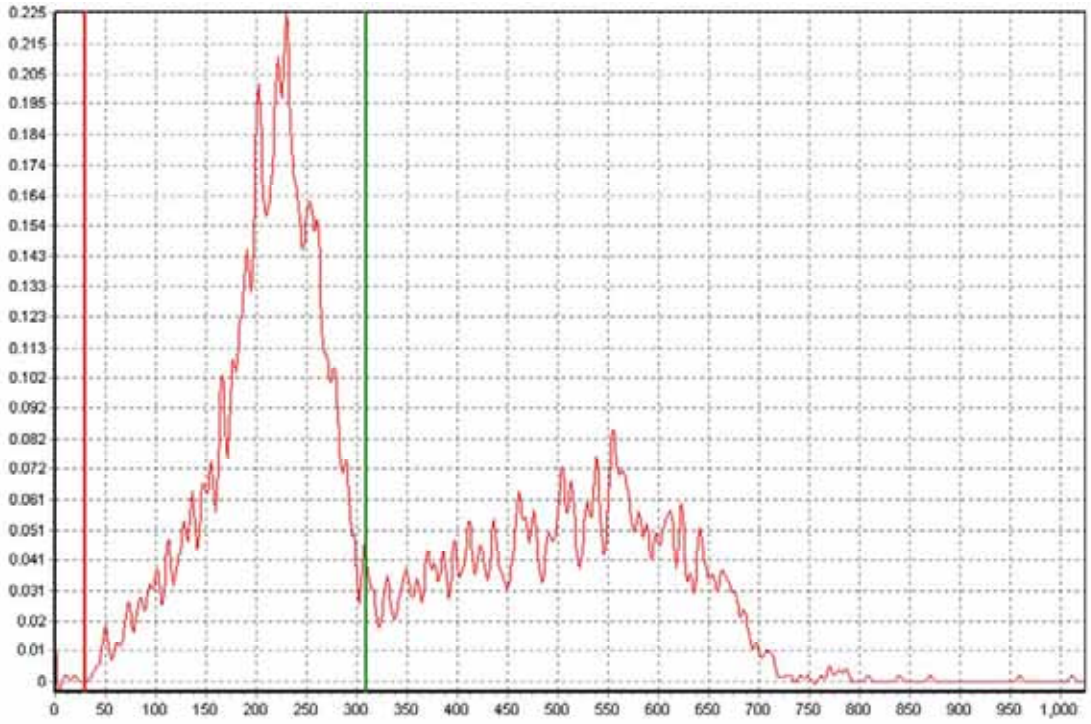


Figure 5. LSC Spectrum of Pb-210 in moss-soil where the first peak in the region of interest (ROI) is the Pb-210, the ingrowing Bi-210 could be also observed.

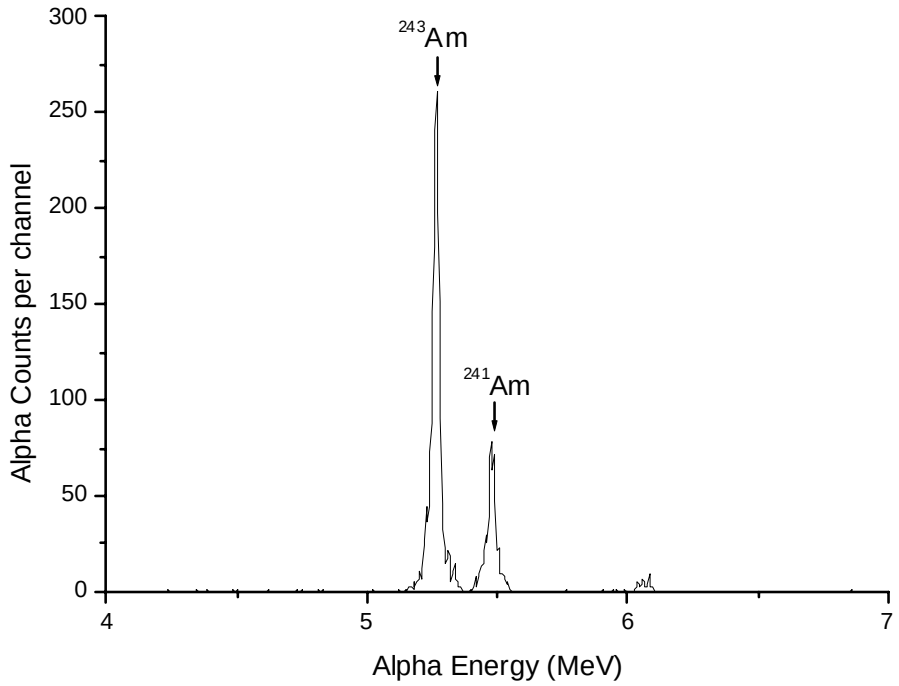


Figure 6. Alpha-ray spectrum of Am separated from a moss soil sample (tracer: Am-243).

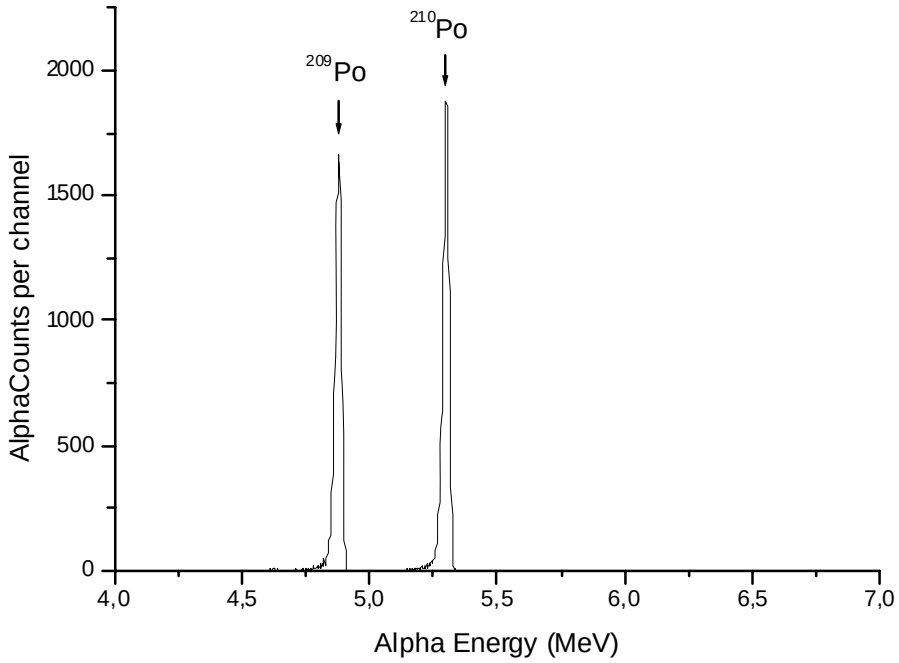


Figure 7. Alpha-ray spectrum of Po-210 separated from a moss soil sample (tracer: Po-209).

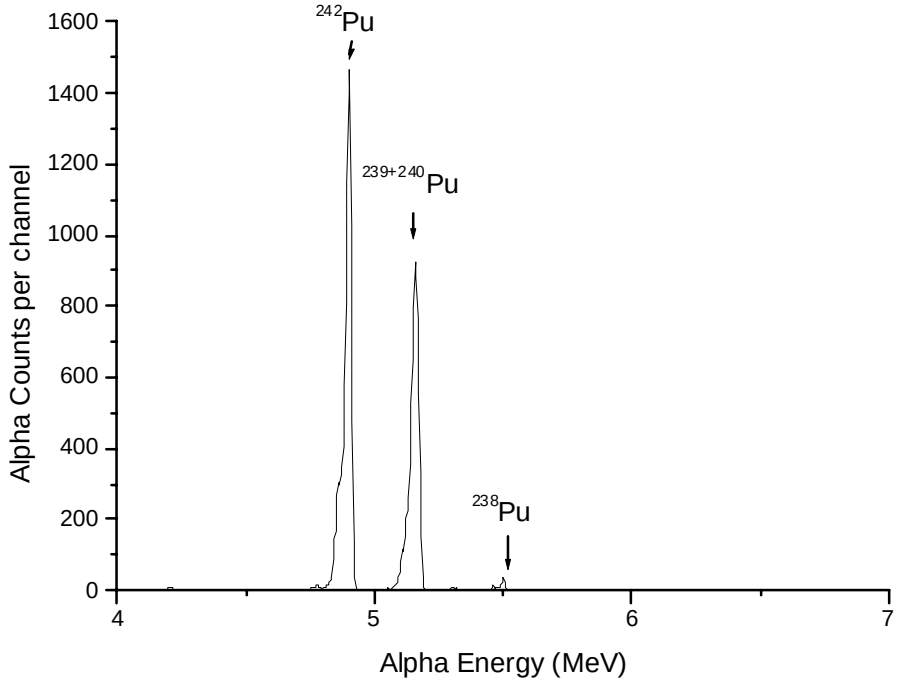


Figure 8. Alpha-ray spectrum of Pu separated from a moss soil sample (tracer: Pu-242).

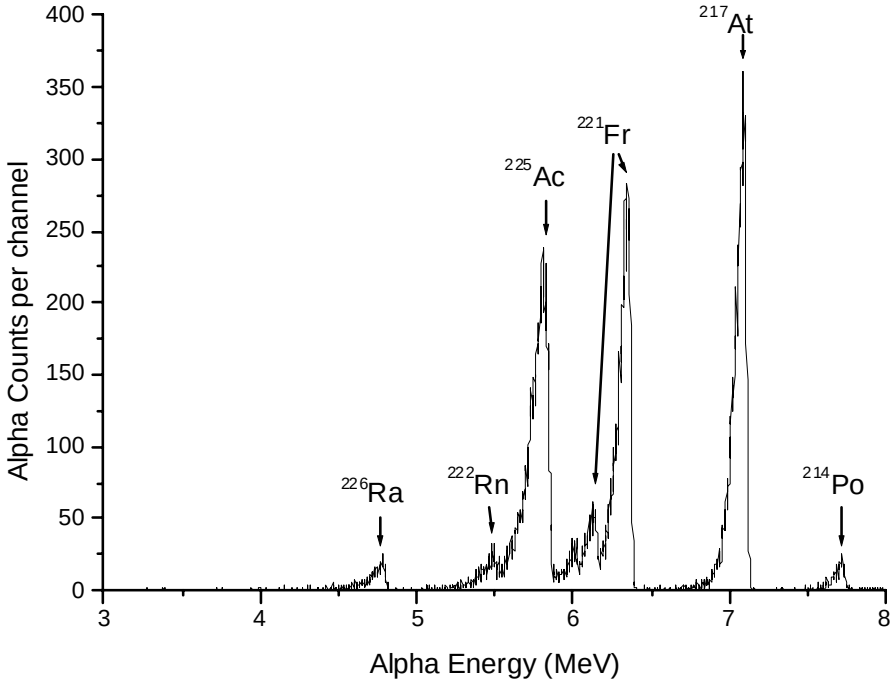


Figure 9. Alpha-ray spectrum of Ra-226 separated from a moss soil sample (tracer: Ra-225 (beta emitter), through ingrowing At-217, short lived alpha emitting decay product).

3. PERFORMANCE CRITERIA

Several rating systems have been developed for determining a laboratory's performance and the meaning of the results of the different scoring systems are not always comparable. Among various statistics, z-scores and u-scores are most often used. The drawback of z-scores is that the uncertainty of the participant's measurement result is not taken into account for the evaluation of performance. In the case of u-scores, the evaluation includes uncertainties of the participant measurements and the uncertainty of the assigned value. Laboratories performing well in classical proficiency testing (z-scores) will not necessarily exhibit the same level of performance when their analytical uncertainties are considered in the evaluation.

The proficiency testing scoring system applied by the IAEA Terrestrial Environment Laboratory takes into consideration the trueness and the precision of the reported data and it includes in the evaluation both the total combined uncertainty associated with the target value of proficiency testing samples and the total uncertainty reported by the participating laboratories. According to the newly adopted approach, the reported results are evaluated against the acceptance criteria for accuracy and precision and assigned the status "acceptable" or "not acceptable" accordingly. A result must pass both criteria to be assigned the final status of "acceptable". The advantage of this approach is that it checks the credibility of uncertainty statement given by the participating laboratories, and results are no longer compared against fixed criteria but participants establish their individual acceptance range on the basis of the uncertainties assigned to the values. Such an approach highlights not only methodological problems affecting the accuracy of the reported data but also identifies shortcomings in uncertainty estimation.

In addition, three other statistical parameters namely: z-score, IAEA/Laboratory result ratio and relative bias are calculated as complementary information for the participating laboratories.

3.1. Relative bias

The first stage in producing a score for a result $\text{Value}_{\text{reported}}$ (a single measurement of analyte concentration in a test material) is obtaining the estimate of the bias. To evaluate the bias of the reported results, the relative bias between the reported value and the target value is calculated and expressed as a percentage:

$$\text{Bias}_{relative} = \frac{\text{Value}_{\text{reported}} - \text{Value}_{\text{target}}}{\text{Value}_{\text{target}}} \times 100\% \quad (1)$$

3.2. The z-score value

The z-score is calculated from the laboratory results, the target value and a standard deviation in accordance with the following equation:

$$z_{Score} = \frac{\text{Value}_{\text{reported}} - \text{Value}_{\text{target}}}{\sigma} \quad (2)$$

On the basis of the "fitness for purpose" principle, the target standard deviation (σ) is:

$$0.10 \text{ x } \text{Value}_{\text{target}}$$

The laboratory performance is evaluated as satisfactory if $|z_{\text{Score}}| \leq 2$; questionable for $2 < |z_{\text{Score}}| < 3$, and unsatisfactory for $|z_{\text{Score}}| \geq 3$.

3.3. The u-score value

The value of the u_{test} was calculated according to the following equation

$$u_{test} = \frac{\left|\text{Value}_{target} - \text{Value}_{reported}\right|}{\sqrt{u^2_{target} + u^2_{reported}}} \quad (3)$$

This value is compared with the critical value listed in the t-statistic tables to determine if the reported result differs significantly from the expected value at a given level of probability. The advantage of the u_{test} is that it takes into consideration the propagation of measurement uncertainties when defining the normalized error. This is especially useful when evaluating results, which uncertainty may overlap with the reference interval.

It should be noted that the choice of the significance level is subjective. For this proficiency test we have set the limiting value for the u-test parameter to 2.58 for a level of probability at 99% to determine if a result passes the test ($u < 2.58$).

3.4. Evaluation procedure

The proficiency test results were evaluated against the acceptance criteria for trueness and precision and assigned the status "Acceptable", "Warning" or "Not Acceptable" accordingly [4].

3.4.1. Trueness

The participant result is assigned "Acceptable" status for trueness if:

$$A1 \leq A2$$

where:

$$A1 = \left|\text{Value}_{target} - \text{Value}_{reported}\right|$$

$$A2 = 2.58 \times \sqrt{u^2_{target} + u^2_{reported}}$$

3.4.2. Assessment of claimed uncertainty

To evaluate the claimed measurement result uncertainty an estimator P is calculated for each reported uncertainty, according to the following formula:

$$P = \sqrt{\left(\frac{u_{target}}{\text{Value}_{target}}\right)^2 + \left(\frac{u_{reported}}{\text{Value}_{reported}}\right)^2} \times 100\%$$

P directly depends on the measurement result uncertainty claimed by the participant. The Limit of Acceptable Precision (LAP) for each analyte respectively is defined for the respective proficiency test in advance, including any adjustment due to the concentration or activity level of the analytes concerned and the complexity of the analytical problem. Participants' results are scored as "acceptable" for the claimed uncertainty when $P \leq LAP$. The LAP values used in the evaluation of all radionuclides are listed in Tables 2 and 3.

In the final evaluation, both scores for trueness and precision are combined. A result must obtain an "acceptable" score in both criteria to be assigned the final score "acceptable". Obviously, if a score of "not acceptable" was obtained for both trueness and precision, the final score will also be "not acceptable". In cases where either precision or trueness is "not

acceptable", a further check is applied. The reported result relative bias (R. Bias) is compared with the maximum acceptable bias (MAB). If R. Bias ≤ MAB, the final score will be "acceptable with warning". "Warning" will reflect mainly two situations. The first situation will be a result with small measurement uncertainty; however its bias is still within MAB. The second situation will appear when result close to the assigned property value is reported, but the associated uncertainty is large. If R. Bias > MAB, the result will be "not acceptable". The MAB values used in the evaluation of all radionuclides are listed in Tables 2 and 3.

4. RESULTS AND DISCUSSION

4.1. General

In this PT, 6505 measurement results were reported to the IAEA from 266 laboratories in 69 countries.

One month after the deadline for reporting results, each participant obtained an individual evaluation report using a dedicated on-line application to give a rapid feed back on the performance of the laboratories.

The participants' data along with the statistical performance evaluation were compiled and sorted by analyte and reported in Appendix I.

The number of reported results and obtained evaluation as acceptable/warning/not acceptable of each laboratory is presented graphically in Figure 10. This way of presenting results evaluation allows the participating laboratories to compare their results to those reported by other laboratories and to benchmark their performance level with peers. In addition, all participating laboratories could share the technical information provided in the Appendix I to identify the commonly applied analytical procedures, the listed information could also be used to find out the weak or strong points in the analytical procedure adopted by each laboratory when comparing the laboratory evaluation results with other participating laboratories.

To have an overview of the participants' performance for each specific radionuclide, each radionuclide was studied individually. Table 4 shows the distribution of results scored as acceptable/warning/not acceptable for each evaluated radionuclide and for each sample.

The S-shape charts of the reported analytical results are presented in Appendix I to give an overall view of the analytical performance of the laboratories population in this PT. The list of participating laboratories is presented in Appendix II.

The overall evaluation showed that 26% of all reported results failed to meet the PT criteria. Contrary to expectation, it was noticed that the percentage of acceptable results for radionuclides in moss-soil was slightly higher (around 10%) than the observed performance level for the water samples. This could be attributed to the relatively low level of radioactivity in water samples.

To compare the performance level of each laboratory a normalized average analytical performance and the percentage of "Not Acceptable" scores were calculated in the following way:

$$\text{Normalized average performance (\%)} = ((A+W)/ NRR)*100$$

$$\text{Percentage of "Not Acceptable scores" (\%)} = (N/NRR)*100$$

Where:

A: number of obtained "Acceptable" scores

W: number of obtained "Warning" scores

N: number of obtained "Not Acceptable" scores

NRR: Total number of reported results.

The results of the calculation are shown in Table 5 in ascending order according to the normalized average performance value.

This approach of presenting the level of performance of all laboratories allows each participant to compare its own performance level with the level of peers.

TABLE 4. SUMMARY EVALUATION OF ALL NUCLIDES SORTED BY SAMPLE

	Radionuclide	No. of reported results	Percentage of "Acceptable" results (%)	Percentage of "Warning" results (%)	Percentage of "Not Acceptable" results (%)
Sample 01 IAEA-447 moss-soil	K-40	247	80	7	13
	Sr-90	79	38	4	58
	Cs-137	250	79	11	10
	Tl-208	205	51	4	45
	Pb-210	178	72	5	23
	Pb-210*	21	76	0	24
	Po-210	59	51	12	37
	Pb-212	179	84	5	11
	Pb-214	218	75	3	22
	Bi-214	217	74	4	21
	Ra-226	189	52	8	40
	Ac-228	226	89	1	10
	Th-234	161	50	18	32
	U-234	88	49	16	35
	U-238	90	49	7	44
	Pu-238	54	44	4	52
	Pu-239+240	76	59	13	28
	Am-241	144	70	11	19
	Am-241*	42	55	7	38
Sample 02 Spiked water	Co-57	242	54	12	34
	Co-60	257	77	6	17
	Cs-134	257	61	8	32
	Cs-137	252	82	4	14
	Eu-152	245	62	11	27
Sample 03 Spiked water	Co-57	231	42	16	42
	Co-60	250	61	16	23
	Cs-134	257	61	8	31
	Cs-137	260	69	8	23
	Eu-152	235	60	12	28
Sample 04 Spiked water	Co-57	241	53	10	37
	Co-60	257	76	6	18
	Cs-134	257	63	7	30
	Cs-137	260	78	6	16
	Eu-152	247	64	11	25

* Radiochemical method

TABLE 5. SUMMARY INDIVIDUAL EVALUATION SORTED BY THE AVERAGE OF PERFORMANCE SCORE

Lab. code	Number of reported results	Scored "Acceptable" results		Scored "Warning" results		Scored "Not Acceptable" results		Normalized Average performance
		#	(%)	#	(%)	#	(%)	(%)
3	29	18	62	11	38	0	0	100
33	12	12	100	0	0	0	0	100
45	26	26	100	0	0	0	0	100
57	25	24	96	1	4	0	0	100
58	24	24	100	0	0	0	0	100
63	31	31	100	0	0	0	0	100
65	27	26	96	1	4	0	0	100
68	18	18	100	0	0	0	0	100
158	15	15	100	0	0	0	0	100
162	17	16	94	1	6	0	0	100
170	24	21	88	3	13	0	0	100
175	29	29	100	0	0	0	0	100
186	15	15	100	0	0	0	0	100
214	19	18	95	1	5	0	0	100
243	15	15	100	0	0	0	0	100
274	30	26	87	4	13	0	0	100
300	25	22	88	3	12	0	0	100
39	33	28	85	4	12	1	3	97
26	32	28	88	3	9	1	3	97
200	31	28	90	2	6	1	3	97
22	30	29	97	0	0	1	3	97
62	30	26	87	3	10	1	3	97
133	30	28	93	1	3	1	3	97
20	28	27	96	0	0	1	4	96
24	27	24	89	2	7	1	4	96
11	26	25	96	0	0	1	4	96
17	26	24	92	1	4	1	4	96
18	26	24	92	1	4	1	4	96
23	26	24	92	1	4	1	4	96
40	26	25	96	0	0	1	4	96
53	26	25	96	0	0	1	4	96
101	26	25	96	0	0	1	4	96
112	26	23	88	2	8	1	4	96
258	26	23	88	2	8	1	4	96
99	25	24	96	0	0	1	4	96
21	24	9	38	14	58	1	4	96
233	24	23	96	0	0	1	4	96
295	24	18	75	5	21	1	4	96
298	21	15	71	5	24	1	5	95
256	20	14	70	5	25	1	5	95
128	19	18	95	0	0	1	5	95
10	16	15	94	0	0	1	6	94
120	30	26	87	2	7	2	7	93
36	29	23	79	4	14	2	7	93
61	29	23	79	4	14	2	7	93
64	29	22	76	5	17	2	7	93
159	28	22	79	4	14	2	7	93
166	28	24	86	2	7	2	7	93
16	27	24	89	1	4	2	7	93
237	27	22	81	3	11	2	7	93

Lab. code	Number of reported results	Scored "Acceptable" results		Scored "Warning" results		Scored "Not Acceptable" results		Normalized Average performance
		#	(%)	#	(%)	#	(%)	(%)
118	26	22	85	2	8	2	8	92
132	26	22	85	2	8	2	8	92
153	26	21	81	3	12	2	8	92
169	26	24	92	0	0	2	8	92
220	26	23	88	1	4	2	8	92
221	26	24	92	0	0	2	8	92
238	26	24	92	0	0	2	8	92
288	26	24	92	0	0	2	8	92
290	26	21	81	3	12	2	8	92
292	26	24	92	0	0	2	8	92
293	26	24	92	0	0	2	8	92
54	25	20	80	3	12	2	8	92
211	25	23	92	0	0	2	8	92
284	25	23	92	0	0	2	8	92
47	24	22	92	0	0	2	8	92
50	24	19	79	3	13	2	8	92
285	25	23	92	0	0	2	8	92
154	23	21	91	0	0	2	9	91
242	23	20	87	1	4	2	9	91
2	11	9	82	1	9	1	9	91
42	22	18	82	2	9	2	9	91
212	22	18	82	2	9	2	9	91
163	32	25	78	4	13	3	9	91
96	21	18	86	1	5	2	10	90
240	21	15	71	4	19	2	10	90
41	31	26	84	2	6	3	10	90
56	31	26	84	2	6	3	10	90
216	30	24	80	3	10	3	10	90
134	29	24	83	2	7	3	10	90
60	28	23	82	2	7	3	11	89
111	28	21	75	4	14	3	11	89
4	18	13	72	3	17	2	11	89
87	27	22	81	2	7	3	11	89
155	9	8	89	0	0	1	11	89
188	18	13	72	3	17	2	11	89
157	26	22	85	1	4	3	12	88
164	26	20	77	3	12	3	12	88
217	26	22	85	1	4	3	12	88
227	26	23	88	0	0	3	12	88
84	25	21	84	1	4	3	12	88
92	25	22	88	0	0	3	12	88
178	25	22	88	0	0	3	12	88
255	25	20	80	2	8	3	12	88
269	25	16	64	6	24	3	12	88
6	24	18	75	3	13	3	13	88
114	32	23	72	5	16	4	13	88
268	24	15	63	6	25	3	13	88
289	24	20	83	1	4	3	13	88
195	23	17	74	3	13	3	13	87
257	23	18	78	2	9	3	13	87
35	15	12	80	1	7	2	13	87
119	30	25	83	1	3	4	13	87

Lab. code	Number of reported results	Scored “Acceptable” results		Scored “Warning” results		Scored “Not Acceptable” results		Normalized Average performance
		#	(%)	#	(%)	#	(%)	(%)
199	30	20	67	6	20	4	13	87
172	22	17	77	2	9	3	14	86
7	29	24	83	1	3	4	14	86
76	29	21	72	4	14	4	14	86
171	29	24	83	1	3	4	14	86
177	29	22	76	3	10	4	14	86
181	27	18	67	5	19	4	15	85
260	27	21	78	2	7	4	15	85
73	20	16	80	1	5	3	15	85
95	33	27	82	1	3	5	15	85
44	26	20	77	2	8	4	15	85
193	26	19	73	3	12	4	15	85
130	32	23	72	4	13	5	16	84
192	25	18	72	3	12	4	16	84
59	31	25	81	1	3	5	16	84
98	18	10	56	5	28	3	17	83
191	30	22	73	3	10	5	17	83
252	29	22	76	2	7	5	17	83
55	28	21	75	2	7	5	18	82
276	28	12	43	11	39	5	18	82
94	27	13	48	9	33	5	19	81
71	32	23	72	3	9	6	19	81
90	21	17	81	0	0	4	19	81
215	21	17	81	0	0	4	19	81
161	26	20	77	1	4	5	19	81
218	26	20	77	1	4	5	19	81
236	31	19	61	6	19	6	19	81
194	25	19	76	1	4	5	20	80
213	20	14	70	2	10	4	20	80
275	25	18	72	2	8	5	20	80
251	34	24	71	3	9	7	21	79
127	24	19	79	0	0	5	21	79
254	24	19	79	0	0	5	21	79
122	33	26	79	0	0	7	21	79
88	28	21	75	1	4	6	21	79
106	23	16	70	2	9	5	22	78
173	23	16	70	2	9	5	22	78
241	22	16	73	1	5	5	23	77
77	35	22	63	5	14	8	23	77
19	26	18	69	2	8	6	23	77
89	26	16	62	4	15	6	23	77
294	26	19	73	1	4	6	23	77
113	21	15	71	1	5	5	24	76
1	25	14	56	5	20	6	24	76
124	25	19	76	0	0	6	24	76
131	25	16	64	3	12	6	24	76
174	25	19	76	0	0	6	24	76
185	29	22	76	0	0	7	24	76
70	32	12	38	12	38	8	25	75
205	12	9	75	0	0	3	25	75
296	24	17	71	1	4	6	25	75
51	27	18	67	2	7	7	26	74

Lab. code	Number of reported results	Scored "Acceptable" results		Scored "Warning" results		Scored "Not Acceptable" results		Normalized Average performance
		#	(%)	#	(%)	#	(%)	(%)
224	15	10	67	1	7	4	27	73
201	26	11	42	8	31	7	27	73
219	26	19	73	0	0	7	27	73
253	26	19	73	0	0	7	27	73
299	26	13	50	6	23	7	27	73
265	33	21	64	3	9	9	27	73
81	29	17	59	4	14	8	28	72
139	18	13	72	0	0	5	28	72
37	25	17	68	1	4	7	28	72
37	25	17	68	1	4	7	28	72
232	25	15	60	3	12	7	28	72
272	32	20	63	3	9	9	28	72
29	21	12	57	3	14	6	29	71
115	21	14	67	1	5	6	29	71
12	31	19	61	3	10	9	29	71
183	24	15	63	2	8	7	29	71
32	30	20	67	1	3	9	30	70
97	20	14	70	0	0	6	30	70
27	23	13	57	3	13	7	30	70
165	26	16	62	2	8	8	31	69
207	29	16	55	4	14	9	31	69
125	35	22	63	2	6	11	31	69
270	22	14	64	1	5	7	32	68
86	31	16	52	5	16	10	32	68
91	31	20	65	1	3	10	32	68
80	27	14	52	4	15	9	33	67
160	27	13	48	5	19	9	33	67
208	21	5	24	9	43	7	33	67
245	24	13	54	3	13	8	33	67
261	32	20	63	1	3	11	34	66
267	32	17	53	4	13	11	34	66
30	29	18	62	1	3	10	34	66
110	29	19	66	0	0	10	34	66
46	26	16	62	1	4	9	35	65
179	26	17	65	0	0	9	35	65
244	26	17	65	0	0	9	35	65
168	23	13	57	2	9	8	35	65
278	23	9	39	6	26	8	35	65
176	17	10	59	1	6	6	35	65
297	28	17	61	1	4	10	36	64
34	25	11	44	5	20	9	36	64
210	30	17	57	2	7	11	37	63
72	27	14	52	3	11	10	37	63
136	24	14	58	1	4	9	38	63
138	26	13	50	3	12	10	38	62
140	23	14	61	0	0	9	39	61
31	28	12	43	5	18	11	39	61
259	28	14	50	3	11	11	39	61
93	30	12	40	6	20	12	40	60
103	5	3	60	0	0	2	40	60
107	15	2	13	7	47	6	40	60
271	20	9	45	3	15	8	40	60

Lab. code	Number of reported results	Scored "Acceptable" results		Scored "Warning" results		Scored "Not Acceptable" results		Normalized Average performance
		#	(%)	#	(%)	#	(%)	(%)
279	25	14	56	1	4	10	40	60
182	17	7	41	3	18	7	41	59
239	24	14	58	0	0	10	42	58
105	14	7	50	1	7	6	43	57
156	7	4	57	0	0	3	43	57
52	32	16	50	2	6	14	44	56
184	16	8	50	1	6	7	44	56
226	16	8	50	1	6	7	44	56
79	25	11	44	3	12	11	44	56
190	26	5	19	9	35	12	46	54
9	15	8	53	0	0	7	47	53
75	15	8	53	0	0	7	47	53
234	19	9	47	1	5	9	47	53
143	23	8	35	4	17	11	48	52
8	4	2	50	0	0	2	50	50
264	34	14	41	3	9	17	50	50
277	16	8	50	0	0	8	50	50
141	27	9	33	4	15	14	52	48
209	25	11	44	1	4	13	52	48
144	21	5	24	5	24	11	52	48
38	19	8	42	1	5	10	53	47
85	15	7	47	0	0	8	53	47
187	15	5	33	2	13	8	53	47
246	30	11	37	3	10	16	53	47
109	26	9	35	3	12	14	54	46
100	22	4	18	6	27	12	55	45
126	22	8	36	2	9	12	55	45
250	18	7	39	1	6	10	56	44
202	23	9	39	1	4	13	57	43
5	30	13	43	0	0	17	57	43
82	30	9	30	4	13	17	57	43
263	28	9	32	3	11	16	57	43
123	26	10	38	1	4	15	58	42
83	25	10	40	0	0	15	60	40
145	15	6	40	0	0	9	60	40
249	18	7	39	0	0	11	61	39
235	24	7	29	2	8	15	63	38
146	20	6	30	1	5	13	65	35
25	23	7	30	1	4	15	65	35
13	27	9	33	0	0	18	67	33
14	25	8	32	0	0	17	68	32
167	16	3	19	2	13	11	69	31
283	18	5	28	0	0	13	72	28
43	22	6	27	0	0	16	73	27
203	4	1	25	0	0	3	75	25
74	25	4	16	2	8	19	76	24
230	14	2	14	1	7	11	79	21
152	33	7	21	0	0	26	79	21
121	19	2	11	2	11	15	79	21
78	29	5	17	1	3	23	79	21
15	20	2	10	2	10	16	80	20
206	16	2	13	1	6	13	81	19

Lab. code	Number of reported results	Scored “Acceptable” results		Scored “Warning” results		Scored “Not Acceptable” results		Normalized Average performance
		#	(%)	#	(%)	#	(%)	(%)
204	11	0	0	2	18	9	82	18
197	25	2	8	2	8	21	84	16
142	20	1	5	2	10	17	85	15
223	23	1	4	2	9	20	87	13
151	31	4	13	0	0	27	87	13
273	24	1	4	2	8	21	88	13
286	11	0	0	1	9	10	91	9
150	32	1	3	1	3	30	94	6
137	14	0	0	0	0	14	100	0

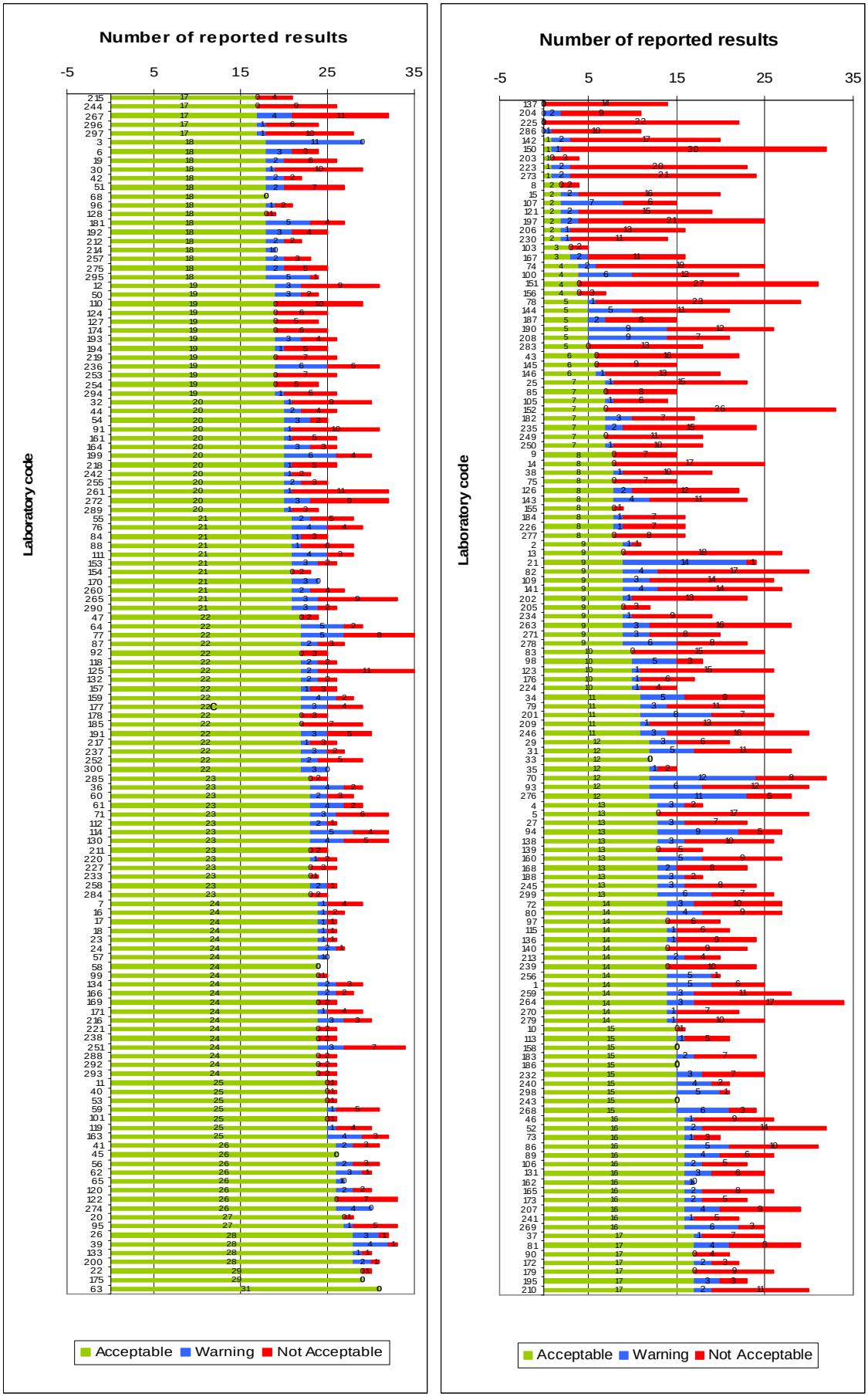


Figure 10. Performance evaluation results sorted by the number of acceptable results obtained

4.2. General recommendations to the participating laboratories and lessons learned

Based on the evaluation of the results certain recommendations to enhance the analytical performance of the participating laboratories could be suggested. It is evident that the skills and experience of the analyst performing the analysis at the time of the PT samples analysis is the crucial factor in obtaining acceptable results. Proper equipment, well trained staff and appropriate chemicals and materials are of course important factors in obtaining reliable and good quality results.

Laboratories with codes: 5, 13, 14, 15, 25, 43, 74, 78, 82, 83, 121, 123, 142, 150, 151, 152, 197, 223, 235, 246, 263, 264, 273 have to perform experiments related to method validation and robustness studies of the analytical procedure applied. It is well known that robustness studies could assist the analyst to know the strong and weak points of the method, where more time should be invested to find what the critical points in the procedure are. When a laboratory reports more than 15 not acceptable analytical results it means that it has not the appropriate tools to verify the quality of the produced results. In this case, the laboratory should apply a dedicated quality control mechanism to assess the validity/quality of the results produced. This could include the use of reference materials to verify the trueness of the measurement results, or analysis of spiked materials to check any matrix effect. Duplicate and replicate analysis of in-house reference materials is useful to evaluate the method precision. In adition, frequent control of the blanks and/or background is essential to control any contamination in the analytical system. If the analyst does not perform regular quality control checks as indicated above, erroneous results could be reported without being detected.

The analytical system is a complex one, it even interacts extensively with human factors and with the specific conditions of the laboratory. Therefore, there is always a probability of analytical problems which could lead to shortcomings. However, the laboratory should focus, after detection of the shortcoming, on finding out the root cause of the analytical problem and to put the needed actions to remediate the problem and obtain satisfactory results. The quality system has to be designed to enhance continuous improvement of the quality of the produced results.

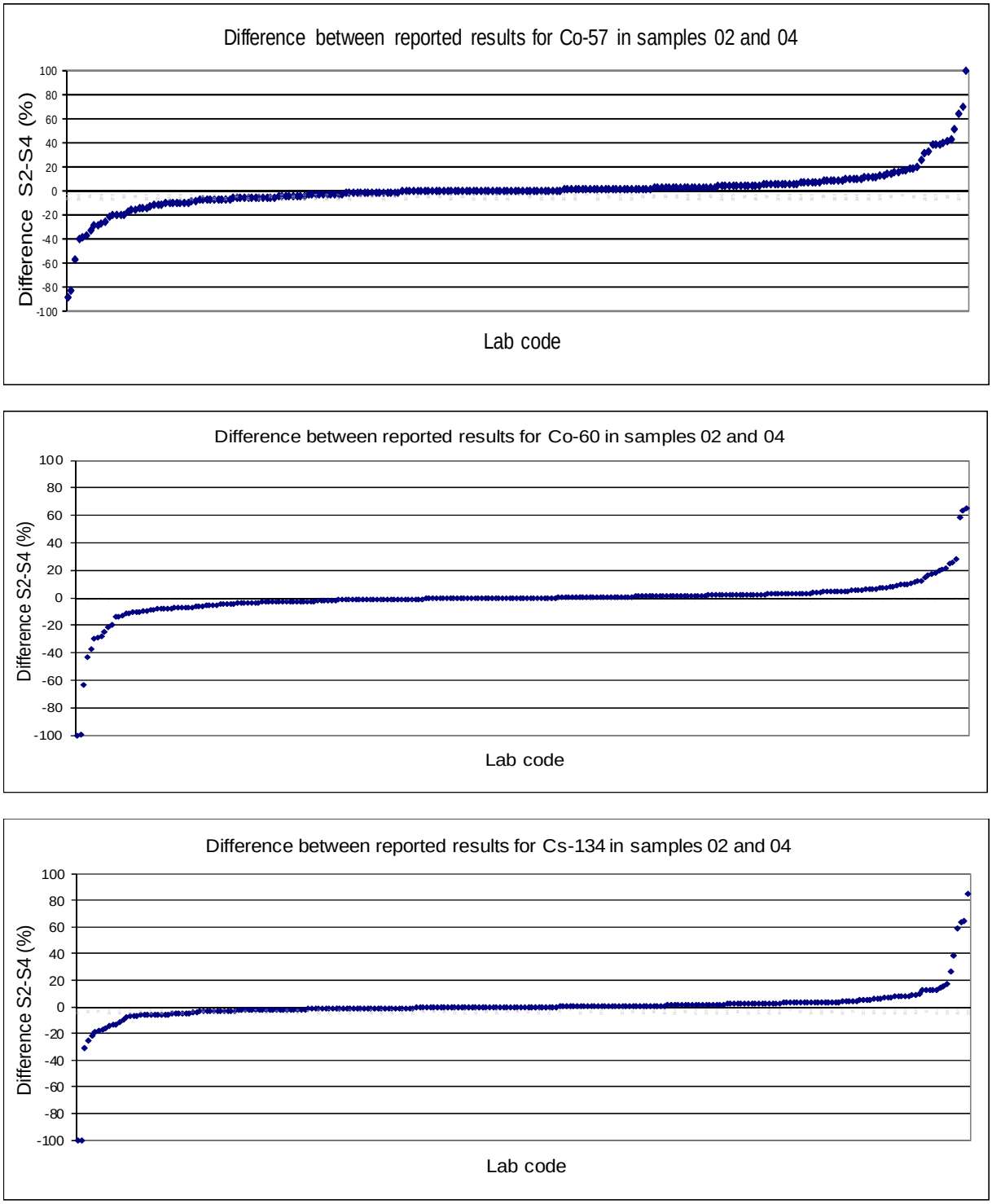
4.3. Recommendations regarding gamma emitting radionuclides in water

Three water samples (sample 2, 3 and 4) spiked with Co-57, Co-60, Cs-134, Cs-137 and Eu-152 were analyzed by the participating laboratories. Samples 2 and 4 were identical and prepared in one batch. The aim of analyzing duplicate samples in this PT was to assess the within-run variability of the analytical system *i.e.* the analytical system's repeatability. Figure 11 shows the difference in reported results for Co-57 in the duplicate samples 02 and 04. It was noticed that 25% of reported results showed a level of variability higher than 10% for two measurement results of the same activity concentration in the same matrix in the same laboratory. This variability could be attributed to the summing effect observed in Co-57 spectra.

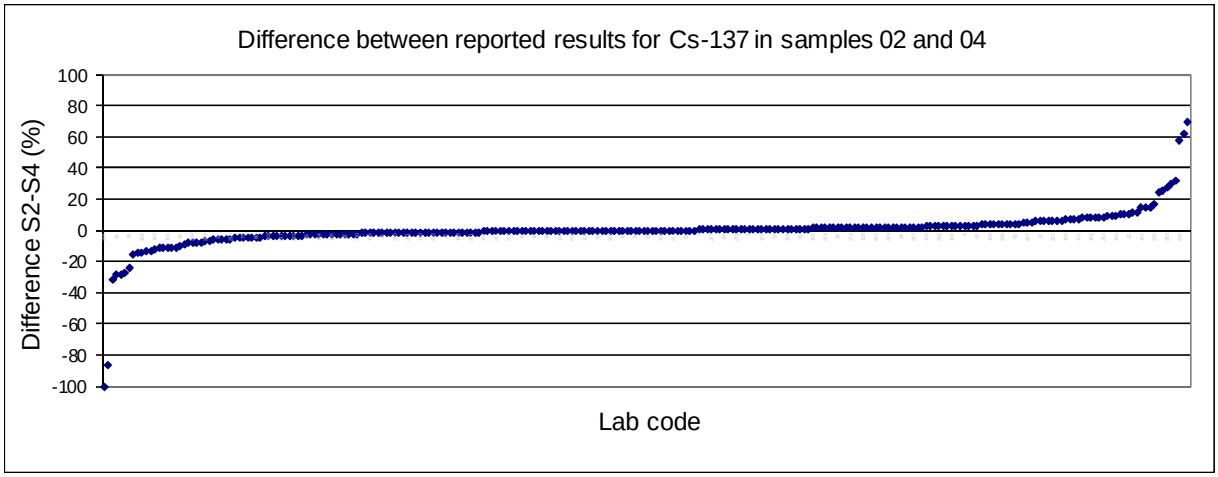
It was observed that the isotopic combination of water samples caused certain analytical difficulties for the laboratories which is related to the cascade decayed isotopes and the overlapping of the main peaks of Co-57 and Eu-152. Co-57 was the most difficult due to the strong overlapping of Cs-134 with its true coincidence summing effect.

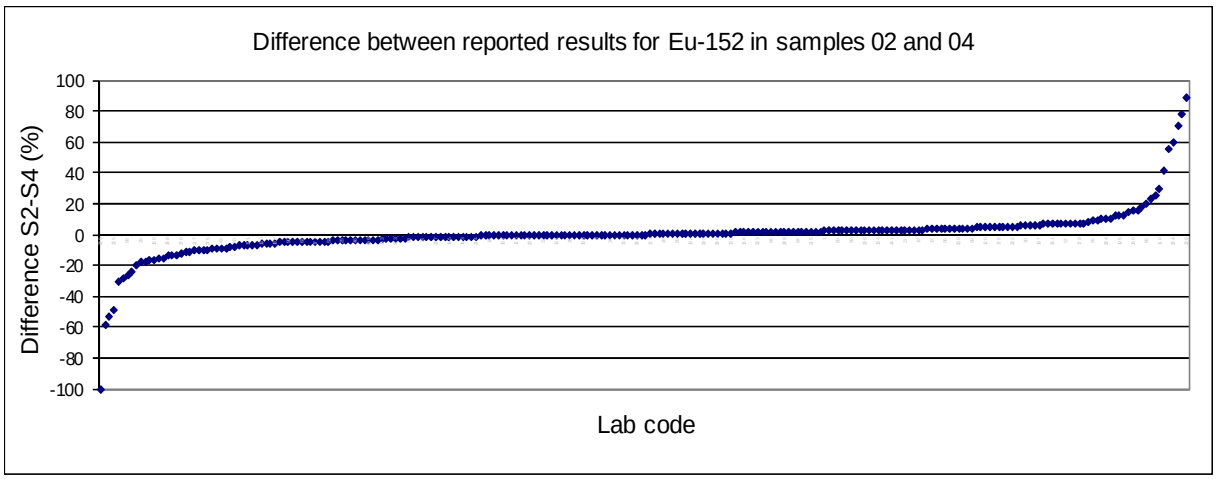
Therefore, the observed difference between duplicate samples of Co-60, Cs-134, Cs-137 and Eu-152 was substantially smaller than the observed one for Co-57 as it can be seen in Figures 12, 13, 14 and 15.

In general, it can be noticed that after three runs of the world wide PT the overall performance of the gamma spectrometry community in determination of Co-60, Cs-134 and Cs-137 has been improved not only in terms of better trueness and commutability (comparability), but also in terms of smaller and more realistically estimated measurement results uncertainties. Figures 16 and 17 demonstrate the observed improvement.

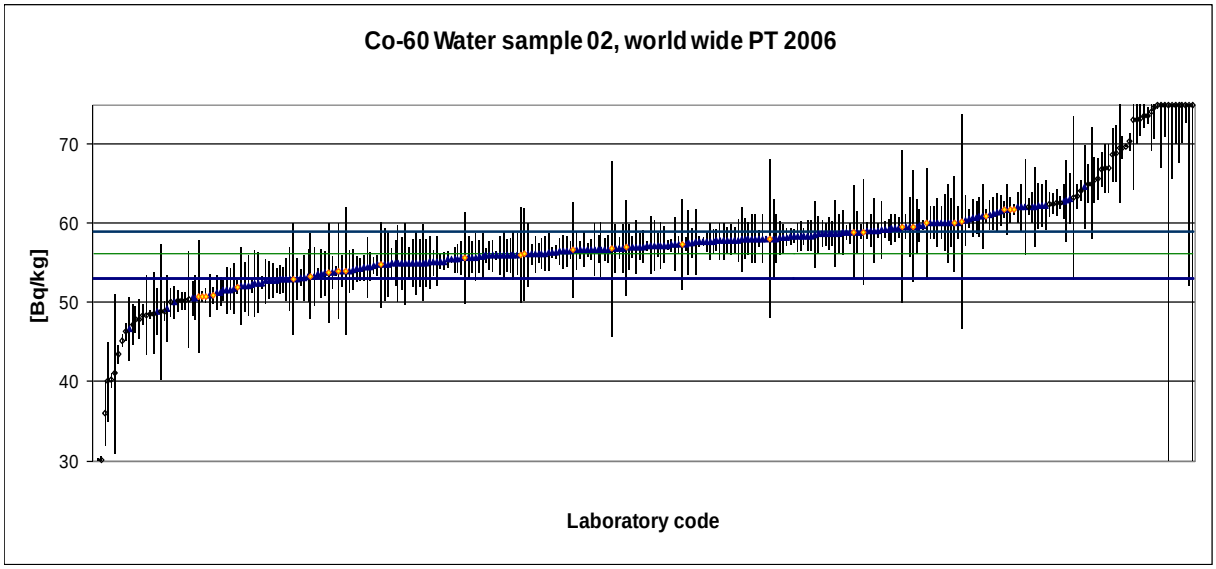


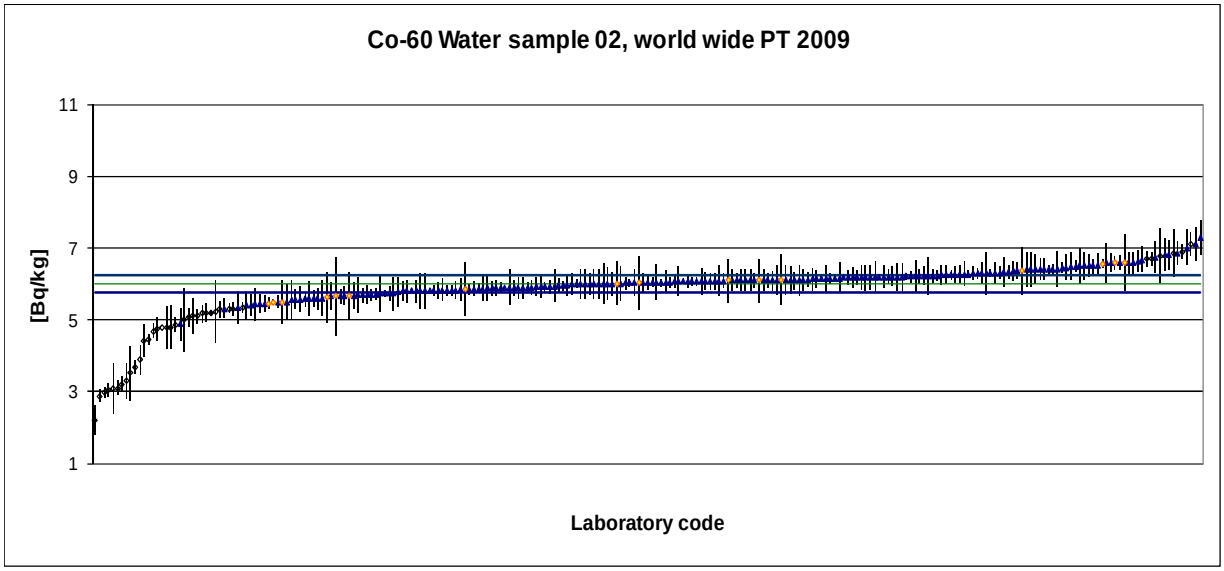
Figures 11, 12 and 13. Difference between reported results for Co-57, Co-60 and Cs-134 in the duplicate samples 02 and 04.





Figures 14 and 15. Difference between reported results for Cs-137 and Eu-152 in the duplicate samples 02 and 04.





Figures 16 and 17. S-shape of the analytical results of Co-60 in water samples reported in the world wide PT 2006 and world wide PT 2009, the improvement of reported measurement results and associated uncertainties can be observed.

4.4. Recommendations related to the analysis of Pb-210 in moss-soil sample

The majority of participating laboratories measured Pb-210 in moss-soil at 46.52 keV using gamma spectrometry with high resolution detector of different types and calibration methods. It can be noticed that the level of analytical performance using gamma spectroscopy has been improved comparing to the results of the PT conducted in 2006. The percentage of acceptable results in 2009 PT is 20% higher than in 2006 PT.

It was observed that the main reasons for unacceptable performance in Pb-210 measurements are the following:

- Extrapolation of the efficiency calibration curve to estimate the efficiency at 46.52 keV which could lead to a substantial error as the efficiency curve at this region has a significant slope as shown in figure 18,
- Inappropriate estimation of the absorption factor,
- Absence of a rigid quality control and validation of the produced analytical results such as using duplicate analysis of samples and/or analysis of spiked samples,
- Inappropriate estimation of the spectral background as the background could vary in time and it has to be verified frequently taking into account different parameters such as season and ventilation system working time. Many laboratories consider the background a constant parameter and do not verify its stability. Figure 19 shows the variation of the background value.

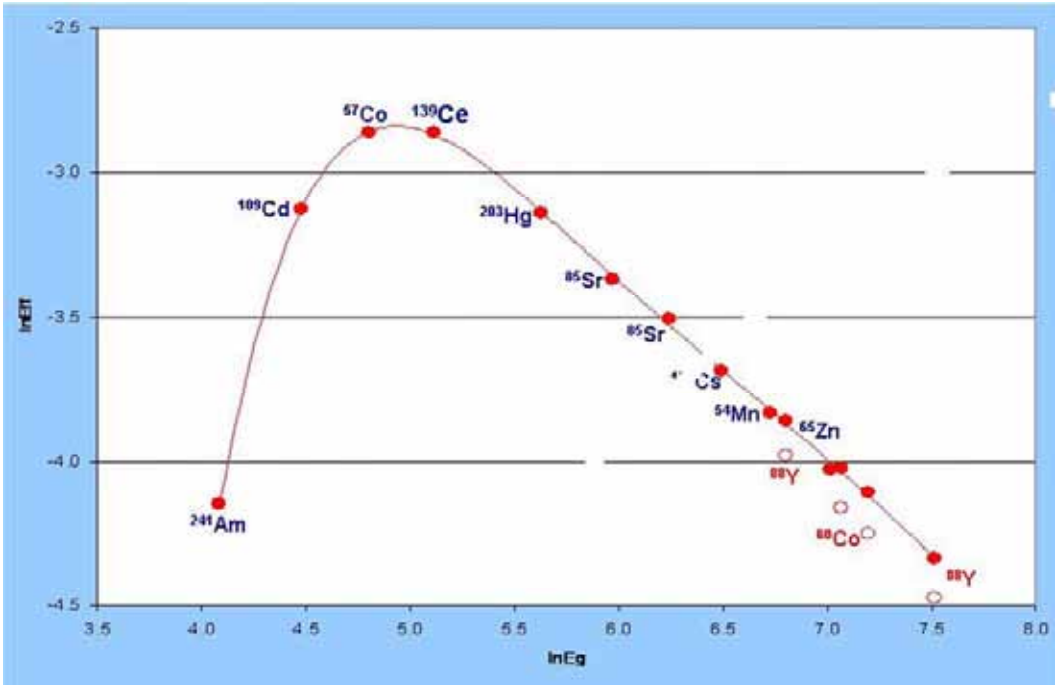


Figure 18. A typical efficiency calibration curve used in gamma spectrometry where Am-241 is the lower energy used for calibration, extrapolation of Pb-210 could lead to a significant error.

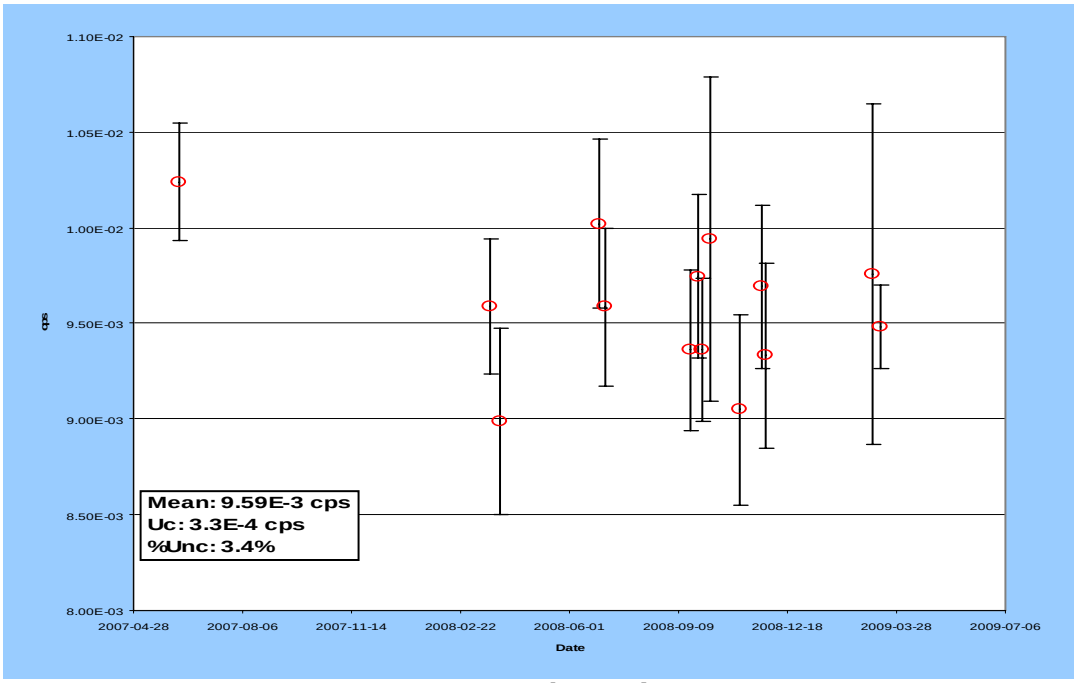


Figure 19. Background variations.

Some laboratories stated that they used gamma detectors with energy range from 200 keV which might be not suitable for Pb-210 measurement; also some laboratories extrapolated the efficiency calibration to cover the Pb-210 energy which resulted in not acceptable results. The most frequent reasons for failure in Pb-210 are discussed in more details in [5, 6].

4.5. Recommendations related to the analysis of Ra-226 in moss-soil sample

The majority of participating laboratories measured Ra-226 in moss-soil using gamma spectrometry with high resolution detector of different type.

In general, there are two approaches used for Ra-226 determination by gamma spectrometry. These are the use of the 186 keV line from Ra-226, and use of gamma lines from the short-lived progeny Pb-214 and Bi-214. In the former case, the contribution of U-235 to the peak area needs to be allowed for, and if an inappropriate correction is applied, this may lead to shortcomings in performance.

As shown in Figure 20, most of the unacceptable results were due to overestimation of the Ra-226 which could be due to the unresolved U-235 peak or due to an incorrect calibration.

The shortcomings observed in the performance of the participating laboratories in gamma measurements of Ra-226 could be attributed to several factors. These factors are related to the gamma spectrometry procedure utilised by each laboratory. Some of these factors are the use of inappropriate calibration standards or procedure, sample geometry, interference from other gamma lines, and properties of the sample container used.

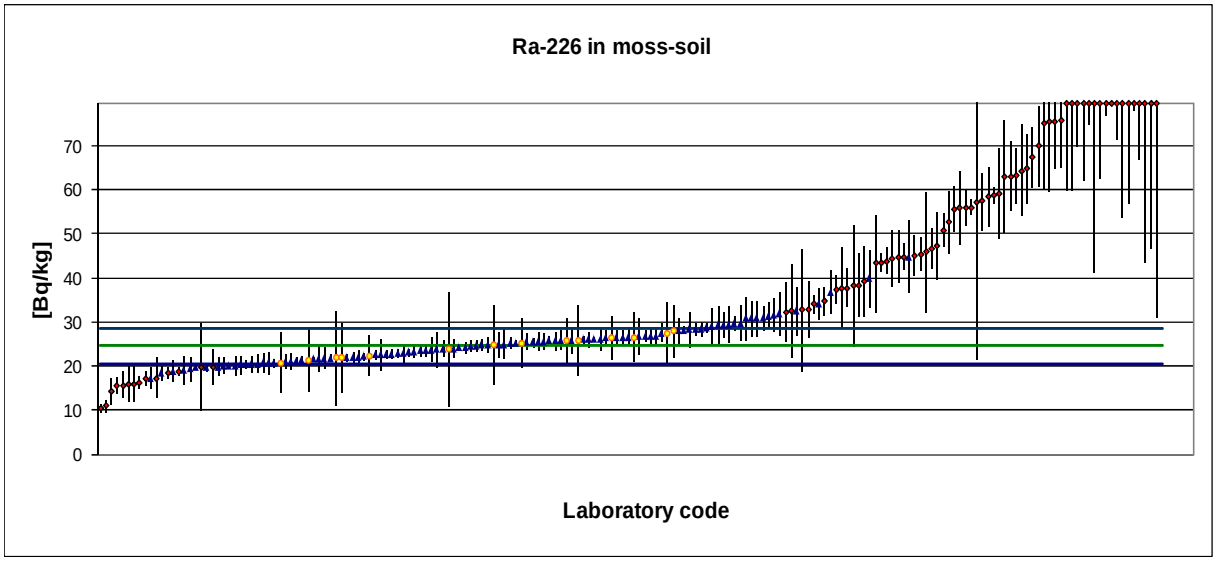


Figure 20. S-shape presentation of the Ra-226 results, the majority of unacceptable results was due to overestimation of the Ra-226 massic activity.

In the latter case, the sample container used has to be Rn-222 tight. Many laboratories reported the use of plastic containers for gamma spectrometry measurements. The analysts in this case assumed the tightness of such containers. However, in practice most plastic containers are not Rn-222 tight and they allow the emanation of the noble gas (in some cases even through the walls of the container). Special containers should be used and validated for Ra-222 tightness and not only air tightness. Note that a problem with Rn-222 tightness of the container could lead to a bias in either direction, depending on the relative loss of Rn-222 from the calibration and test containers. In addition, one issue should be considered which is the time required to establish secular equilibrium between Ra-226 and its daughters; most laboratories using this approach use a delay period of at least 3 weeks.

Many laboratories applied radiochemical separation and alpha spectrometry measurement. Technical details of successful application of digestion procedure, radiochemical separation and auto-plating were reported by the participating laboratories.

4.6. Lessons learned related to Tl-208 determinations

Tl-208 was a problematic radionuclide as it can be seen in Figure 21. Two distinct populations of reported results could be observed. The majority of the laboratories reported a measurement result around 13 Bq/kg, the second group of laboratories reported a result around 37 Bq/kg.

This discrepancy occurred due to the fact that in the Th-232 series, Bi-212 is one of the problematic radionuclides as it decays to Tl-208 and Po-212 with emission intensity of 35.93% and 64.03% respectively as illustrated in Table 6 [LARA Database, 2008 CEA-R-6201, ISSN 0429-3460] and Figure 22 [7, page 227].

TABLE 6. DECAY BRANCHING RATIOS OF Bi-212

Isotope	Decay mode	Branching ratio, %	Progeny, T(1/2)
Bi-212	Alpha	35.93	Tl-208, 3.06 min
T(1/2)=60.54 min	Beta	64.07	Po-212, 300 ns

Tl-208 is a well detectable gamma-emitter and several old databases and gamma-libraries (very often provided by the manufacturers of the spectrum evaluation software) are containing the Tl-208 gamma lines with a corrected abundance by the branching ratio. Using this type of library, the software calculates the activity back to the mother element to facilitate the comparison with other gamma-emitters of this series. However, the physical activity of Tl-208 is less in proportion with the branching ratio which is equal to 0.3593. In case of the moss-soil, the analyst task was to determine the massic activity of Tl-208.

Considering the reported results, most of the participating laboratories were using the correct gamma-abundance values for this isotope.

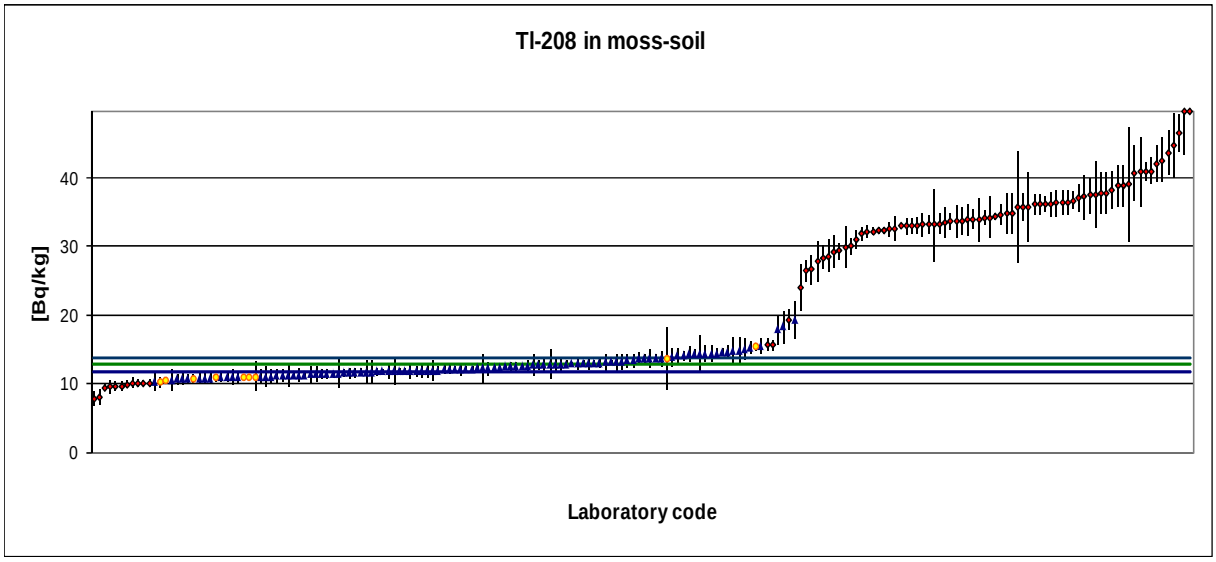


Figure 21. S-shape presentation of the Tl-208 results, two splited results population due to wrong calculation.

However, up to 40% of the laboratories reported unacceptable overestimated results due the use of wrong gamma-abundance values for Tl-208, which means that the applied gamma library should be revised accordingly.

Generally speaking, nuclear data library in a gamma-spectrometry laboratory should be a controlled document within the frame of the laboratory quality system and the master file of the library should be stored in a safe manner to preserve its integrity and it should be updated according to a written procedure. Gamma spectroscopists might modify the library content to meet specific needs, but these modifications and their technical justification should be documented and known to the system. Nuclear data library should be protected from unauthorised use or technically unjustified modification.

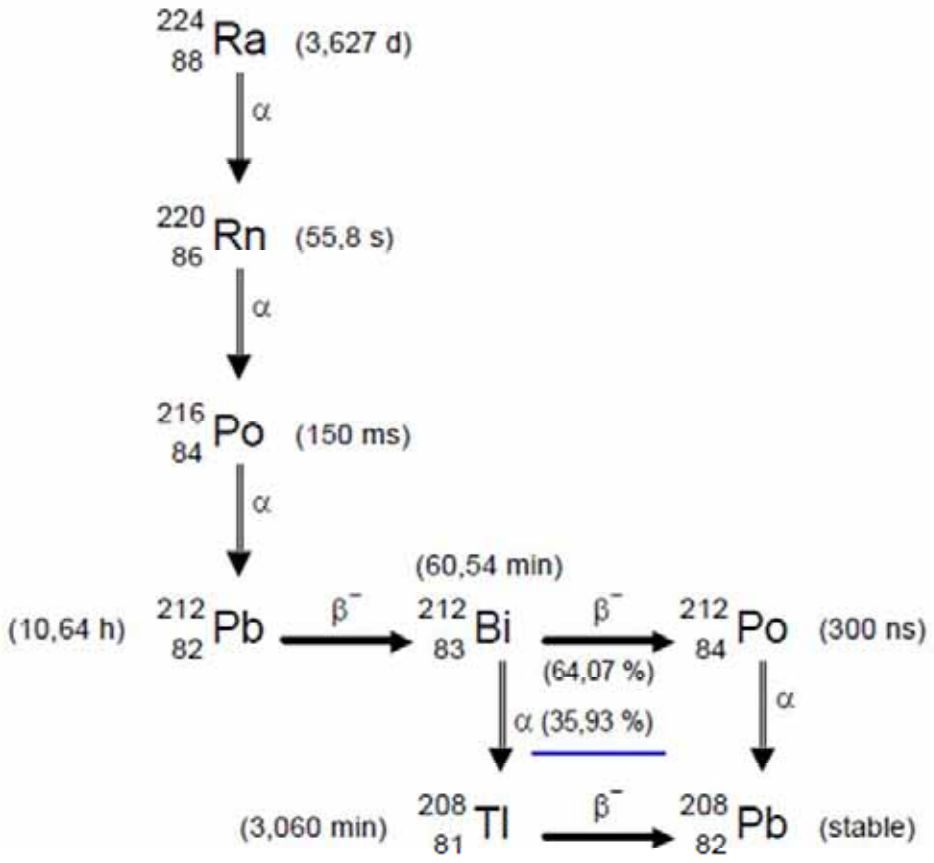


Figure 22. Part of the Thorium radioactive series LARA data Table page 227.

4.7. Lessons learned related to radiochemical determinations

In this PT, it was observed that the number of participating laboratories that reported their results using radiochemical procedures was three times less than those who used gamma spectrometry (GS). It is obvious that the laboratory infrastructure and analytical skills in radiochemical procedures (RCP) are more demanding.

In general, it was found that the level of performance of laboratories performing RCP was lower than those performing GS.

For instance, Am-241 in the moss-soil was analyzed by the participating laboratories using both GS and RCP; the percentage of not acceptable results was 19% and 38% for GS and RCP respectively.

In the case of Sr-90, 48% of the reported results failed to meet the PT criteria, 25% of the laboratories reported overestimated results with more than 100% bias as it can be seen in Figure 23. The overestimation of Sr-90 results could be attributed to difficulties in the radiochemical. During the radiochemical separation, if the Sr-Ra was not perfectly separated and Ra remains in the Sr fraction, this could cause an overestimation in Sr-90 activity result.

In such a case, the analyst has to revise the analytical procedure to assure a complete separation of Ra.

Equally successful determinations using GS and RCP were reported only for Pb-210. The applied RCP was based on the separation of Pb-210 after the addition of a stable carrier according to the method of chromate precipitation followed by lead chloride precipitation, then mixing the source with scintillation cocktail and performing the measurement using a Liquid Scintillation Spectrometer.

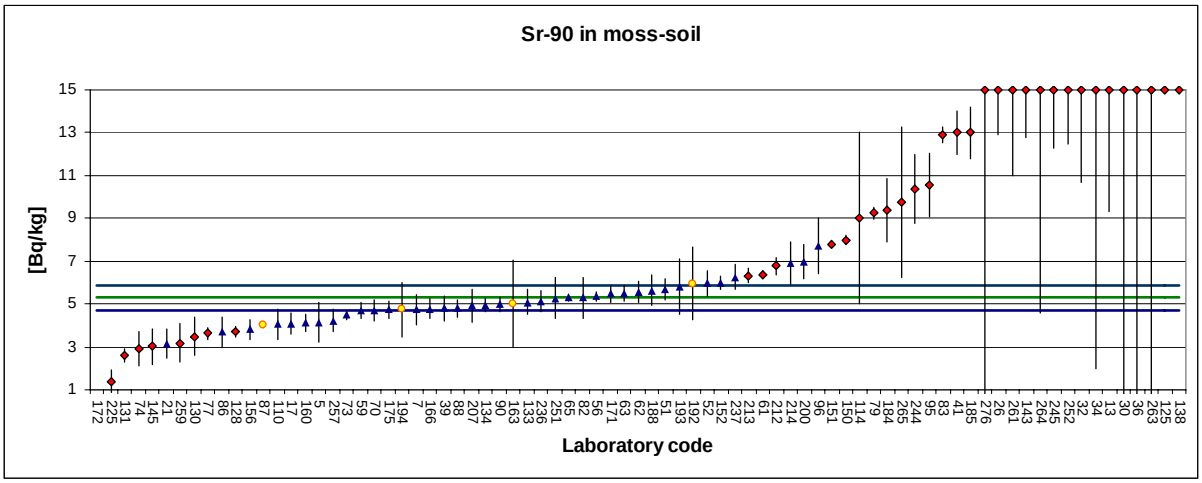


Figure 23. S-shape presentation of the Sr-90 results, the majority of unacceptable results is due to overestimation of the Sr-90 massic activity.

For Pu-238, 52% of reported results were not acceptable. Many laboratories failed in proper implementation of the procedure which resulted in not acceptable results, the exact technical reason for the shortcoming should be investigated. Little information was reported in the questionnaire on the chemical recovery correction. The main reason for unacceptable results could be attributed but not limited to a non validated radiochemical procedure, inappropriate control of the method blank, matrix reference or spiked materials were not used to verify the correctness of the application of the RCP and/or inappropriate quality control mechanism.

5. CONCLUSIONS

The IAEA-CU-2009-03 world wide PT on environmental radioactivity measurements of natural and artificial radionuclides in moss-soil and water was completed successfully. Most of the participating laboratories were able to quantify certain number of radionuclides of interest in moss-soil and water. It was found that 26% of all reported results did not pass the proficiency test acceptance criteria.

The performance evaluation of artificial and natural gamma emitting radionuclides using gamma spectroscopy in this PT showed a substantial improvement in performance compared to previous proficiency tests organised in 2006 and 2007. The quality of the results produced for Pb-210 and Am-241 was also improved. The improvement was observed not only regarding the trueness of the reported results but also the estimation of measurement results uncertainty.

This PT shows the need for further improvement of the radiochemical analytical procedures for determination of natural and transuranic radionuclides at low level of radioactivity and the need for capacity building of such analytical procedures in some Member States laboratories.

The analytical performance of environmental radioactivity measurements using radiochemical procedures did not meet the acceptance criteria of this PT. A second PT on the same radionuclides is recommended to assess improvements in the analytical performance based on the lessons learned in this PT.

This PT provided the opportunity to improve the world-wide measurement results commutability (comparability) and reliability of the environmental radioactivity determinations of natural and artificial radionuclides in environmental matrices.

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APPENDIX I
PERFORMANCE EVALUATION TABLES SORTED BY ANALYTE

All results listed in this Appendix are expressed in Bq/kg units at a reference date set to 15 November 2009.

The abbreviations used in the table header are explained below:

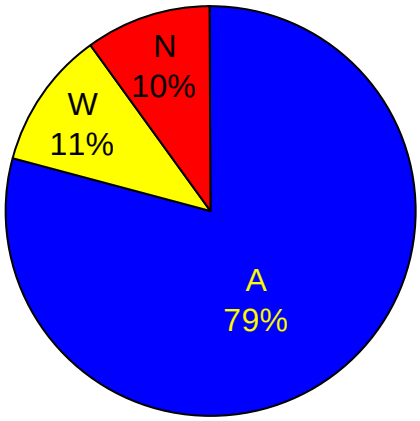
Rep. Value:	Reported measurement result value for the analyte of interest in Bq kg^{-1}.
Rep. Unc.	Reported standard measurement result uncertainty in Bq kg^{-1}.
Unc. [%]	Reported standard measurement result uncertainty in percentage.
Rel. Bias	Relative bias calculated according to formula (1) in paragraph 3.1.
A1 and A2	Evaluation estimators for trueness please see 3.4 in the report body.
True	Evaluation score for Trueness please see 3.4 in the report body.
P	Evaluation estimator for precision please sees 3.4 in the report body.
Prec.	Evaluation score for Precision, please see 3.4 in the report body.
A	Acceptable: The reported measurement result fulfils the PT criteria.
W	Acceptable with Warning: Although the relative bias of the reported measurement result meets the PT criteria, but a flag was raised due to either underestimated or overestimated measurement result uncertainty.
N	Not Acceptable: The reported measurement result did not fulfil the PT criteria.

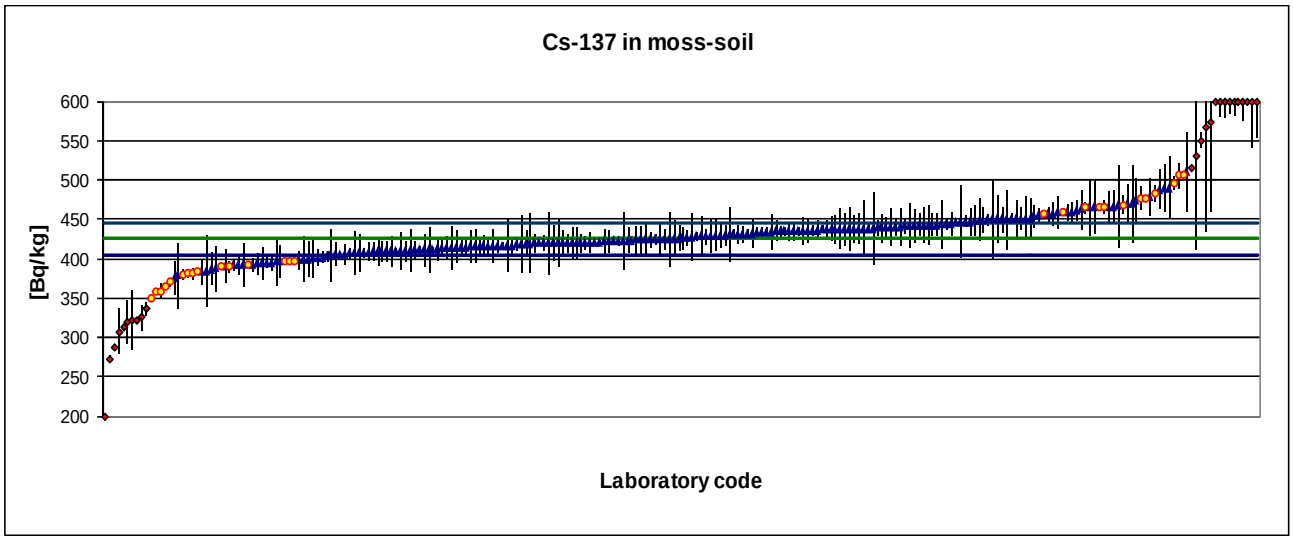
The evaluation results are presented in ascending order of the laboratory code.

Performance evaluation of Cs-137 measurement results

IAEA-447 Moss-soil reference material

Target Value: 425 ± 10 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
1	375.7	21.4	5.70	-11.61	49.4	60.9	A	6.2	A	A
2	458.8	2.4	0.53	7.95	33.8	26.6	N	2.4	A	W
3	420.0	40.0	9.52	-1.18	5.0	106.4	A	9.8	A	A
4	381.0	6.0	1.57	-10.35	44.0	30.1	N	2.8	A	W
5	443.0	24.0	5.42	4.24	18.0	67.1	A	5.9	A	A
6	423.9	18.4	4.34	-0.26	1.1	54.0	A	4.9	A	A
7	419.8	9.3	2.22	-1.22	5.2	35.3	A	3.2	A	A
10	420.4	8.5	2.02	-1.09	4.6	33.9	A	3.1	A	A
11	438.6	45.7	10.42	3.20	13.6	120.7	A	10.7	A	A
12	431.0	35.0	8.12	1.41	6.0	93.9	A	8.5	A	A
13	394.4	7.1	1.79	-7.21	30.7	31.6	A	3.0	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
14	439.0	9.9	2.24	3.29	14.0	36.2	A	3.3	A	A
15	321.7	4.6	1.42	-24.30	103.3	28.4	N	2.7	A	N
16	425.0	7.0	1.65	0.00	0.0	31.5	A	2.9	A	A
17	419.0	16.0	3.82	-1.41	6.0	48.7	A	4.5	A	A
18	434.0	6.0	1.38	2.12	9.0	30.1	A	2.7	A	A
19	456.0	6.0	1.32	7.29	31.0	30.1	N	2.7	A	W
20	432.0	6.0	1.39	1.65	7.0	30.1	A	2.7	A	A
21	447.0	46.0	10.29	5.18	22.0	121.5	A	10.6	A	A
22	435.1	5.5	1.26	2.38	10.1	29.4	A	2.7	A	A
23	451.0	6.0	1.33	6.12	26.0	30.1	A	2.7	A	A
24	438.5	5.5	1.25	3.18	13.5	29.4	A	2.7	A	A
25	407.6	24.5	6.00	-4.10	17.4	68.2	A	6.4	A	A
26	393.8	13.3	3.38	-7.33	31.2	42.9	A	4.1	A	A
27	572.5	114.0	19.92	34.70	147.5	295.4	A	20.1	N	N
29	428.0	6.0	1.40	0.71	3.0	30.1	A	2.7	A	A
30	422.1	14.3	3.39	-0.68	2.9	45.0	A	4.1	A	A
31	451.0	24.0	5.32	6.12	26.0	67.1	A	5.8	A	A
32	409.0	18.4	4.50	-3.76	16.0	54.0	A	5.1	A	A
33	416.2	21.9	5.26	-2.07	8.8	62.1	A	5.8	A	A
34	420.0	23.0	5.48	-1.18	5.0	64.7	A	6.0	A	A
35	411.0	12.2	2.97	-3.29	14.0	40.7	A	3.8	A	A
36	450.0	7.0	1.56	5.88	25.0	31.5	A	2.8	A	A
37	443.5	31.1	7.01	4.35	18.5	84.3	A	7.4	A	A
38	516.0	0.0	0.00	21.41	91.0	25.8	N	2.4	A	N
39	399.0	29.0	7.27	-6.12	26.0	79.1	A	7.6	A	A
40	440.0	23.0	5.23	3.53	15.0	64.7	A	5.7	A	A
41	423.0	5.0	1.18	-0.47	2.0	28.8	A	2.6	A	A
42	466.0	20.0	4.29	9.65	41.0	57.7	A	4.9	A	A
43	437.0	15.0	3.43	2.82	12.0	46.5	A	4.2	A	A
44	450.2	16.4	3.64	5.93	25.2	49.6	A	4.3	A	A
45	410.0	13.0	3.17	-3.53	15.0	42.3	A	3.9	A	A
46	416.0	21.0	5.05	-2.12	9.0	60.0	A	5.6	A	A
47	444.0	6.8	1.53	4.47	19.0	31.2	A	2.8	A	A
50	415.6	20.8	5.00	-2.21	9.4	59.5	A	5.5	A	A
51	505.5	16.5	3.26	18.94	80.5	49.8	N	4.0	A	W
52	410.0	20.0	4.88	-3.53	15.0	57.7	A	5.4	A	A
53	451.0	14.0	3.10	6.12	26.0	44.4	A	3.9	A	A
54	419.0	38.0	9.07	-1.41	6.0	101.4	A	9.4	A	A
55	438.0	28.0	6.39	3.06	13.0	76.7	A	6.8	A	A
56	443.0	15.0	3.39	4.24	18.0	46.5	A	4.1	A	A
57	401.0	24.9	6.21	-5.65	24.0	69.2	A	6.6	A	A
58	437.0	18.0	4.12	2.82	12.0	53.1	A	4.7	A	A
59	458.0	15.0	3.28	7.76	33.0	46.5	A	4.0	A	A
60	392.0	8.0	2.04	-7.76	33.0	33.0	A	3.1	A	A
61	408.7	12.2	2.99	-3.84	16.3	40.7	A	3.8	A	A
62	438.0	17.5	4.00	3.06	13.0	52.0	A	4.6	A	A
63	436.8	11.6	2.66	2.78	11.8	39.5	A	3.5	A	A
64	420.7	1.1	0.26	-1.01	4.3	26.0	A	2.4	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
65	441.0	9.3	2.11	3.76	16.0	35.2	A	3.2	A	A
68	456.0	10.0	2.19	7.29	31.0	36.5	A	3.2	A	A
70	470.0	50.0	10.64	10.59	45.0	131.6	A	10.9	A	A
71	421.2	5.6	1.33	-0.89	3.8	29.6	A	2.7	A	A
72	411.7	2.3	0.57	-3.14	13.4	26.5	A	2.4	A	A
73	490.0	30.0	6.12	15.29	65.0	81.6	A	6.6	A	A
74	431.0	6.0	1.39	1.41	6.0	30.1	A	2.7	A	A
76	416.2	8.6	2.07	-2.07	8.8	34.0	A	3.1	A	A
77	381.6	7.5	1.97	-10.21	43.4	32.3	N	3.1	A	W
78	550.0	9.2	1.68	29.41	125.0	35.1	N	2.9	A	N
79	496.0	9.0	1.81	16.71	71.0	34.7	N	3.0	A	W
80	464.8	7.3	1.57	9.36	39.8	31.9	N	2.8	A	W
81	394.8	10.9	2.76	-7.11	30.2	38.2	A	3.6	A	A
82	807.9	2.5	0.31	90.09	382.9	26.6	N	2.4	A	N
83	335.7	8.4	2.51	-21.01	89.3	33.8	N	3.4	A	N
84	437.0	26.0	5.95	2.82	12.0	71.9	A	6.4	A	A
85	418.2	9.0	2.15	-1.60	6.8	34.7	A	3.2	A	A
86	400.0	23.0	5.75	-5.88	25.0	64.7	A	6.2	A	A
87	435.0	5.0	1.15	2.35	10.0	28.8	A	2.6	A	A
88	410.0	5.0	1.22	-3.53	15.0	28.8	A	2.7	A	A
89	433.5	6.5	1.51	2.01	8.5	30.8	A	2.8	A	A
90	444.0	14.5	3.27	4.47	19.0	45.4	A	4.0	A	A
91	420.0	30.0	7.14	-1.18	5.0	81.6	A	7.5	A	A
92	424.0	19.0	4.48	-0.24	1.0	55.4	A	5.1	A	A
93	455.1	9.3	2.04	7.08	30.1	35.2	A	3.1	A	A
94	467.0	52.0	11.13	9.88	42.0	136.6	A	11.4	A	A
95	384.0	46.0	11.98	-9.65	41.0	121.5	A	12.2	A	A
96	465.0	35.0	7.53	9.41	40.0	93.9	A	7.9	A	A
97	750.0	25.0	3.33	76.47	325.0	69.5	N	4.1	A	N
99	433.0	6.0	1.39	1.88	8.0	30.1	A	2.7	A	A
100	450.0	50.0	11.11	5.88	25.0	131.6	A	11.4	A	A
101	510.0	50.0	9.80	20.00	85.0	131.6	A	10.1	A	A
106	466.1	20.6	4.42	9.67	41.1	59.1	A	5.0	A	A
109	1110.0	59.0	5.32	161.18	685.0	154.4	N	5.8	A	N
110	388.0	29.2	7.53	-8.71	37.0	79.6	A	7.9	A	A
111	410.0	23.0	5.61	-3.53	15.0	64.7	A	6.1	A	A
112	435.0	12.0	2.76	2.35	10.0	40.3	A	3.6	A	A
113	401.6	7.7	1.91	-5.50	23.4	32.5	A	3.0	A	A
114	450.0	30.0	6.67	5.88	25.0	81.6	A	7.1	A	A
115	439.3	13.7	3.12	3.36	14.3	43.8	A	3.9	A	A
118	403.0	6.0	1.49	-5.18	22.0	30.1	A	2.8	A	A
119	441.0	28.0	6.35	3.76	16.0	76.7	A	6.8	A	A
120	435.0	12.0	2.76	2.35	10.0	40.3	A	3.6	A	A
121	731.0	5.5	0.76	72.00	306.0	29.5	N	2.5	A	N
122	412.5	15.0	3.64	-2.94	12.5	46.5	A	4.3	A	A
123	392.0	12.0	3.06	-7.76	33.0	40.3	A	3.9	A	A
124	413.7	15.8	3.82	-2.66	11.3	48.2	A	4.5	A	A
125	454.0	14.0	3.08	6.82	29.0	44.4	A	3.9	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
126	434.0	22.0	5.07	2.12	9.0	62.3	A	5.6	A	A
127	459.7	12.9	2.81	8.16	34.7	42.1	A	3.7	A	A
128	414.0	29.0	7.00	-2.59	11.0	79.1	A	7.4	A	A
130	436.0	15.0	3.44	2.59	11.0	46.5	A	4.2	A	A
131	434.6	13.0	3.00	2.27	9.6	42.4	A	3.8	A	A
132	417.1	10.8	2.58	-1.86	7.9	37.9	A	3.5	A	A
133	432.0	18.0	4.17	1.65	7.0	53.1	A	4.8	A	A
134	423.0	6.7	1.58	-0.47	2.0	31.1	A	2.8	A	A
136	458.8	10.4	2.27	7.95	33.8	37.2	A	3.3	A	A
137	287.5	3.8	1.31	-32.34	137.5	27.6	N	2.7	A	N
138	387.0	20.0	5.17	-8.94	38.0	57.7	A	5.7	A	A
139	410.0	12.6	3.07	-3.53	15.0	41.5	A	3.9	A	A
140	458.6	20.3	4.42	7.91	33.6	58.3	A	5.0	A	A
141	436.7	4.3	0.98	2.75	11.7	28.1	A	2.5	A	A
142	397.4	0.0	0.01	-6.50	27.6	25.8	N	2.4	A	W
143	465.3	3.5	0.75	9.48	40.3	27.3	N	2.5	A	W
144	423.3	4.8	1.14	-0.40	1.7	28.7	A	2.6	A	A
145	445.8	1.6	0.36	4.88	20.8	26.1	A	2.4	A	A
146	442.4	14.0	3.16	4.09	17.4	44.4	A	3.9	A	A
150	598.6	3.4	0.57	40.85	173.6	27.3	N	2.4	A	N
151	599.0	20.0	3.34	40.94	174.0	57.7	N	4.1	A	N
152	600.0	20.0	3.33	41.18	175.0	57.7	N	4.1	A	N
153	450.3	37.7	8.36	5.96	25.3	100.5	A	8.7	A	A
154	449.0	27.0	6.01	5.65	24.0	74.3	A	6.5	A	A
155	415.0	20.0	4.82	-2.35	10.0	57.7	A	5.4	A	A
157	429.0	22.0	5.13	0.94	4.0	62.3	A	5.6	A	A
159	408.0	7.0	1.72	-4.00	17.0	31.5	A	2.9	A	A
160	419.8	2.2	0.53	-1.23	5.2	26.4	A	2.4	A	A
161	410.7	26.8	6.53	-3.36	14.3	73.8	A	6.9	A	A
162	395.7	31.2	7.89	-6.89	29.3	84.6	A	8.2	A	A
163	428.0	25.0	5.84	0.71	3.0	69.5	A	6.3	A	A
164	447.9	19.8	4.42	5.38	22.9	57.2	A	5.0	A	A
165	325.0	16.0	4.92	-23.53	100.0	48.7	N	5.5	A	N
166	442.9	23.1	5.22	4.21	17.9	64.9	A	5.7	A	A
168	397.1	3.6	0.91	-6.56	27.9	27.4	N	2.5	A	W
169	439.0	18.0	4.10	3.29	14.0	53.1	A	4.7	A	A
170	430.0	20.0	4.65	1.18	5.0	57.7	A	5.2	A	A
171	469.0	25.0	5.33	10.35	44.0	69.5	A	5.8	A	A
172	436.0	6.0	1.38	2.59	11.0	30.1	A	2.7	A	A
173	428.5	9.9	2.30	0.82	3.5	36.3	A	3.3	A	A
174	420.4	12.2	2.90	-1.08	4.6	40.7	A	3.7	A	A
175	425.0	21.0	4.94	0.00	0.0	60.0	A	5.5	A	A
176	272.6	3.0	1.10	-35.86	152.4	26.9	N	2.6	A	N
177	359.0	3.0	0.84	-15.53	66.0	26.9	N	2.5	A	W
178	398.0	11.1	2.79	-6.35	27.0	38.5	A	3.6	A	A
179	420.0	16.0	3.81	-1.18	5.0	48.7	A	4.5	A	A
181	392.3	3.6	0.90	-7.69	32.7	27.4	N	2.5	A	W
182	506.0	4.0	0.79	19.06	81.0	27.8	N	2.5	A	W

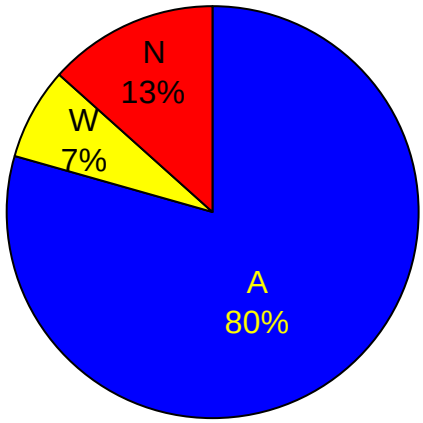
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
183	468.0	12.0	2.56	10.12	43.0	40.3	N	3.5	A	W
185	431.0	12.0	2.78	1.41	6.0	40.3	A	3.6	A	A
188	405.0	33.0	8.15	-4.71	20.0	89.0	A	8.5	A	A
190	321.7	37.5	11.66	-24.30	103.3	100.1	N	11.9	A	N
191	411.2	20.1	4.89	-3.25	13.8	58.0	A	5.4	A	A
192	416.0	11.0	2.64	-2.12	9.0	38.4	A	3.5	A	A
193	443.0	14.0	3.16	4.24	18.0	44.4	A	3.9	A	A
194	424.0	20.0	4.72	-0.24	1.0	57.7	A	5.3	A	A
195	415.0	12.0	2.89	-2.35	10.0	40.3	A	3.7	A	A
197	1591.0	46.7	2.94	274.35	1166.0	123.2	N	3.8	A	N
199	405.0	15.0	3.70	-4.71	20.0	46.5	A	4.4	A	A
200	415.0	12.0	2.89	-2.35	10.0	40.3	A	3.7	A	A
201	365.2	2.2	0.60	-14.06	59.8	26.4	N	2.4	A	W
202	442.2	21.7	4.90	4.05	17.2	61.6	A	5.4	A	A
204	566.0	133.0	23.50	33.18	141.0	344.1	A	23.6	N	N
205	409.4	13.3	3.26	-3.68	15.6	43.0	A	4.0	A	A
206	476.2	2.5	0.53	12.04	51.2	26.6	N	2.4	A	W
207	476.0	15.0	3.15	12.00	51.0	46.5	N	3.9	A	W
208	379.0	42.0	11.08	-10.82	46.0	111.4	A	11.3	A	A
209	389.4	1.9	0.50	-8.37	35.6	26.3	N	2.4	A	W
210	390.0	22.0	5.64	-8.24	35.0	62.3	A	6.1	A	A
211	425.0	13.0	3.06	0.00	0.0	42.3	A	3.9	A	A
212	440.0	11.3	2.57	3.53	15.0	38.9	A	3.5	A	A
213	379.8	6.6	1.73	-10.63	45.2	30.9	N	2.9	A	W
214	434.9	7.4	1.70	2.33	9.9	32.1	A	2.9	A	A
215	413.1	10.9	2.64	-2.80	11.9	38.1	A	3.5	A	A
216	447.0	7.1	1.59	5.18	22.0	31.6	A	2.8	A	A
217	451.2	25.3	5.62	6.17	26.2	70.3	A	6.1	A	A
218	416.5	3.5	0.85	-1.99	8.5	27.4	A	2.5	A	A
219	437.0	20.0	4.58	2.82	12.0	57.7	A	5.1	A	A
220	418.6	36.4	8.70	-1.50	6.4	97.4	A	9.0	A	A
221	438.3	35.4	8.08	3.13	13.3	94.9	A	8.4	A	A
223	307.3	29.5	9.60	-27.70	117.7	80.4	N	9.9	A	N
226	416.0	13.0	3.13	-2.12	9.0	42.3	A	3.9	A	A
227	425.6	16.9	3.96	0.13	0.6	50.6	A	4.6	A	A
230	474.7	27.4	5.77	11.69	49.7	75.2	A	6.2	A	A
232	420.0	12.0	2.86	-1.18	5.0	40.3	A	3.7	A	A
233	423.0	36.0	8.51	-0.47	2.0	96.4	A	8.8	A	A
234	394.0	20.0	5.08	-7.29	31.0	57.7	A	5.6	A	A
235	349.6	2.9	0.82	-17.74	75.4	26.8	N	2.5	A	W
236	408.0	12.0	2.94	-4.00	17.0	40.3	A	3.8	A	A
237	416.1	10.4	2.50	-2.09	8.9	37.2	A	3.4	A	A
238	407.0	8.0	1.97	-4.24	18.0	33.0	A	3.1	A	A
239	436.0	12.0	2.75	2.59	11.0	40.3	A	3.6	A	A
240	406.0		0.00	-4.47	19.0	25.8	A	2.4	A	A
241	427.0	30.0	7.03	0.47	2.0	81.6	A	7.4	A	A
242	423.3	16.1	3.80	-0.40	1.7	48.9	A	4.5	A	A
244	422.0	16.0	3.79	-0.71	3.0	48.7	A	4.5	A	A

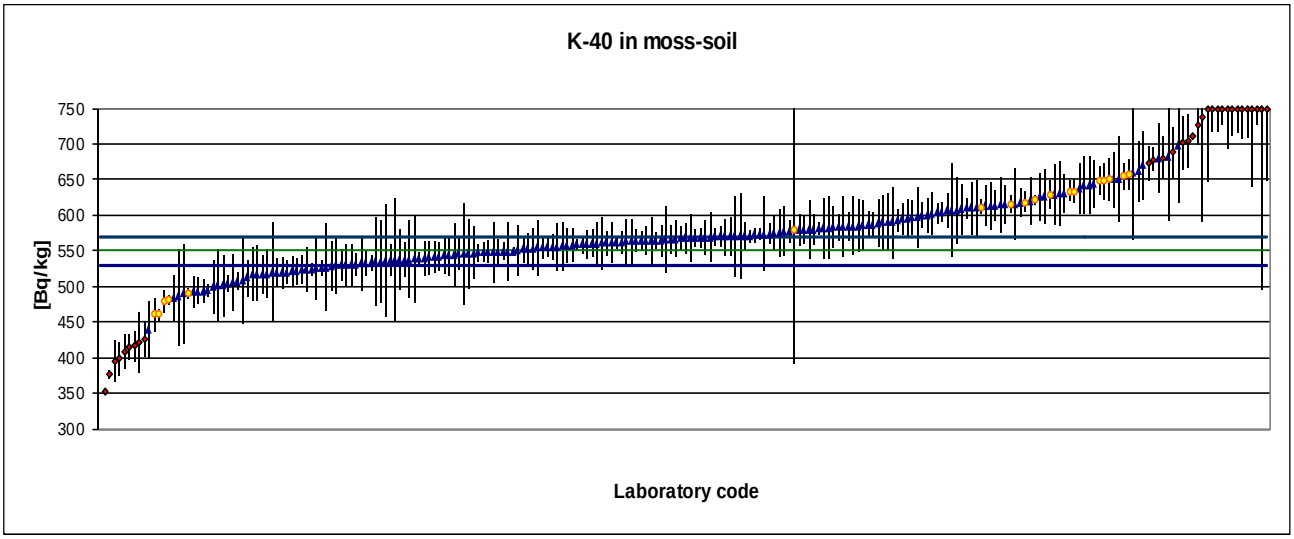
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
245	370.0	5.0	1.35	-12.94	55.0	28.8	N	2.7	A	W
246	313.0	1.5	0.47	-26.35	112.0	26.1	N	2.4	A	N
249	663.0	17.2	2.60	56.00	238.0	51.4	N	3.5	A	N
250	652.0	17.1	2.62	53.41	227.0	51.1	N	3.5	A	N
251	451.0	27.0	5.99	6.12	26.0	74.3	A	6.4	A	A
252	420.2	11.8	2.81	-1.13	4.8	39.9	A	3.7	A	A
253	406.0	13.0	3.20	-4.47	19.0	42.3	A	4.0	A	A
254	424.0	9.0	2.12	-0.24	1.0	34.7	A	3.2	A	A
255	411.0	6.0	1.46	-3.29	14.0	30.1	A	2.8	A	A
256	417.0	33.0	7.91	-1.88	8.0	89.0	A	8.3	A	A
257	430.0	15.0	3.49	1.18	5.0	46.5	A	4.2	A	A
258	425.1	22.8	5.36	0.02	0.1	64.2	A	5.9	A	A
259	396.1	20.7	5.22	-6.80	28.9	59.2	A	5.7	A	A
260	463.0	25.0	5.40	8.94	38.0	69.5	A	5.9	A	A
261	465.0	33.0	7.10	9.41	40.0	89.0	A	7.5	A	A
263	449.0	16.0	3.56	5.65	24.0	48.7	A	4.3	A	A
264	447.0	17.2	3.85	5.18	22.0	51.3	A	4.5	A	A
265	383.0	3.7	0.96	-9.88	42.0	27.5	N	2.5	A	W
267	383.0	15.4	4.01	-9.88	42.0	47.3	A	4.6	A	A
268	465.6	9.1	1.95	9.55	40.6	34.9	N	3.1	A	W
269	435.8	17.1	3.92	2.54	10.8	51.1	A	4.6	A	A
270	390.0	7.7	1.97	-8.24	35.0	32.6	N	3.1	A	W
271	359.1	9.4	2.62	-15.51	65.9	35.4	N	3.5	A	W
272	419.4	10.8	2.58	-1.32	5.6	38.0	A	3.5	A	A
273	530.2	118.1	22.27	24.75	105.2	305.8	A	22.4	N	N
274	430.0	13.0	3.02	1.18	5.0	42.3	A	3.8	A	A
275	482.4	10.6	2.19	13.51	57.4	37.5	N	3.2	A	W
276	490.0	40.0	8.16	15.29	65.0	106.4	A	8.5	A	A
277	426.4	9.7	2.27	0.34	1.4	35.9	A	3.3	A	A
278	392.0	28.0	7.14	-7.76	33.0	76.7	A	7.5	A	A
279	461.8	12.8	2.77	8.66	36.8	41.9	A	3.6	A	A
283	401.0	10.9	2.71	-5.64	24.0	38.1	A	3.6	A	A
284	407.4	28.5	7.00	-4.13	17.6	78.0	A	7.4	A	A
285	411.2	28.8	7.00	-3.25	13.8	78.6	A	7.4	A	A
286	3.2	0.2	4.63	-99.24	421.8	25.8	N	5.2	A	N
288	478.0	24.0	5.02	12.47	53.0	67.1	A	5.5	A	A
289	438.0	20.0	4.57	3.06	13.0	57.7	A	5.1	A	A
290	488.0	25.0	5.12	14.82	63.0	69.5	A	5.6	A	A
292	420.0	20.0	4.76	-1.18	5.0	57.7	A	5.3	A	A
293	420.0	20.0	4.76	-1.18	5.0	57.7	A	5.3	A	A
294	426.0	14.0	3.29	0.24	1.0	44.4	A	4.0	A	A
295	392.3	8.8	2.24	-7.69	32.7	34.4	A	3.3	A	A
296	320.0	28.0	8.75	-24.71	105.0	76.7	N	9.1	A	N
297	431.0	11.0	2.55	1.41	6.0	38.4	A	3.5	A	A
298	397.2	1.2	0.30	-6.55	27.9	26.0	N	2.4	A	W
299	440.0	24.0	5.45	3.53	15.0	67.1	A	5.9	A	A
300	425.0	34.0	8.00	0.00	0.0	91.4	A	8.3	A	A

Performance evaluation of K-40 measurement results

IAEA-447 Moss-soil reference material

Target Value: 550 ± 20 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
1	632.5	47.7	7.5	15.0	82.5	133.4	A	8.4	A	A
2	626.0	32.7	5.2	13.8	76.0	98.9	A	6.4	A	A
3	520.0	70.0	13.5	-5.5	30.0	187.8	A	13.9	A	A
4	539.0	61.0	11.3	-2.0	11.0	165.6	A	11.9	A	A
5	587.0	36.0	6.1	6.7	37.0	106.3	A	7.1	A	A
6	561.6	28.1	5.0	2.1	11.6	89.0	A	6.2	A	A
7	533.4	11.2	2.1	-3.0	16.6	59.1	A	4.2	A	A
10	503.9	12.0	2.4	-8.4	46.1	60.2	A	4.3	A	A
11	537.9	54.8	10.2	-2.2	12.1	150.5	A	10.8	A	A
12	535.0	63.0	11.8	-2.7	15.0	170.5	A	12.3	A	A
13	562.6	15.7	2.8	2.3	12.6	65.5	A	4.6	A	A
14	871.0	56.4	6.5	58.4	321.0	154.4	N	7.4	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
15	375.8	5.6	1.5	-31.7	174.2	53.6	N	3.9	A	N
16	564.0	14.0	2.5	2.5	14.0	63.0	A	4.4	A	A
17	580.0	22.0	3.8	5.5	30.0	76.7	A	5.3	A	A
18	571.0	9.0	1.6	3.8	21.0	56.6	A	4.0	A	A
19	611.0	10.0	1.6	11.1	61.0	57.7	N	4.0	A	W
20	562.0	9.0	1.6	2.2	12.0	56.6	A	4.0	A	A
21	607.0	66.0	10.9	10.4	57.0	177.9	A	11.5	A	A
22	539.0	9.0	1.7	-2.0	11.0	56.6	A	4.0	A	A
23	570.0	15.0	2.6	3.6	20.0	64.5	A	4.5	A	A
24	558.6	8.4	1.5	1.6	8.6	56.0	A	3.9	A	A
25	95.9	5.8	6.0	-82.6	454.1	53.7	N	7.0	A	N
26	590.0	39.4	6.7	7.3	40.0	113.9	A	7.6	A	A
27	738.6	147.1	19.9	34.3	188.6	383.1	A	20.3	N	N
30	567.3	25.7	4.5	3.1	17.3	84.0	A	5.8	A	A
31	543.0	26.0	4.8	-1.3	7.0	84.6	A	6.0	A	A
32	517.5	38.5	7.4	-5.9	32.5	111.9	A	8.3	A	A
34	563.0	32.0	5.7	2.4	13.0	97.4	A	6.7	A	A
35	628.0	19.7	3.1	14.2	78.0	72.4	N	4.8	A	W
36	618.0	20.0	3.2	12.4	68.0	73.0	A	4.9	A	A
37	554.0	39.0	7.0	0.7	4.0	113.1	A	7.9	A	A
38	712.0	0.0	0.0	29.5	162.0	51.6	N	3.6	A	N
39	518.0	27.0	5.2	-5.8	32.0	86.7	A	6.4	A	A
40	563.0	33.0	5.9	2.4	13.0	99.6	A	6.9	A	A
41	539.0	24.0	4.5	-2.0	11.0	80.6	A	5.7	A	A
42	642.0	40.0	6.2	16.7	92.0	115.4	A	7.2	A	A
43	602.0	30.0	5.0	9.5	52.0	93.0	A	6.2	A	A
44	564.7	22.3	3.9	2.7	14.7	77.2	A	5.4	A	A
45	560.0	19.0	3.4	1.8	10.0	71.2	A	5.0	A	A
46	492.0	22.0	4.5	-10.5	58.0	76.7	A	5.8	A	A
47	615.1	26.3	4.3	11.8	65.1	85.2	A	5.6	A	A
50	582.1	43.7	7.5	5.8	32.1	124.0	A	8.3	A	A
51	680.1	48.6	7.1	23.7	130.1	135.6	A	8.0	A	A
52	520.0	20.0	3.8	-5.5	30.0	73.0	A	5.3	A	A
53	530.0	40.0	7.5	-3.6	20.0	115.4	A	8.4	A	A
54	546.0	49.0	9.0	-0.7	4.0	136.5	A	9.7	A	A
55	561.0	37.0	6.6	2.0	11.0	108.5	A	7.5	A	A
56	604.0	14.0	2.3	9.8	54.0	63.0	A	4.3	A	A
57	483.0	31.6	6.5	-12.2	67.0	96.5	A	7.5	A	A
58	570.0	25.0	4.4	3.6	20.0	82.6	A	5.7	A	A
59	564.0	20.0	3.5	2.5	14.0	73.0	A	5.1	A	A
60	618.0	14.0	2.3	12.4	68.0	63.0	N	4.3	A	W
61	478.8	15.1	3.2	-12.9	71.2	64.7	N	4.8	A	W
62	537.0	22.9	4.3	-2.4	13.0	78.4	A	5.6	A	A
63	563.8	15.4	2.7	2.5	13.8	65.1	A	4.5	A	A
64	552.5	19.2	3.5	0.5	2.5	71.5	A	5.0	A	A
65	554.0	14.4	2.6	0.7	4.0	63.6	A	4.5	A	A
68	590.0	40.0	6.8	7.3	40.0	115.4	A	7.7	A	A
70	698.0	80.0	11.5	26.9	148.0	212.8	A	12.0	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
71	569.9	11.7	2.1	3.6	19.9	59.8	A	4.2	A	A
72	564.2	11.0	1.9	2.6	14.2	58.9	A	4.1	A	A
73	650.0	30.0	4.6	18.2	100.0	93.0	N	5.9	A	W
74	395.0	29.0	7.3	-28.2	155.0	90.9	N	8.2	A	N
76	548.0	12.0	2.2	-0.4	2.0	60.2	A	4.2	A	A
77	549.4	11.5	2.1	-0.1	0.6	59.5	A	4.2	A	A
78	678.0	16.6	2.4	23.3	128.0	67.1	N	4.4	A	N
79	726.0	27.0	3.7	32.0	176.0	86.7	N	5.2	A	N
80	583.0	29.0	5.0	6.0	33.0	90.9	A	6.2	A	A
81	545.8	71.2	13.0	-0.8	4.2	190.8	A	13.5	A	A
82	524.2	8.4	1.6	-4.7	25.8	55.9	A	4.0	A	A
83	426.3	24.9	5.8	-22.5	123.7	82.4	N	6.9	A	N
84	553.0	28.0	5.1	0.5	3.0	88.8	A	6.2	A	A
85	575.0	24.0	4.2	4.5	25.0	80.6	A	5.5	A	A
86	564.0	34.0	6.0	2.5	14.0	101.8	A	7.0	A	A
87	581.0	9.0	1.5	5.6	31.0	56.6	A	4.0	A	A
88	568.0	17.0	3.0	3.3	18.0	67.7	A	4.7	A	A
89	630.9	27.1	4.3	14.7	80.9	86.9	A	5.6	A	A
90	629.0	42.3	6.7	14.4	79.0	120.7	A	7.6	A	A
91	590.0	50.0	8.5	7.3	40.0	138.9	A	9.2	A	A
92	570.0	27.0	4.7	3.6	20.0	86.7	A	6.0	A	A
93	655.0	19.0	2.9	19.1	105.0	71.2	N	4.7	A	W
94	660.0	93.0	14.1	20.0	110.0	245.4	A	14.6	A	A
95	537.0	87.0	16.2	-2.4	13.0	230.3	A	16.6	A	A
96	630.0	45.0	7.1	14.5	80.0	127.1	A	8.0	A	A
97	930.0	40.0	4.3	69.1	380.0	115.4	N	5.6	A	N
99	564.0	13.0	2.3	2.5	14.0	61.5	A	4.3	A	A
100	570.0	57.0	10.0	3.6	20.0	155.8	A	10.6	A	A
101	570.0	60.0	10.5	3.6	20.0	163.2	A	11.1	A	A
106	608.5	35.7	5.9	10.6	58.5	105.6	A	6.9	A	A
109	1480.0	110.0	7.4	169.1	930.0	288.5	N	8.3	A	N
110	500.0	37.6	7.5	-9.1	50.0	109.9	A	8.4	A	A
111	588.0	34.0	5.8	6.9	38.0	101.8	A	6.8	A	A
112	583.0	18.0	3.1	6.0	33.0	69.4	A	4.8	A	A
113	493.7	16.3	3.3	-10.2	56.3	66.6	A	4.9	A	A
114	440.0	40.0	9.1	-20.0	110.0	115.4	A	9.8	A	A
115	636.9	35.6	5.6	15.8	86.9	105.3	A	6.7	A	A
118	527.0	61.0	11.6	-4.2	23.0	165.6	A	12.1	A	A
119	607.0	47.0	7.7	10.4	57.0	131.8	A	8.6	A	A
120	583.0	18.0	3.1	6.0	33.0	69.4	A	4.8	A	A
121	859.2	24.5	2.9	56.2	309.2	81.6	N	4.6	A	N
122	606.0	25.0	4.1	10.2	56.0	82.6	A	5.5	A	A
123	507.0	12.0	2.4	-7.8	43.0	60.2	A	4.3	A	A
124	599.3	24.6	4.1	9.0	49.3	81.8	A	5.5	A	A
125	535.0	58.0	10.8	-2.7	15.0	158.3	A	11.4	A	A
126	613.0	33.0	5.4	11.5	63.0	99.6	A	6.5	A	A
127	532.1	18.2	3.4	-3.3	17.9	69.8	A	5.0	A	A
128	584.0	42.0	7.2	6.2	34.0	120.0	A	8.1	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
130	597.0	25.0	4.2	8.5	47.0	82.6	A	5.5	A	A
131	610.0	36.6	6.0	10.9	60.0	107.5	A	7.0	A	A
132	548.3	18.9	3.4	-0.3	1.7	71.0	A	5.0	A	A
133	542.0	23.0	4.2	-1.5	8.0	78.6	A	5.6	A	A
134	548.0	13.0	2.4	-0.4	2.0	61.5	A	4.3	A	A
136	647.9	19.9	3.1	17.8	97.9	72.8	N	4.8	A	W
137	415.1	17.6	4.2	-24.5	134.9	68.6	N	5.6	A	N
138	408.0	24.0	5.9	-25.8	142.0	80.6	N	6.9	A	N
139	501.0	51.3	10.2	-8.9	49.0	142.1	A	10.9	A	A
140	493.5	18.9	3.8	-10.3	56.5	70.9	A	5.3	A	A
141	657.5	21.1	3.2	19.5	107.5	75.0	N	4.9	A	W
142	353.0	0.0	0.0	-35.8	197.0	51.6	N	3.6	A	N
143	505.7	40.6	8.0	-8.1	44.3	116.7	A	8.8	A	A
144	613.0	28.5	4.6	11.5	63.0	89.7	A	5.9	A	A
145	572.1	10.1	1.8	4.0	22.1	57.7	A	4.0	A	A
146	610.0	38.3	6.3	10.9	60.0	111.5	A	7.3	A	A
150	1523.1	22.5	1.5	176.9	973.1	77.7	N	3.9	A	N
151	761.0	32.0	4.2	38.4	211.0	97.4	N	5.6	A	N
152	770.0	32.0	4.2	40.0	220.0	97.4	N	5.5	A	N
153	546.5	36.8	6.7	-0.6	3.5	108.1	A	7.7	A	A
154	585.0	41.0	7.0	6.4	35.0	117.7	A	7.9	A	A
155	490.0	70.0	14.3	-10.9	60.0	187.8	A	14.7	A	A
157	518.0	35.0	6.8	-5.8	32.0	104.0	A	7.7	A	A
159	521.0	21.0	4.0	-5.3	29.0	74.8	A	5.4	A	A
160	626.3	37.9	6.1	13.9	76.3	110.6	A	7.1	A	A
161	529.0	35.1	6.6	-3.8	21.0	104.2	A	7.6	A	A
162	460.9	23.5	5.1	-16.2	89.1	79.6	N	6.3	A	W
163	524.0	31.0	5.9	-4.7	26.0	95.2	A	6.9	A	A
164	556.2	34.8	6.3	1.1	6.2	103.6	A	7.2	A	A
165	416.0	21.0	5.0	-24.4	134.0	74.8	N	6.2	A	N
166	619.7	34.1	5.5	12.7	69.7	102.0	A	6.6	A	A
168	558.7	12.3	2.2	1.6	8.7	60.6	A	4.3	A	A
169	523.0	20.0	3.8	-4.9	27.0	73.0	A	5.3	A	A
170	560.0	30.0	5.4	1.8	10.0	93.0	A	6.5	A	A
171	644.0	34.0	5.3	17.1	94.0	101.8	A	6.4	A	A
172	555.0	17.0	3.1	0.9	5.0	67.7	A	4.8	A	A
173	673.1	24.0	3.6	22.4	123.1	80.6	N	5.1	A	N
174	569.1	34.6	6.1	3.5	19.1	103.1	A	7.1	A	A
175	557.0	29.0	5.2	1.3	7.0	90.9	A	6.4	A	A
176	568.0	21.0	3.7	3.3	18.0	74.8	A	5.2	A	A
177	481.0	7.0	1.5	-12.5	69.0	54.7	N	3.9	A	W
178	541.1	17.8	3.3	-1.6	8.9	69.1	A	4.9	A	A
179	593.0	15.0	2.5	7.8	43.0	64.5	A	4.4	A	A
181	573.9	7.8	1.4	4.3	23.9	55.4	A	3.9	A	A
182	634.0	14.0	2.2	15.3	84.0	63.0	N	4.3	A	W
183	578.0	16.0	2.8	5.1	28.0	66.1	A	4.6	A	A
185	543.0	27.0	5.0	-1.3	7.0	86.7	A	6.2	A	A
188	574.0	52.0	9.1	4.4	24.0	143.7	A	9.8	A	A

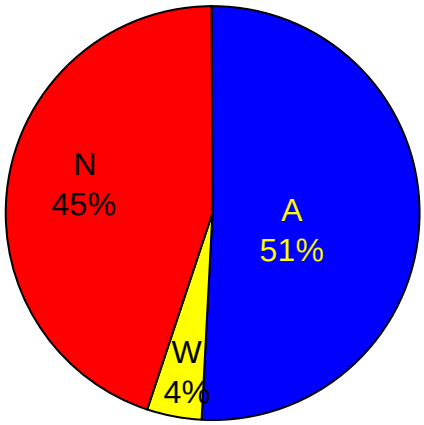
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
190	759.5	102.7	13.5	38.1	209.5	269.9	A	14.0	A	A
191	558.8	19.9	3.6	1.6	8.8	72.7	A	5.1	A	A
192	509.0	61.0	12.0	-7.5	41.0	165.6	A	12.5	A	A
193	585.0	36.0	6.2	6.4	35.0	106.3	A	7.1	A	A
194	536.0	80.0	14.9	-2.5	14.0	212.8	A	15.4	A	A
195	614.0	21.0	3.4	11.6	64.0	74.8	A	5.0	A	A
197	2285.0	109.0	4.8	315.5	1735.0	285.9	N	6.0	A	N
199	580.0	20.0	3.4	5.5	30.0	73.0	A	5.0	A	A
200	537.0	42.0	7.8	-2.4	13.0	120.0	A	8.6	A	A
201	495.2	9.3	1.9	-10.0	54.8	56.9	A	4.1	A	A
202	681.6	89.5	13.1	23.9	131.6	236.6	A	13.6	A	A
204	708.0	55.0	7.8	28.7	158.0	151.0	N	8.6	A	N
205	580.6	20.8	3.6	5.6	30.6	74.4	A	5.1	A	A
206	680.2	29.8	4.4	23.7	130.2	92.7	N	5.7	A	N
207	603.0	14.0	2.3	9.6	53.0	63.0	A	4.3	A	A
208	421.0	43.0	10.2	-23.5	129.0	122.4	N	10.8	A	N
209	587.3	9.0	1.5	6.8	37.3	56.6	A	3.9	A	A
210	642.0	40.0	6.2	16.7	92.0	115.4	A	7.2	A	A
211	538.0	16.0	3.0	-2.2	12.0	66.1	A	4.7	A	A
212	599.0	17.9	3.0	8.9	49.0	69.2	A	4.7	A	A
213	520.0	22.0	4.2	-5.5	30.0	76.7	A	5.6	A	A
214	577.8	34.9	6.0	5.1	27.8	103.8	A	7.1	A	A
215	552.6	21.4	3.9	0.5	2.6	75.6	A	5.3	A	A
216	574.0	14.0	2.4	4.4	24.0	63.0	A	4.4	A	A
217	556.5	24.7	4.4	1.2	6.5	82.1	A	5.7	A	A
218	526.1	10.6	2.0	-4.4	23.9	58.4	A	4.2	A	A
219	558.0	23.0	4.1	1.5	8.0	78.6	A	5.5	A	A
220	517.6	38.8	7.5	-5.9	32.4	112.6	A	8.3	A	A
221	550.5	35.5	6.4	0.1	0.5	105.1	A	7.4	A	A
223	485.2	68.1	14.0	-11.8	64.8	183.2	A	14.5	A	A
225	2098.0	254.0	12.1	281.5	1548.0	657.3	N	12.6	A	N
226	567.0	20.0	3.5	3.1	17.0	73.0	A	5.1	A	A
227	568.5	24.4	4.3	3.4	18.5	81.3	A	5.6	A	A
230	1109.0	35.0	3.2	101.6	559.0	104.0	N	4.8	A	N
232	531.0	16.0	3.0	-3.5	19.0	66.1	A	4.7	A	A
233	501.0	44.0	8.8	-8.9	49.0	124.7	A	9.5	A	A
234	555.0	32.4	5.8	0.9	5.0	98.2	A	6.9	A	A
235	609.9	15.0	2.5	10.9	59.9	64.4	A	4.4	A	A
236	570.0	20.0	3.5	3.6	20.0	73.0	A	5.1	A	A
237	537.7	25.0	4.6	-2.2	12.3	82.6	A	5.9	A	A
238	520.0	17.0	3.3	-5.5	30.0	67.7	A	4.9	A	A
239	575.0	34.0	5.9	4.5	25.0	101.8	A	6.9	A	A
240	597.0	42.0	7.0	8.5	47.0	120.0	A	7.9	A	A
241	532.0	38.0	7.1	-3.3	18.0	110.8	A	8.0	A	A
242	545.5	21.9	4.0	-0.8	4.5	76.5	A	5.4	A	A
244	650.0	39.8	6.1	18.2	100.0	114.9	A	7.1	A	A
245	461.0	8.0	1.7	-16.2	89.0	55.6	N	4.0	A	W
246	398.4	23.9	6.0	-27.6	151.6	80.4	N	7.0	A	N

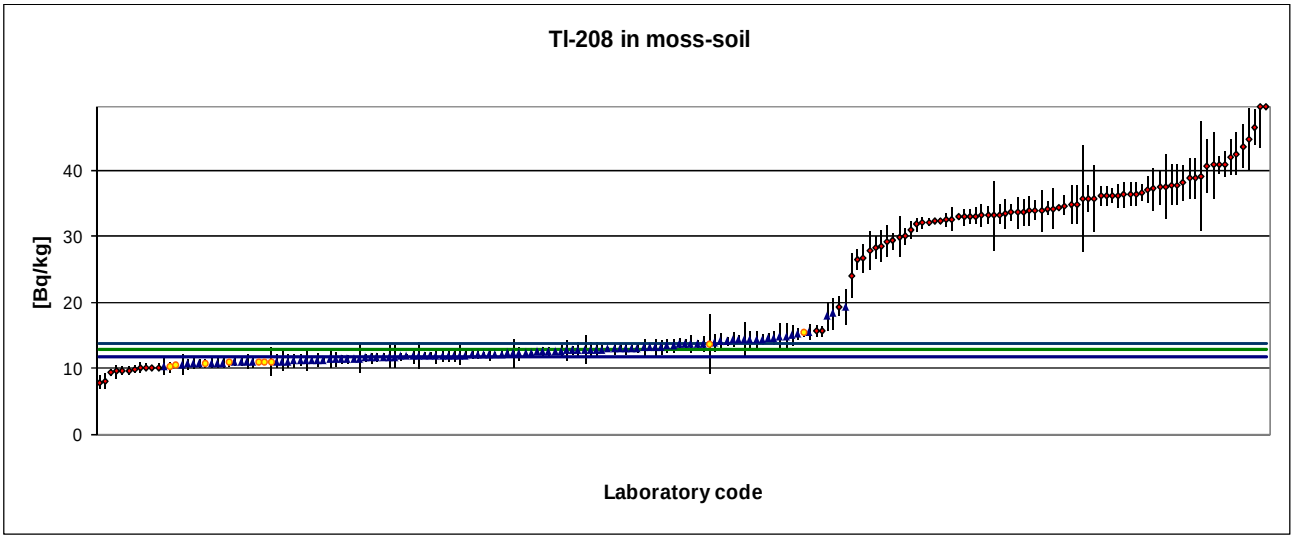
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
249	1259.0	41.8	3.3	128.9	709.0	119.5	N	4.9	A	N
250	1236.0	43.0	3.5	124.7	686.0	122.4	N	5.0	A	N
251	568.0	34.0	6.0	3.3	18.0	101.8	A	7.0	A	A
252	554.7	12.7	2.3	0.9	4.7	61.1	A	4.3	A	A
253	521.0	19.0	3.6	-5.3	29.0	71.2	A	5.2	A	A
254	568.0	12.0	2.1	3.3	18.0	60.2	A	4.2	A	A
255	490.0	8.0	1.6	-10.9	60.0	55.6	N	4.0	A	W
256	548.0	43.0	7.8	-0.4	2.0	122.4	A	8.6	A	A
257	542.0	20.0	3.7	-1.5	8.0	73.0	A	5.2	A	A
258	549.4	40.3	7.3	-0.1	0.6	116.1	A	8.2	A	A
259	581.1	41.9	7.2	5.7	31.1	119.8	A	8.1	A	A
260	662.0	43.0	6.5	20.4	112.0	122.4	A	7.4	A	A
261	670.0	47.0	7.0	21.8	120.0	131.8	A	7.9	A	A
263	530.0	22.0	4.2	-3.6	20.0	76.7	A	5.5	A	A
264	648.0	26.2	4.0	17.8	98.0	85.0	N	5.4	A	W
265	561.0	16.7	3.0	2.0	11.0	67.2	A	4.7	A	A
267	596.0	26.6	4.5	8.4	46.0	85.9	A	5.8	A	A
268	616.0	13.0	2.1	12.0	66.0	61.5	N	4.2	A	W
269	614.5	38.8	6.3	11.7	64.5	112.6	A	7.3	A	A
270	595.0	23.0	3.9	8.2	45.0	78.6	A	5.3	A	A
271	2341.1	101.8	4.3	325.7	1791.1	267.7	N	5.7	A	N
272	565.9	46.7	8.3	2.9	15.9	131.1	A	9.0	A	A
273	578.9	186.4	32.2	5.3	28.9	483.7	A	32.4	N	W
274	587.0	19.0	3.2	6.7	37.0	71.2	A	4.9	A	A
275	634.0	17.5	2.8	15.3	84.0	68.5	N	4.6	A	W
276	650.0	60.0	9.2	18.2	100.0	163.2	A	9.9	A	A
277	584.1	21.1	3.6	6.2	34.1	75.0	A	5.1	A	A
278	526.0	45.0	8.6	-4.4	24.0	127.1	A	9.3	A	A
279	704.3	37.9	5.4	28.1	154.3	110.6	N	6.5	A	N
284	551.4	45.2	8.2	0.3	1.4	127.5	A	9.0	A	A
285	539.3	44.2	8.2	-1.9	10.7	125.2	A	9.0	A	A
288	689.0	35.0	5.1	25.3	139.0	104.0	N	6.2	A	N
289	587.0	16.0	2.7	6.7	37.0	66.1	A	4.5	A	A
290	703.0	38.0	5.4	27.8	153.0	110.8	N	6.5	A	N
292	530.0	30.0	5.7	-3.6	20.0	93.0	A	6.7	A	A
293	530.0	30.0	5.7	-3.6	20.0	93.0	A	6.7	A	A
294	512.0	25.0	4.9	-6.9	38.0	82.6	A	6.1	A	A
295	549.4	6.1	1.1	-0.1	0.6	53.9	A	3.8	A	A
296	580.0	41.0	7.1	5.5	30.0	117.7	A	7.9	A	A
297	568.0	14.0	2.5	3.3	18.0	63.0	A	4.4	A	A
298	621.5	6.1	1.0	13.0	71.5	54.0	N	3.8	A	W
299	616.0	50.0	8.1	12.0	66.0	138.9	A	8.9	A	A
300	544.0	44.0	8.1	-1.1	6.0	124.7	A	8.9	A	A

Performance evaluation of Tl-208 measurement results

IAEA-447 Moss-soil reference material

Target Value: 13.0 ± 0.5 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
1	34.07	3.16	9.28	162.08	21.1	8.3	N	10.0	A	N
3	15.00	2.00	13.33	15.38	2.0	5.3	A	13.9	A	A
5	35.00	3.00	8.57	169.23	22.0	7.8	N	9.4	A	N
6	10.80	0.80	7.41	-16.92	2.2	2.4	A	8.3	A	A
7	33.16	1.11	3.35	155.08	20.2	3.1	N	5.1	A	N
10	36.89	1.24	3.36	183.77	23.9	3.4	N	5.1	A	N
11	12.90	1.60	12.40	-0.77	0.1	4.3	A	13.0	A	A
12	11.10	0.70	6.31	-14.62	1.9	2.2	A	7.4	A	A
13	26.81	2.09	7.80	106.23	13.8	5.5	N	8.7	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
14	62.50	7.75	12.40	380.77	49.5	20.0	N	13.0	A	N
15	18.01	2.06	11.44	38.54	5.0	5.5	A	12.1	A	A
16	32.30	0.80	2.48	148.46	19.3	2.4	N	4.6	A	N
17	11.80	0.60	5.08	-9.23	1.2	2.0	A	6.4	A	A
18	32.50	0.50	1.54	150.00	19.5	1.8	N	4.1	A	N
19	34.60	0.50	1.45	166.15	21.6	1.8	N	4.1	A	N
20	32.40	0.50	1.54	149.23	19.4	1.8	N	4.1	A	N
22	32.50	0.40	1.23	150.00	19.5	1.7	N	4.0	A	N
23	34.40	1.00	2.91	164.62	21.4	2.9	N	4.8	A	N
24	33.10	0.40	1.21	154.62	20.1	1.7	N	4.0	A	N
25	40.84	4.08	9.99	214.15	27.8	10.6	N	10.7	A	N
26	11.72	0.83	7.08	-9.85	1.3	2.5	A	8.1	A	A
27	14.60	2.52	17.23	12.30	1.6	6.6	A	17.7	A	A
31	14.20	1.10	7.75	9.23	1.2	3.1	A	8.6	A	A
32	33.40	1.70	5.09	156.92	20.4	4.6	N	6.4	A	N
34	15.00	2.00	13.33	15.38	2.0	5.3	A	13.9	A	A
36	12.00	1.00	8.33	-7.69	1.0	2.9	A	9.2	A	A
37	13.87	1.39	10.02	6.69	0.9	3.8	A	10.7	A	A
39	10.30	0.50	4.85	-20.77	2.7	1.8	N	6.2	A	N
40	13.54	1.05	7.75	4.15	0.5	3.0	A	8.7	A	A
41	12.00	2.00	16.67	-7.69	1.0	5.3	A	17.1	A	A
42	39.00	3.00	7.69	200.00	26.0	7.8	N	8.6	A	N
43	29.50	1.20	4.07	126.92	16.5	3.4	N	5.6	A	N
44	34.22	1.55	4.53	163.23	21.2	4.2	N	5.9	A	N
45	12.50	0.60	4.80	-3.85	0.5	2.0	A	6.2	A	A
46	9.80	0.65	6.63	-24.62	3.2	2.1	N	7.7	A	N
47	14.60	1.30	8.90	12.31	1.6	3.6	A	9.7	A	A
51	14.60	1.20	8.22	12.31	1.6	3.4	A	9.1	A	A
52	28.00	3.00	10.71	115.38	15.0	7.8	N	11.4	A	N
53	34.90	1.50	4.30	168.46	21.9	4.1	N	5.8	A	N
54	11.40	1.70	14.91	-12.31	1.6	4.6	A	15.4	A	A
55	15.80	0.90	5.70	21.54	2.8	2.7	N	6.9	A	N
56	36.50	2.00	5.48	180.77	23.5	5.3	N	6.7	A	N
57	13.90	1.11	7.99	6.92	0.9	3.1	A	8.9	A	A
58	14.30	0.70	4.90	10.00	1.3	2.2	A	6.2	A	A
59	41.20	2.00	4.85	216.92	28.2	5.3	N	6.2	A	N
60	12.40	0.50	4.03	-4.62	0.6	1.8	A	5.6	A	A
61	10.30	0.40	3.88	-20.77	2.7	1.7	N	5.5	A	N
62	37.30	2.00	5.36	186.92	24.3	5.3	N	6.6	A	N
63	13.89	0.60	4.32	6.85	0.9	2.0	A	5.8	A	A
64	33.54	1.44	4.29	158.00	20.5	3.9	N	5.8	A	N
65	12.68	0.47	3.71	-2.46	0.3	1.8	A	5.3	A	A
70	12.40	2.10	16.94	-4.62	0.6	5.6	A	17.4	A	A
71	11.40	0.40	3.51	-12.31	1.6	1.7	A	5.2	A	A
72	13.29	0.30	2.26	2.23	0.3	1.5	A	4.5	A	A
73	13.50	1.10	8.15	3.85	0.5	3.1	A	9.0	A	A
74	9609.0	867.00	9.02	73815.	9596.0	2236.9	N	9.8	A	N
76	11.95	0.41	3.43	-8.08	1.1	1.7	A	5.2	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
77	11.15	0.34	3.05	-14.23	1.9	1.6	N	4.9	A	W
78	15.80	0.76	4.84	21.54	2.8	2.4	N	6.2	A	N
79	43.90	3.30	7.52	237.69	30.9	8.6	N	8.4	A	N
80	329.00	39.00	11.85	2430.7	316.0	100.6	N	12.5	A	N
81	10.25	0.78	7.61	-21.15	2.8	2.4	N	8.5	A	N
82	10.91	0.58	5.32	-16.08	2.1	2.0	N	6.6	A	W
83	11.66	2.08	17.84	-10.31	1.3	5.5	A	18.2	A	A
84	12.10	1.40	11.57	-6.92	0.9	3.8	A	12.2	A	A
86	9.80	0.60	6.12	-24.62	3.2	2.0	N	7.2	A	N
87	14.60	0.70	4.79	12.31	1.6	2.2	A	6.1	A	A
88	13.00	1.00	7.69	0.00	0.0	2.9	A	8.6	A	A
89	12.27	0.93	7.58	-5.62	0.7	2.7	A	8.5	A	A
90	11.30	0.90	7.96	-13.08	1.7	2.7	A	8.8	A	A
91	11.40	1.00	8.77	-12.31	1.6	2.9	A	9.6	A	A
92	13.30	1.20	9.02	2.31	0.3	3.4	A	9.8	A	A
93	12.10	0.60	4.96	-6.92	0.9	2.0	A	6.3	A	A
94	13.00	2.10	16.15	0.00	0.0	5.6	A	16.6	A	A
95	10.40	1.40	13.46	-20.00	2.6	3.8	A	14.0	A	A
99	13.08	0.32	2.45	0.62	0.1	1.5	A	4.6	A	A
101	15.10	1.60	10.60	16.15	2.1	4.3	A	11.3	A	A
109	28.80	2.30	7.99	121.54	15.8	6.1	N	8.9	A	N
110	19.50	1.46	7.49	50.00	6.5	4.0	N	8.4	A	N
111	11.25	1.05	9.33	-13.46	1.8	3.0	A	10.1	A	A
112	12.00	0.50	4.17	-7.69	1.0	1.8	A	5.7	A	A
113	10.05	0.54	5.37	-22.69	3.0	1.9	N	6.6	A	N
114	8.00	1.00	12.50	-38.46	5.0	2.9	N	13.1	A	N
115	19.50	2.70	13.85	50.00	6.5	7.1	A	14.4	A	A
119	15.60	1.20	7.69	20.00	2.6	3.4	A	8.6	A	A
120	12.00	0.50	4.17	-7.69	1.0	1.8	A	5.7	A	A
121	44.91	4.80	10.69	245.46	31.9	12.5	N	11.4	A	N
122	30.20	1.20	3.97	132.31	17.2	3.4	N	5.5	A	N
123	38.50	2.70	7.01	196.15	25.5	7.1	N	8.0	A	N
124	11.94	0.49	4.10	-8.15	1.1	1.8	A	5.6	A	A
125	11.50	1.30	11.30	-11.54	1.5	3.6	A	11.9	A	A
127	13.80	0.90	6.52	6.15	0.8	2.7	A	7.6	A	A
130	33.10	1.30	3.93	154.62	20.1	3.6	N	5.5	A	N
131	15.55	0.59	3.79	19.62	2.6	2.0	N	5.4	A	W
132	12.31	0.39	3.18	-5.31	0.7	1.6	A	5.0	A	A
133	13.30	1.10	8.27	2.31	0.3	3.1	A	9.1	A	A
134	12.80	0.39	3.05	-1.54	0.2	1.6	A	4.9	A	A
136	12.76	0.66	5.17	-1.85	0.2	2.1	A	6.4	A	A
138	35.00	3.00	8.57	169.23	22.0	7.8	N	9.4	A	N
140	36.60	1.71	4.67	181.54	23.6	4.6	N	6.1	A	N
141	30.13	3.06	10.16	131.77	17.1	8.0	N	10.9	A	N
142	53.07	0.01	0.02	308.23	40.1	1.3	N	3.8	A	N
143	11.24	1.05	9.34	-13.54	1.8	3.0	A	10.1	A	A
144	11.00	0.80	7.27	-15.38	2.0	2.4	A	8.2	A	A
150	39.28	8.29	21.10	202.15	26.3	21.4	N	21.5	N	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
151	54.00	1.30	2.41	315.38	41.0	3.6	N	4.5	A	N
152	55.00	2.00	3.64	323.08	42.0	5.3	N	5.3	A	N
153	11.58	1.07	9.24	-10.92	1.4	3.0	A	10.0	A	A
154	12.40	1.00	8.06	-4.62	0.6	2.9	A	8.9	A	A
155	36.00	2.00	5.56	176.92	23.0	5.3	N	6.8	A	N
157	37.80	4.80	12.70	190.77	24.8	12.5	N	13.3	A	N
159	11.20	2.20	19.64	-13.85	1.8	5.8	A	20.0	N	W
160	13.27	1.33	10.02	2.08	0.3	3.7	A	10.7	A	A
161	34.10	2.30	6.74	162.31	21.1	6.1	N	7.8	A	N
163	14.83	0.97	6.54	14.08	1.8	2.8	A	7.6	A	A
164	42.76	3.33	7.80	228.92	29.8	8.7	N	8.7	A	N
165	28.50	1.70	5.96	119.23	15.5	4.6	N	7.1	A	N
166	13.15	0.97	7.38	1.15	0.2	2.8	A	8.3	A	A
168	11.40	0.40	3.51	-12.31	1.6	1.7	A	5.2	A	A
169	33.80	1.20	3.55	160.00	20.8	3.4	N	5.2	A	N
170	12.00	1.00	8.33	-7.69	1.0	2.9	A	9.2	A	A
171	14.55	0.70	4.81	11.92	1.6	2.2	A	6.2	A	A
172	38.00	3.00	7.89	192.31	25.0	7.8	N	8.8	A	N
173	12.26	0.53	4.32	-5.69	0.7	1.9	A	5.8	A	A
174	37.70	2.60	6.90	190.00	24.7	6.8	N	7.9	A	N
175	12.00	0.78	6.50	-7.69	1.0	2.4	A	7.6	A	A
177	9.52	0.38	3.99	-26.77	3.5	1.6	N	5.5	A	N
178	11.89	0.54	4.54	-8.54	1.1	1.9	A	6.0	A	A
179	32.66	1.00	3.06	151.23	19.7	2.9	N	4.9	A	N
182	12.30	0.50	4.07	-5.38	0.7	1.8	A	5.6	A	A
185	11.00	0.80	7.27	-15.38	2.0	2.4	A	8.2	A	A
190	13.90	4.54	32.66	6.92	0.9	11.8	A	32.9	N	W
191	10.93	0.81	7.41	-15.92	2.1	2.5	A	8.3	A	A
192	38.00	3.00	7.89	192.31	25.0	7.8	N	8.8	A	N
193	41.00	5.00	12.20	215.38	28.0	13.0	N	12.8	A	N
194	36.00	5.00	13.89	176.92	23.0	13.0	N	14.4	A	N
195	36.27	1.56	4.30	179.00	23.3	4.2	N	5.8	A	N
197	50.80	6.51	12.81	290.77	37.8	16.8	N	13.4	A	N
199	13.80	0.80	5.80	6.15	0.8	2.4	A	7.0	A	A
200	13.02	0.63	4.84	0.15	0.0	2.1	A	6.2	A	A
201	14.80	0.54	3.65	13.85	1.8	1.9	A	5.3	A	A
202	72.31	3.96	5.48	456.23	59.3	10.3	N	6.7	A	N
206	46.77	2.77	5.92	259.77	33.8	7.3	N	7.1	A	N
207	15.30	0.90	5.88	17.69	2.3	2.7	A	7.0	A	A
210	12.00	0.84	7.00	-7.69	1.0	2.5	A	8.0	A	A
211	36.40	1.80	4.95	180.00	23.4	4.8	N	6.3	A	N
214	11.10	0.70	6.31	-14.62	1.9	2.2	A	7.4	A	A
216	36.30	1.50	4.13	179.23	23.3	4.1	N	5.6	A	N
217	12.24	0.66	5.39	-5.85	0.8	2.1	A	6.6	A	A
218	11.11	0.33	2.93	-14.55	1.9	1.5	N	4.8	A	W
219	12.90	0.60	4.65	-0.77	0.1	2.0	A	6.0	A	A
220	11.06	0.56	5.06	-14.92	1.9	1.9	N	6.4	A	W
221	12.00	0.90	7.50	-7.69	1.0	2.7	A	8.4	A	A

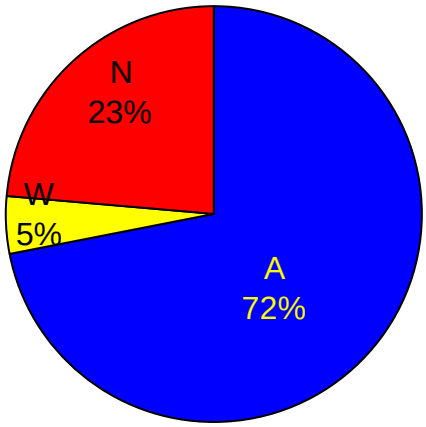
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
223	8.18	1.14	13.94	-37.08	4.8	3.2	N	14.5	A	N
225	105.60	42.00	39.77	712.31	92.6	108.4	A	40.0	N	N
227	36.67	1.83	4.99	182.08	23.7	4.9	N	6.3	A	N
233	14.00	1.30	9.29	7.69	1.0	3.6	A	10.1	A	A
234	11.10	1.11	10.00	-14.62	1.9	3.1	A	10.7	A	A
235	42.25	2.62	6.20	225.00	29.3	6.9	N	7.3	A	N
236	33.40	1.30	3.89	156.92	20.4	3.6	N	5.5	A	N
237	31.20	1.30	4.17	140.00	18.2	3.6	N	5.7	A	N
238	13.10	0.80	6.11	0.77	0.1	2.4	A	7.2	A	A
239	33.90	2.00	5.90	160.77	20.9	5.3	N	7.0	A	N
240	10.90	1.00	9.17	-16.15	2.1	2.9	A	9.9	A	A
241	14.50	1.20	8.28	11.54	1.5	3.4	A	9.1	A	A
242	12.21	0.74	6.06	-6.08	0.8	2.3	A	7.2	A	A
244	26.70	1.56	5.84	105.38	13.7	4.2	N	7.0	A	N
246	10.40	0.77	7.40	-20.00	2.6	2.4	N	8.3	A	W
251	37.47	3.27	8.73	188.23	24.5	8.5	N	9.5	A	N
252	36.30	1.10	3.03	179.23	23.3	3.1	N	4.9	A	N
253	11.60	0.60	5.17	-10.77	1.4	2.0	A	6.4	A	A
254	32.00	1.00	3.13	146.15	19.0	2.9	N	5.0	A	N
255	11.60	0.70	6.03	-10.77	1.4	2.2	A	7.2	A	A
257	10.34	0.58	5.61	-20.46	2.7	2.0	N	6.8	A	N
258	32.73	1.85	5.65	151.77	19.7	4.9	N	6.8	A	N
260	11.20	1.00	8.93	-13.85	1.8	2.9	A	9.7	A	A
261	39.00	3.10	7.95	200.00	26.0	8.1	N	8.8	A	N
263	34.40	3.10	9.01	164.62	21.4	8.1	N	9.8	A	N
264	10.90	0.67	6.16	-16.15	2.1	2.2	A	7.3	A	A
265	18.50	2.42	13.08	42.31	5.5	6.4	A	13.6	A	A
267	29.46	2.30	7.81	126.62	16.5	6.1	N	8.7	A	N
268	41.10	1.40	3.41	216.15	28.1	3.8	N	5.1	A	N
269	11.20	1.40	12.50	-13.85	1.8	3.8	A	13.1	A	A
270	9.73	1.05	10.79	-25.15	3.3	3.0	N	11.5	A	N
272	24.30	3.38	13.91	86.92	11.3	8.8	N	14.4	A	N
273	35.90	8.10	22.56	176.15	22.9	20.9	N	22.9	N	N
274	13.10	0.50	3.82	0.77	0.1	1.8	A	5.4	A	A
275	13.25	0.69	5.21	1.92	0.3	2.2	A	6.5	A	A
277	13.18	0.43	3.26	1.38	0.2	1.7	A	5.0	A	A
278	33.40	5.30	15.87	156.92	20.4	13.7	N	16.3	A	N
279	11.70	0.50	4.27	-10.00	1.3	1.8	A	5.7	A	A
283	33.27	1.23	3.70	155.92	20.3	3.4	N	5.3	A	N
284	33.66	2.36	7.01	158.92	20.7	6.2	N	8.0	A	N
285	33.82	2.37	7.01	160.15	20.8	6.2	N	8.0	A	N
288	12.70	0.70	5.51	-2.31	0.3	2.2	A	6.7	A	A
289	12.50	0.30	2.40	-3.85	0.5	1.5	A	4.5	A	A
290	12.80	0.80	6.25	-1.54	0.2	2.4	A	7.3	A	A
292	13.00	1.00	7.69	0.00	0.0	2.9	A	8.6	A	A
293	13.00	1.00	7.69	0.00	0.0	2.9	A	8.6	A	A
294	11.10	0.80	7.21	-14.62	1.9	2.4	A	8.2	A	A
295	10.60	0.40	3.77	-18.46	2.4	1.7	N	5.4	A	W

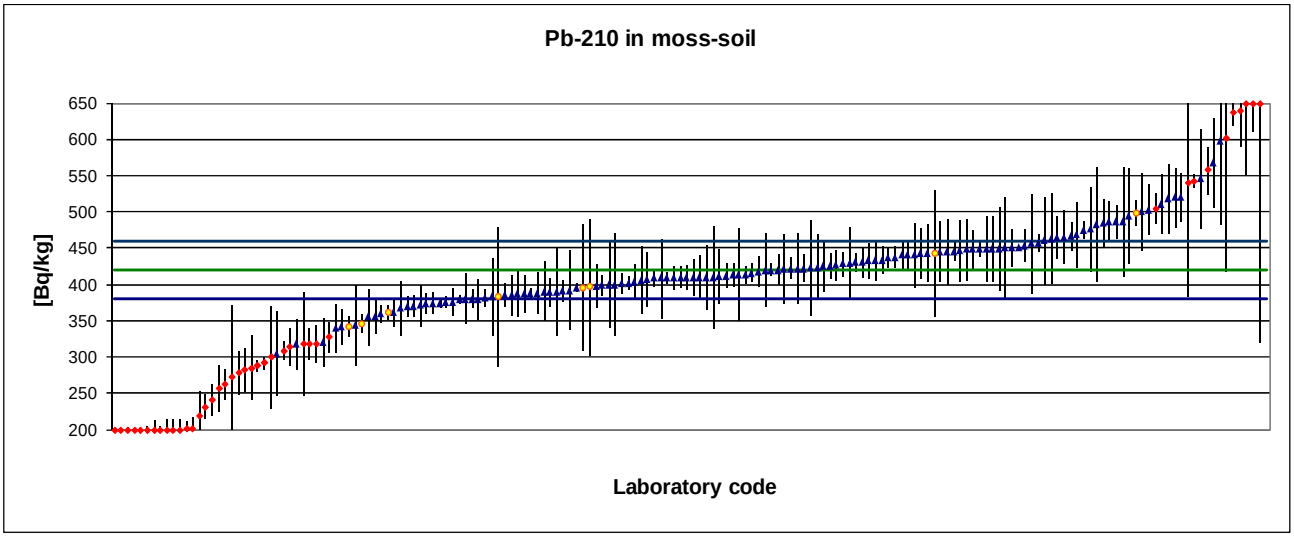
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
296	10.60	1.60	15.09	-18.46	2.4	4.3	A	15.6	A	A
297	11.60	0.50	4.31	-10.77	1.4	1.8	A	5.8	A	A
299	11.90	1.70	14.29	-8.46	1.1	4.6	A	14.8	A	A
300	11.90	1.70	14.29	-8.46	1.1	4.6	A	14.8	A	A

Performance evaluation of Pb-210 measurement results

IAEA-447 Moss-soil reference material

Target Value: 420 ± 20 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
1	278	30.05	10.81	-33.81	142.0	93.1	N	11.8	A	N
3	400	60.00	15.00	-4.76	20.0	163.2	A	15.7	A	A
5	450	71.00	15.78	7.14	30.0	190.3	A	16.5	A	A
6	396.7	94.40	23.80	-5.55	23.3	249.0	A	24.3	N	W
7	291.3	8.42	2.89	-30.64	128.7	56.0	N	5.6	A	N
10	421.26	14.97	3.55	0.30	1.3	64.5	A	5.9	A	A
11	423.4	44.70	10.56	0.81	3.4	126.3	A	11.6	A	A
12	451	26.00	5.76	7.38	31.0	84.6	A	7.5	A	A
14	12.5	1.41	11.28	-97.02	407.5	51.7	N	12.2	A	N
16	410	15.00	3.66	-2.38	10.0	64.5	A	6.0	A	A
18	413	16.00	3.87	-1.67	7.0	66.1	A	6.1	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
19	385	16.00	4.16	-8.33	35.0	66.1	A	6.3	A	A
20	410	16.00	3.90	-2.38	10.0	66.1	A	6.2	A	A
22	409.7	15.90	3.88	-2.45	10.3	65.9	A	6.1	A	A
23	448	43.00	9.60	6.67	28.0	122.4	A	10.7	A	A
24	408.4	12.10	2.96	-2.76	11.6	60.3	A	5.6	A	A
25	69.95	4.20	6.00	-83.35	350.1	52.7	N	7.7	A	N
26	402	14.00	3.48	-4.29	18.0	63.0	A	5.9	A	A
27	271.62	100.17	36.88	-35.33	148.4	263.5	A	37.2	N	N
29	201	15.00	7.46	-52.14	219.0	64.5	N	8.9	A	N
30	639.4	49.10	7.68	52.24	219.4	136.8	N	9.0	A	N
31	327	21.00	6.42	-22.14	93.0	74.8	N	8.0	A	N
32	318.2	26.30	8.27	-24.24	101.8	85.2	N	9.5	A	N
33	465.5	37.40	8.03	10.83	45.5	109.4	A	9.3	A	A
34	824	39.00	4.73	96.19	404.0	113.1	N	6.7	A	N
36	449	10.00	2.23	6.90	29.0	57.7	A	5.3	A	A
37	370.8	29.20	7.87	-11.71	49.2	91.3	A	9.2	A	A
38	451	0.00	0.00	7.38	31.0	51.6	A	4.8	A	A
39	423	65.00	15.37	0.71	3.0	175.5	A	16.1	A	A
40	445	42.00	9.44	5.95	25.0	120.0	A	10.6	A	A
41	494	66.00	13.36	17.62	74.0	177.9	A	14.2	A	A
43	399	14.00	3.51	-5.00	21.0	63.0	A	5.9	A	A
44	440.12	44.39	10.09	4.79	20.1	125.6	A	11.2	A	A
45	545	68.00	12.48	29.76	125.0	182.9	A	13.4	A	A
46	445	45.00	10.11	5.95	25.0	127.1	A	11.2	A	A
47	299.2	71.10	23.76	-28.76	120.8	190.6	A	24.2	N	N
50	456	68.00	14.91	8.57	36.0	182.9	A	15.7	A	A
51	486.9	75.10	15.42	15.93	66.9	200.5	A	16.1	A	A
52	390	40.00	10.26	-7.14	30.0	115.4	A	11.3	A	A
53	391	15.00	3.84	-6.90	29.0	64.5	A	6.1	A	A
54	443	88.00	19.86	5.48	23.0	232.8	A	20.4	N	W
56	410	25.00	6.10	-2.38	10.0	82.6	A	7.7	A	A
57	421	47.40	11.26	0.24	1.0	132.7	A	12.2	A	A
58	390	20.00	5.13	-7.14	30.0	73.0	A	7.0	A	A
59	467	20.00	4.28	11.19	47.0	73.0	A	6.4	A	A
60	409	8.00	1.96	-2.62	11.0	55.6	A	5.1	A	A
61	395.9	87.20	22.03	-5.74	24.1	230.8	A	22.5	N	W
62	486	22.40	4.61	15.71	66.0	77.5	A	6.6	A	A
63	380	34.90	9.18	-9.52	40.0	103.8	A	10.3	A	A
64	519.7	40.69	7.83	23.74	99.7	117.0	A	9.2	A	A
65	413	63.60	15.40	-1.67	7.0	172.0	A	16.1	A	A
70	568	62.00	10.92	35.24	148.0	168.1	A	11.9	A	A
71	381	11.30	2.97	-9.29	39.0	59.3	A	5.6	A	A
72	318.07	22.55	7.09	-24.27	101.9	77.8	N	8.5	A	N
74	637	17.00	2.67	51.67	217.0	67.7	N	5.5	A	N
76	542.2	8.80	1.62	29.10	122.2	56.4	N	5.0	A	N
77	433.5	19.10	4.41	3.21	13.5	71.4	A	6.5	A	A
79	511	41.00	8.02	21.67	91.0	117.7	A	9.3	A	A
81	463.6	63.20	13.63	10.38	43.6	171.0	A	14.4	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
82	200.31	10.09	5.04	-52.31	219.7	57.8	N	6.9	A	N
83	261.67	21.36	8.16	-37.70	158.3	75.5	N	9.5	A	N
84	503	35.00	6.96	19.76	83.0	104.0	A	8.4	A	A
85	598	116.00	19.40	42.38	178.0	303.7	A	20.0	A	A
86	448	27.00	6.03	6.67	28.0	86.7	A	7.7	A	A
87	505	21.00	4.16	20.24	85.0	74.8	N	6.3	A	N
88	370	14.00	3.78	-11.90	50.0	63.0	A	6.1	A	A
89	485.69	27.71	5.71	15.64	65.7	88.2	A	7.4	A	A
91	410	30.00	7.32	-2.38	10.0	93.0	A	8.7	A	A
92	429	49.00	11.42	2.14	9.0	136.5	A	12.4	A	A
93	822	99.00	12.04	95.71	402.0	260.6	N	13.0	A	N
95	383	54.00	14.10	-8.81	37.0	148.6	A	14.9	A	A
99	386	28.00	7.25	-8.10	34.0	88.8	A	8.7	A	A
100	400	70.00	17.50	-4.76	20.0	187.8	A	18.1	A	A
101	449	45.00	10.02	6.90	29.0	127.1	A	11.1	A	A
106	407.1	37.10	9.11	-3.07	12.9	108.7	A	10.3	A	A
109	2060	330.00	16.02	390.48	1640.0	853.0	N	16.7	A	N
112	437	14.00	3.20	4.05	17.0	63.0	A	5.7	A	A
113	456.71	12.27	2.69	8.74	36.7	60.5	A	5.5	A	A
114	460	60.00	13.04	9.52	40.0	163.2	A	13.9	A	A
118	346	13.00	3.76	-17.62	74.0	61.5	N	6.1	A	W
119	518	48.00	9.27	23.33	98.0	134.2	A	10.4	A	A
120	437.5	14.40	3.29	4.17	17.5	63.6	A	5.8	A	A
122	410	45.00	10.98	-2.38	10.0	127.1	A	12.0	A	A
123	380	13.00	3.42	-9.52	40.0	61.5	A	5.9	A	A
124	408.8	54.50	13.33	-2.67	11.2	149.8	A	14.2	A	A
125	500	54.00	10.80	19.05	80.0	148.6	A	11.8	A	A
126	383.2	96.00	25.05	-8.76	36.8	253.0	A	25.5	N	W
127	23.1	1.80	7.79	-94.50	396.9	51.8	N	9.1	A	N
130	367	38.00	10.35	-12.62	53.0	110.8	A	11.4	A	A
131	442.92	39.60	8.94	5.46	22.9	114.5	A	10.1	A	A
132	432.8	27.56	6.37	3.05	12.8	87.9	A	8.0	A	A
133	425	18.00	4.24	1.19	5.0	69.4	A	6.4	A	A
134	430	13.60	3.16	2.38	10.0	62.4	A	5.7	A	A
136	421.5	49.00	11.63	0.36	1.5	136.5	A	12.6	A	A
138	557	32.00	5.75	32.62	137.0	97.4	N	7.5	A	N
152	38	4.00	10.53	-90.95	382.0	52.6	N	11.6	A	N
153	476.21	58.81	12.35	13.38	56.2	160.3	A	13.2	A	A
155	420	50.00	11.90	0.00	0.0	138.9	A	12.8	A	A
157	318	72.00	22.64	-24.29	102.0	192.8	A	23.1	N	N
159	388	8.00	2.06	-7.62	32.0	55.6	A	5.2	A	A
160	375.51	7.83	2.09	-10.59	44.5	55.4	A	5.2	A	A
161	231.51	17.07	7.37	-44.88	188.5	67.8	N	8.8	A	N
163	387	32.00	8.27	-7.86	33.0	97.4	A	9.5	A	A
164	600.91	184.61	30.72	43.07	180.9	479.1	A	31.1	N	N
165	65	12.00	18.46	-84.52	355.0	60.2	N	19.1	A	N
166	387.5	25.00	6.45	-7.74	32.5	82.6	A	8.0	A	A
169	282	30.00	10.64	-32.86	138.0	93.0	N	11.7	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
171	453	23.00	5.08	7.86	33.0	78.6	A	7.0	A	A
174	13.8	2.00	14.49	-96.71	406.2	51.9	N	15.3	A	N
176	420	9.50	2.26	0.00	0.0	57.1	A	5.3	A	A
179	309	13.00	4.21	-26.43	111.0	61.5	N	6.4	A	N
181	416	12.80	3.08	-0.95	4.0	61.3	A	5.7	A	A
183	469	45.00	9.59	11.67	49.0	127.1	A	10.7	A	A
185	406	47.00	11.58	-3.33	14.0	131.8	A	12.5	A	A
190	218.98	33.32	15.22	-47.86	201.0	100.3	N	15.9	A	N
191	391.88	54.86	14.00	-6.70	28.1	150.7	A	14.8	A	A
197	498	18.40	3.69	18.57	78.0	70.1	N	6.0	A	W
199	420	20.00	4.76	0.00	0.0	73.0	A	6.7	A	A
200	412	16.00	3.88	-1.90	8.0	66.1	A	6.1	A	A
201	240.64	21.38	8.88	-42.70	179.4	75.5	N	10.1	A	N
207	422	19.00	4.50	0.48	2.0	71.2	A	6.6	A	A
208	344	55.00	15.99	-18.10	76.0	151.0	A	16.7	A	A
209	428.47	17.30	4.04	2.02	8.5	68.2	A	6.2	A	A
210	520	34.00	6.54	23.81	100.0	101.8	A	8.1	A	A
211	449	45.00	10.02	6.90	29.0	127.1	A	11.1	A	A
212	289	7.88	2.73	-31.19	131.0	55.5	N	5.5	A	N
216	402	9.60	2.39	-4.29	18.0	57.2	A	5.3	A	A
217	370.1	15.40	4.16	-11.88	49.9	65.1	A	6.3	A	A
218	374.05	5.66	1.51	-10.94	45.9	53.6	A	5.0	A	A
219	446	42.00	9.42	6.19	26.0	120.0	A	10.6	A	A
220	356.13	23.83	6.69	-15.21	63.9	80.3	A	8.2	A	A
221	388.2	28.10	7.24	-7.57	31.8	89.0	A	8.7	A	A
227	411.45	37.48	9.11	-2.04	8.6	109.6	A	10.3	A	A
230	395.4	6.68	1.69	-5.86	24.6	54.4	A	5.1	A	A
232	256	32.00	12.50	-39.05	164.0	97.4	N	13.4	A	N
233	355	39.00	10.99	-15.48	65.0	113.1	A	12.0	A	A
236	432	25.00	5.79	2.86	12.0	82.6	A	7.5	A	A
237	359.7	12.70	3.53	-14.36	60.3	61.1	A	5.9	A	A
238	413	12.00	2.91	-1.67	7.0	60.2	A	5.6	A	A
239	397	29.00	7.30	-5.48	23.0	90.9	A	8.7	A	A
244	449	57.60	12.83	6.90	29.0	157.3	A	13.7	A	A
245	445	13.00	2.92	5.95	25.0	61.5	A	5.6	A	A
246	378.9	6.20	1.64	-9.79	41.1	54.0	A	5.0	A	A
251	285	45.00	15.79	-32.14	135.0	127.1	N	16.5	A	N
252	372.7	14.10	3.78	-11.26	47.3	63.1	A	6.1	A	A
253	540	156.00	28.89	28.57	120.0	405.8	A	29.3	N	N
254	474	12.00	2.53	12.86	54.0	60.2	A	5.4	A	A
255	374	15.00	4.01	-10.95	46.0	64.5	A	6.2	A	A
257	342	14.00	4.09	-18.57	78.0	63.0	N	6.3	A	W
258	430.9	20.80	4.83	2.60	10.9	74.4	A	6.8	A	A
259	360.97	10.11	2.80	-14.05	59.0	57.8	N	5.5	A	W
260	426	20.00	4.69	1.43	6.0	73.0	A	6.7	A	A
261	340	34.00	10.00	-19.05	80.0	101.8	A	11.1	A	A
264	482	78.80	16.35	14.76	62.0	209.8	A	17.0	A	A
265	410	70.20	17.12	-2.38	10.0	188.3	A	17.8	A	A

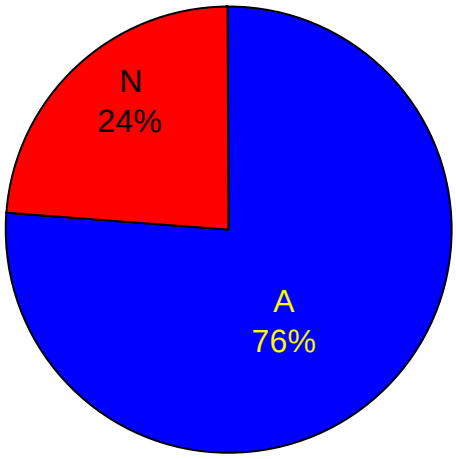
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
267	165	14.10	8.55	-60.71	255.0	63.1	N	9.8	A	N
269	<117									N
272	320.5	33.30	10.39	-23.69	99.5	100.2	A	11.4	A	A
273	109.5	15.10	13.79	-73.93	310.5	64.7	N	14.6	A	N
274	376	19.00	5.05	-10.48	44.0	71.2	A	6.9	A	A
275	25.84	1.08	4.18	-93.85	394.2	51.7	N	6.3	A	N
276	390	60.00	15.38	-7.14	30.0	163.2	A	16.1	A	A
277	464.53	30.30	6.52	10.60	44.5	93.7	A	8.1	A	A
279	485	33.70	6.95	15.48	65.0	101.1	A	8.4	A	A
283	2.8	0.12	4.29	-99.33	417.2	51.6	N	6.4	A	N
284	441.96	35.39	8.01	5.23	22.0	104.9	A	9.3	A	A
285	424.5	36.10	8.50	1.07	4.5	106.5	A	9.7	A	A
288	404	22.00	5.45	-3.81	16.0	76.7	A	7.2	A	A
289	361	20.00	5.54	-14.05	59.0	73.0	A	7.3	A	A
290	380	28.00	7.37	-9.52	40.0	88.8	A	8.8	A	A
292	440	20.00	4.55	4.76	20.0	73.0	A	6.6	A	A
293	440	20.00	4.55	4.76	20.0	73.0	A	6.6	A	A
294	418	21.00	5.02	-0.48	2.0	74.8	A	6.9	A	A
295	128	15.60	12.19	-69.52	292.0	65.4	N	13.1	A	N
296	314	25.00	7.96	-25.24	106.0	82.6	N	9.3	A	N
297	341	25.00	7.33	-18.81	79.0	82.6	A	8.7	A	A
299	317	35.00	11.04	-24.52	103.0	104.0	A	12.0	A	A
300	305	58.00	19.02	-27.38	115.0	158.3	A	19.6	A	A

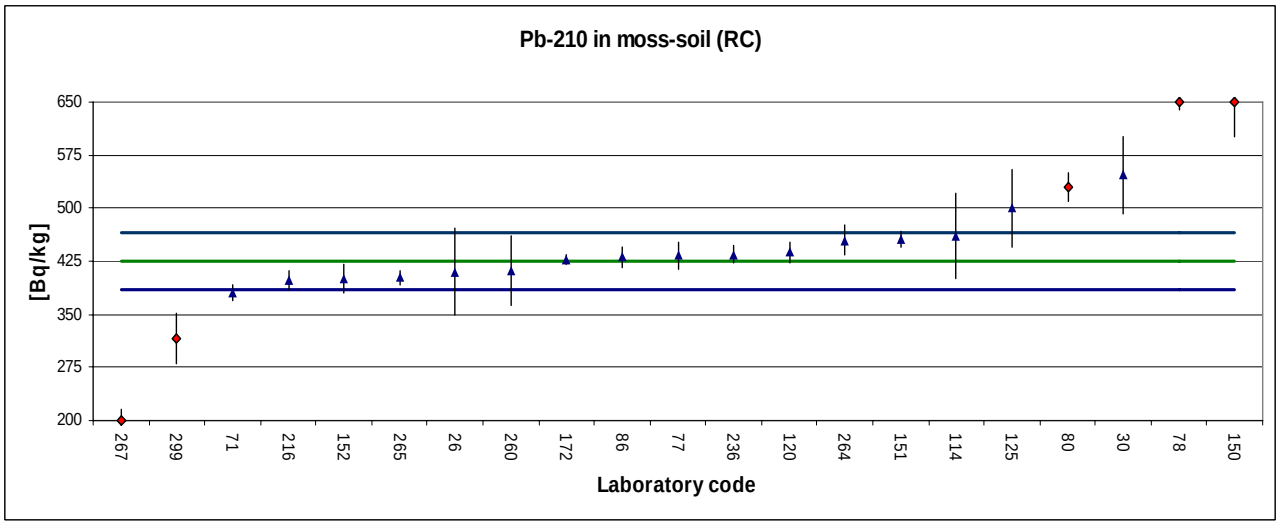
Performance evaluation of Pb-210 measurement results

IAEA-447 Moss-soil reference material

Target Value: 420 ± 20 [Bq/kg]

Radiochemical methods



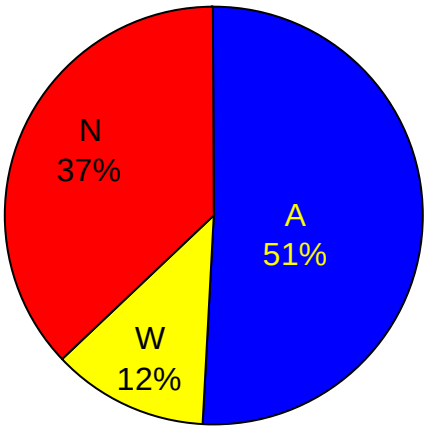


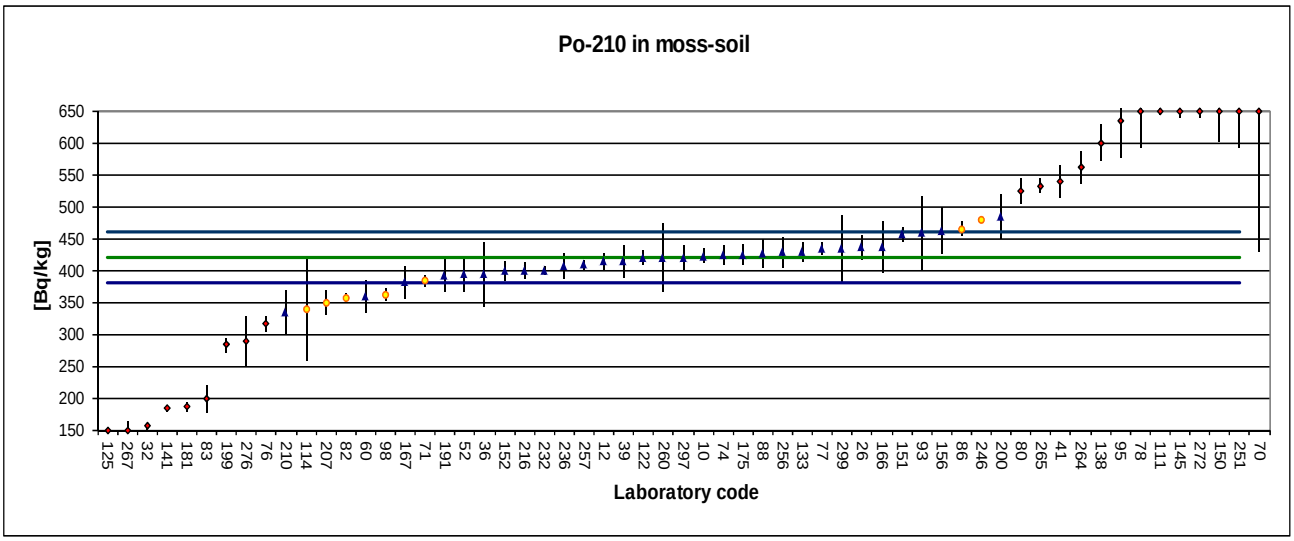
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
26	410	61.5	15.00	-3.30	14.0	166.8	A	15.7	A	A
30	547	55	10.05	29.01	123.0	151.0	A	11.1	A	A
71	381	11.3	2.97	-10.14	43.0	59.3	A	5.6	A	A
77	433	19.05	4.39	2.24	9.5	71.3	A	6.4	A	A
78	811	11	1.36	91.27	387.0	58.9	N	4.9	A	N
80	530	20	3.77	25.00	106.0	73.0	N	6.0	A	N
86	431	14	3.25	1.65	7.0	63.0	A	5.7	A	A
114	460	60	13.04	8.49	36.0	163.2	A	13.9	A	A
120	437	14.4	3.29	3.18	13.5	63.6	A	5.8	A	A
125	500	54	10.80	17.92	76.0	148.6	A	11.8	A	A
150	821	48.12	5.86	93.70	397.3	134.4	N	7.5	A	N
151	455	10.8	2.37	7.43	31.5	58.6	A	5.3	A	A
152	400	20	5.00	-5.66	24.0	73.0	A	6.9	A	A
172	427	6	1.41	0.71	3.0	53.9	A	4.9	A	A
216	399	13	3.26	-5.90	25.0	61.5	A	5.7	A	A
236	435	13	2.99	2.59	11.0	61.5	A	5.6	A	A
260	412	49.5	12.01	-2.83	12.0	137.7	A	12.9	A	A
264	455	21.5	4.73	7.31	31.0	75.8	A	6.7	A	A
265	402	9.46	2.35	-5.19	22.0	57.1	A	5.3	A	A
267	61	15	24.59	-85.61	363.0	64.5	N	25.0	N	N
299	316	35	11.08	-25.47	108.0	104.0	N	12.0	A	N

Performance evaluation of Po-210 measurement results

IAEA-447 Moss-soil reference material

Target Value: 423 ± 10 [Bq/kg]





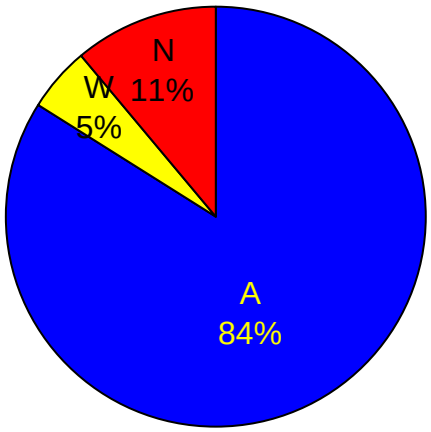
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
10	421.92	11.78	2.79	-0.26	1.1	39.9	A	3.7	A	A
12	413	13	3.15	-2.36	10.0	42.3	A	3.9	A	A
26	435.63	18.42	4.23	2.99	12.6	54.1	A	4.8	A	A
32	155.4	5.8	3.73	-63.26	267.6	29.8	N	4.4	A	N
36	395	50	12.66	-6.62	28.0	131.6	A	12.9	A	A
39	414	25	6.04	-2.13	9.0	69.5	A	6.5	A	A
41	539	25	4.64	27.42	116.0	69.5	N	5.2	A	N
52	393	26	6.62	-7.09	30.0	71.9	A	7.0	A	A
60	359	26	7.24	-15.13	64.0	71.9	A	7.6	A	A
70	1440	220	15.28	240.43	1017.0	568.2	N	15.5	A	N
71	383	8.75	2.28	-9.46	40.0	34.3	N	3.3	A	W

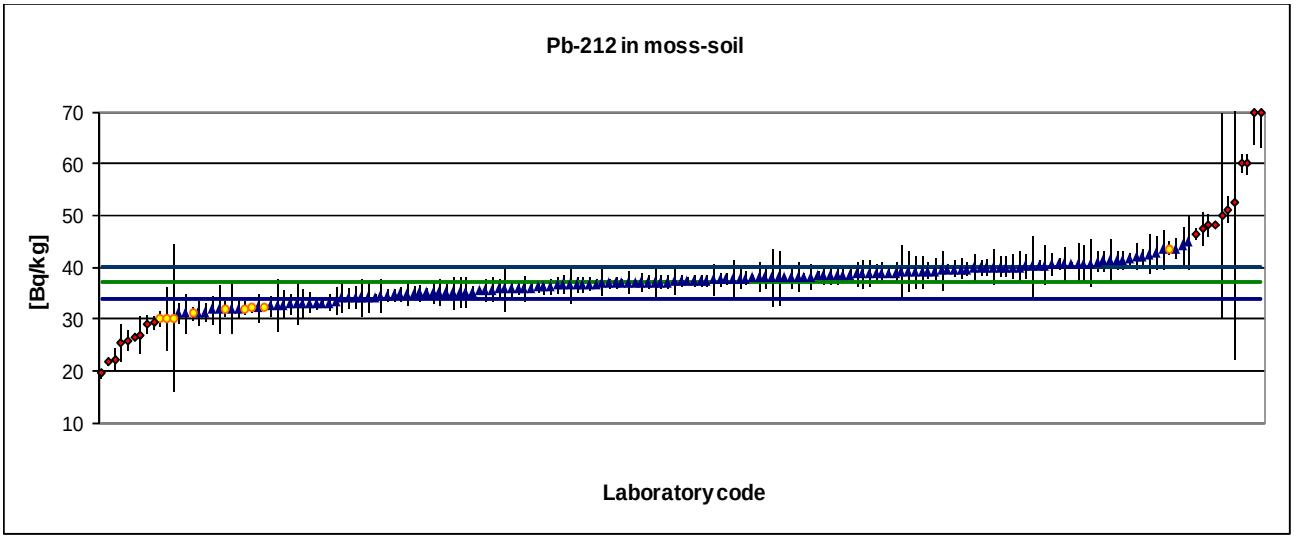
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
74	425	15	3.53	0.47	2.0	46.5	A	4.2	A	A
76	316	12	3.80	-25.30	107.0	40.3	N	4.5	A	N
77	433.3	10.6	2.45	2.43	10.3	37.6	A	3.4	A	A
78	680	58.5	8.60	60.76	257.0	153.1	N	8.9	A	N
80	525	20	3.81	24.11	102.0	57.7	N	4.5	A	N
82	356.62	6.21	1.74	-15.69	66.4	30.4	N	2.9	A	W
83	197.71	20.85	10.55	-53.26	225.3	59.7	N	10.8	A	N
86	465	12	2.58	9.93	42.0	40.3	N	3.5	A	W
88	426	23	5.40	0.71	3.0	64.7	A	5.9	A	A
93	460	57.5	12.50	8.75	37.0	150.6	A	12.7	A	A
95	634	57	8.99	49.88	211.0	149.3	N	9.3	A	N
98	361.73	9.56	2.64	-14.48	61.3	35.7	N	3.5	A	W
111	745.6	6.59	0.88	76.26	322.6	30.9	N	2.5	A	N
114	340	80	23.53	-19.62	83.0	208.0	A	23.6	N	W
122	420	12	2.86	-0.71	3.0	40.3	A	3.7	A	A
125	0.6	0.6	100.00	-99.86	422.4	25.8	N	100.0	N	N
133	430	15	3.49	1.65	7.0	46.5	A	4.2	A	A
138	600	29	4.83	41.84	177.0	79.1	N	5.4	A	N
141	183.1	4.54	2.48	-56.71	239.9	28.3	N	3.4	A	N
145	771.98	11	1.42	82.50	349.0	38.4	N	2.8	A	N
150	821.28	48.12	5.86	94.16	398.3	126.8	N	6.3	A	N
151	455.51	11.37	2.50	7.69	32.5	39.1	A	3.4	A	A
152	398	15	3.77	-5.91	25.0	46.5	A	4.4	A	A
156	462.1	36.69	7.94	9.24	39.1	98.1	A	8.3	A	A
166	436	40	9.17	3.07	13.0	106.4	A	9.5	A	A
167	381.21	24.76	6.50	-9.88	41.8	68.9	A	6.9	A	A
175	425	16	3.76	0.47	2.0	48.7	A	4.4	A	A
181	186.37	8.48	4.55	-55.94	236.6	33.8	N	5.1	A	N
191	391.87	26.03	6.64	-7.36	31.1	71.9	A	7.1	A	A
199	282.6	10.7	3.79	-33.19	140.4	37.8	N	4.5	A	N
200	485	35	7.22	14.66	62.0	93.9	A	7.6	A	A
207	350	19	5.43	-17.26	73.0	55.4	N	5.9	A	W
210	334	36	10.78	-21.04	89.0	96.4	A	11.0	A	A
216	399	13	3.26	-5.67	24.0	42.3	A	4.0	A	A
232	400	6.1	1.53	-5.44	23.0	30.2	A	2.8	A	A
236	406	20	4.93	-4.02	17.0	57.7	A	5.5	A	A
246	477.7	3.21	0.67	12.93	54.7	27.1	N	2.5	A	W
251	885.8	59.2	6.68	109.41	462.8	154.9	N	7.1	A	N
256	428	24	5.61	1.18	5.0	67.1	A	6.1	A	A
257	408.4	7.6	1.86	-3.45	14.6	32.4	A	3.0	A	A
260	420	54.6	13.00	-0.71	3.0	143.2	A	13.2	A	A
264	561	25.3	4.51	32.62	138.0	70.2	N	5.1	A	N
265	532.4	11.2	2.10	25.86	109.4	38.7	N	3.2	A	N
267	61	15	24.59	-85.58	362.0	46.5	N	24.7	N	N
272	819.2	11.6	1.42	93.66	396.2	39.5	N	2.8	A	N
276	290	40	13.79	-31.44	133.0	106.4	N	14.0	A	N
297	420	20	4.76	-0.71	3.0	57.7	A	5.3	A	A
299	434	52	11.98	2.60	11.0	136.6	A	12.2	A	A

Performance evaluation of Pb-212 measurement results

IAEA-447 Moss-soil reference material

Target Value: 37.0 ± 1.5 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
1	34.03	3.57	10.49	-8.03	3.0	10.0	A	11.2	A	A
3	39	5	12.82	5.41	2.0	13.5	A	13.4	A	A
5	35	2.5	7.14	-5.41	2.0	7.5	A	8.2	A	A
6	38.6	2.3	5.96	4.32	1.6	7.1	A	7.2	A	A
7	36.16	1.24	3.43	-2.27	0.8	5.0	A	5.3	A	A
10	37.27	1.12	3.01	0.73	0.3	4.8	A	5.0	A	A
11	34.4	3.4	9.88	-7.03	2.6	9.6	A	10.7	A	A
12	39	4	10.26	5.41	2.0	11.0	A	11.0	A	A
13	29.26	1.29	4.41	-20.92	7.7	5.1	N	6.0	A	N
14	233	6.91	2.97	529.73	196.0	18.2	N	5.0	A	N
15	26.83	3.63	13.53	-27.49	10.2	10.1	N	14.1	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
16	36.9	0.9	2.44	-0.27	0.1	4.5	A	4.7	A	A
17	36.1	0.8	2.22	-2.43	0.9	4.4	A	4.6	A	A
18	37.9	0.6	1.58	2.43	0.9	4.2	A	4.4	A	A
19	39.5	0.9	2.28	6.76	2.5	4.5	A	4.7	A	A
20	37.3	0.6	1.61	0.81	0.3	4.2	A	4.4	A	A
22	38.1	0.7	1.84	2.97	1.1	4.3	A	4.5	A	A
23	38.4	1.8	4.69	3.78	1.4	6.0	A	6.2	A	A
24	38.3	0.7	1.83	3.51	1.3	4.3	A	4.4	A	A
25	22.13	2.11	9.53	-40.19	14.9	6.7	N	10.4	A	N
26	35.83	4.23	11.81	-3.16	1.2	11.6	A	12.5	A	A
27	30.138	6.116	20.29	-18.55	6.9	16.2	A	20.7	N	W
29	42.8	3.3	7.71	15.68	5.8	9.4	A	8.7	A	A
30	38.4	1.7	4.43	3.78	1.4	5.8	A	6.0	A	A
31	39.7	2.5	6.30	7.30	2.7	7.5	A	7.5	A	A
32	40.4	2.2	5.45	9.19	3.4	6.9	A	6.8	A	A
34	33	4	12.12	-10.81	4.0	11.0	A	12.8	A	A
39	33	3	9.09	-10.81	4.0	8.7	A	10.0	A	A
40	38.9	2.1	5.40	5.14	1.9	6.7	A	6.8	A	A
41	35	1.5	4.29	-5.41	2.0	5.5	A	5.9	A	A
42	39	3	7.69	5.41	2.0	8.7	A	8.7	A	A
44	34.04	2.04	5.99	-8.00	3.0	6.5	A	7.2	A	A
45	34.9	1.3	3.72	-5.68	2.1	5.1	A	5.5	A	A
46	35.9	1.5	4.18	-2.97	1.1	5.5	A	5.8	A	A
47	36.3	1.5	4.13	-1.89	0.7	5.5	A	5.8	A	A
50	36.6	3.7	10.11	-1.08	0.4	10.3	A	10.9	A	A
51	44.8	5.2	11.61	21.08	7.8	14.0	A	12.3	A	A
52	33	2	6.06	-10.81	4.0	6.5	A	7.3	A	A
53	38.4	1.4	3.65	3.78	1.4	5.3	A	5.5	A	A
54	40.1	6	14.96	8.38	3.1	16.0	A	15.5	A	A
55	38	2.3	6.05	2.70	1.0	7.1	A	7.3	A	A
56	42	2.5	5.95	13.51	5.0	7.5	A	7.2	A	A
57	37.5	3.2	8.53	1.35	0.5	9.1	A	9.4	A	A
58	41.3	1.8	4.36	11.62	4.3	6.0	A	6.0	A	A
59	41.1	2	4.87	11.08	4.1	6.5	A	6.3	A	A
60	34.5	1.3	3.77	-6.76	2.5	5.1	A	5.5	A	A
62	36.4	1.63	4.48	-1.62	0.6	5.7	A	6.0	A	A
63	40.48	1.1	2.72	9.41	3.5	4.8	A	4.9	A	A
64	37.83	1.34	3.54	2.24	0.8	5.2	A	5.4	A	A
65	39.6	1.74	4.39	7.03	2.6	5.9	A	6.0	A	A
70	32	5	15.63	-13.51	5.0	13.5	A	16.1	A	A
71	37.5	1.3	3.47	1.35	0.5	5.1	A	5.3	A	A
72	37	0.43	1.16	0.00	0.0	4.0	A	4.2	A	A
73	40	2.2	5.50	8.11	3.0	6.9	A	6.8	A	A
77	34.97	0.76	2.17	-5.49	2.0	4.3	A	4.6	A	A
78	50.9	2.54	4.99	37.57	13.9	7.6	N	6.4	A	N
80	37.9	2.9	7.65	2.43	0.9	8.4	A	8.7	A	A
81	37	1.7	4.59	0.00	0.0	5.8	A	6.1	A	A
82	32.1	0.8	2.49	-13.24	4.9	4.4	N	4.8	A	W

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
83	40.49	3.37	8.32	9.43	3.5	9.5	A	9.3	A	A
86	32	2	6.25	-13.51	5.0	6.5	A	7.4	A	A
87	37.6	1	2.66	1.62	0.6	4.7	A	4.8	A	A
88	31	2	6.45	-16.22	6.0	6.5	A	7.6	A	A
90	38.4	1.55	4.04	3.78	1.4	5.6	A	5.7	A	A
91	38	3	7.89	2.70	1.0	8.7	A	8.9	A	A
92	39.6	1.9	4.80	7.03	2.6	6.2	A	6.3	A	A
93	43.6	1.3	2.98	17.84	6.6	5.1	N	5.0	A	W
95	31	3.9	12.58	-16.22	6.0	10.8	A	13.2	A	A
99	38.9	1	2.57	5.14	1.9	4.7	A	4.8	A	A
100	50	20	40.00	35.14	13.0	51.7	A	40.2	N	N
101	41.2	4.2	10.19	11.35	4.2	11.5	A	11.0	A	A
109	90.4	6.4	7.08	144.32	53.4	17.0	N	8.2	A	N
111	38.91	2.06	5.29	5.16	1.9	6.6	A	6.7	A	A
112	37.3	1.1	2.95	0.81	0.3	4.8	A	5.0	A	A
113	35.96	0.97	2.70	-2.81	1.0	4.6	A	4.9	A	A
114	40	3	7.50	8.11	3.0	8.7	A	8.5	A	A
115	32.1	2.6	8.10	-13.24	4.9	7.7	A	9.1	A	A
118	39.9	1.55	3.88	7.84	2.9	5.6	A	5.6	A	A
119	39.9	3.4	8.52	7.84	2.9	9.6	A	9.4	A	A
120	37.3	1.1	2.95	0.81	0.3	4.8	A	5.0	A	A
122	36.6	1.5	4.10	-1.08	0.4	5.5	A	5.8	A	A
123	36.6	1.4	3.83	-1.08	0.4	5.3	A	5.6	A	A
124	34.96	1.59	4.55	-5.51	2.0	5.6	A	6.1	A	A
125	40.7	4.4	10.81	10.00	3.7	12.0	A	11.5	A	A
127	41.2	1.8	4.37	11.35	4.2	6.0	A	6.0	A	A
130	37	1.2	3.24	0.00	0.0	5.0	A	5.2	A	A
131	47.39	3.38	7.13	28.08	10.4	9.5	N	8.2	A	N
132	42.04	1.476	3.51	13.62	5.0	5.4	A	5.4	A	A
133	37.9	2.1	5.54	2.43	0.9	6.7	A	6.9	A	A
134	37.3	1.01	2.71	0.81	0.3	4.7	A	4.9	A	A
136	38.86	1.72	4.43	5.03	1.9	5.9	A	6.0	A	A
138	35	3	8.57	-5.41	2.0	8.7	A	9.5	A	A
140	19.4	0.84	4.33	-47.57	17.6	4.4	N	5.9	A	N
142	48.11	0.017	0.04	30.03	11.1	3.9	N	4.1	A	N
143	31.71	2.71	8.55	-14.30	5.3	8.0	A	9.5	A	A
150	48	2.2	4.58	29.73	11.0	6.9	N	6.1	A	N
151	60	1.8	3.00	62.16	23.0	6.0	N	5.0	A	N
152	60	2	3.33	62.16	23.0	6.5	N	5.2	A	N
153	40.69	3.29	8.09	9.97	3.7	9.3	A	9.0	A	A
154	38.7	2.4	6.20	4.59	1.7	7.3	A	7.4	A	A
155	34	3	8.82	-8.11	3.0	8.7	A	9.7	A	A
157	31.8	4.7	14.78	-14.05	5.2	12.7	A	15.3	A	A
159	35.9	1	2.79	-2.97	1.1	4.7	A	4.9	A	A
160	32.54	5.01	15.40	-12.05	4.5	13.5	A	15.9	A	A
161	40.65	3.7	9.10	9.86	3.7	10.3	A	10.0	A	A
163	34.7	2.2	6.34	-6.22	2.3	6.9	A	7.5	A	A
164	38.373	1.821	4.75	3.71	1.4	6.1	A	6.2	A	A

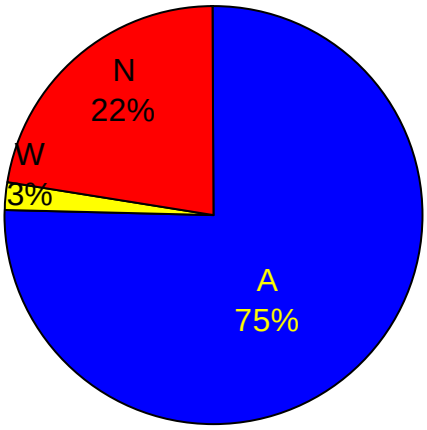
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
165	25.9	2	7.72	-30.00	11.1	6.5	N	8.7	A	N
168	33	1.1	3.33	-10.81	4.0	4.8	A	5.2	A	A
169	37.8	3.6	9.52	2.16	0.8	10.1	A	10.4	A	A
170	37	3	8.11	0.00	0.0	8.7	A	9.1	A	A
171	43.6	2.1	4.82	17.84	6.6	6.7	A	6.3	A	A
172	37.1	1.2	3.23	0.27	0.1	5.0	A	5.2	A	A
173	39.98	1.92	4.80	8.05	3.0	6.3	A	6.3	A	A
174	35.6	2.2	6.18	-3.78	1.4	6.9	A	7.4	A	A
175	38.6	2.6	6.74	4.32	1.6	7.7	A	7.9	A	A
177	31	1.2	3.87	-16.22	6.0	5.0	N	5.6	A	W
178	34.99	2.2	6.29	-5.43	2.0	6.9	A	7.5	A	A
179	35.17	1	2.84	-4.95	1.8	4.7	A	5.0	A	A
181	32.24	0.46	1.43	-12.86	4.8	4.0	N	4.3	A	W
185	37.9	5.5	14.51	2.43	0.9	14.7	A	15.1	A	A
191	31.83	1.32	4.15	-13.97	5.2	5.2	N	5.8	A	W
193	41	2	4.88	10.81	4.0	6.5	A	6.3	A	A
195	38.1	2.6	6.82	2.97	1.1	7.7	A	7.9	A	A
199	36.9	1.1	2.98	-0.27	0.1	4.8	A	5.0	A	A
200	39.9	2	5.01	7.84	2.9	6.5	A	6.4	A	A
201	30.11	1.36	4.52	-18.62	6.9	5.2	N	6.1	A	W
202	52.54	30.49	58.03	42.00	15.5	78.8	A	58.2	N	N
205	39.22	2.32	5.92	6.00	2.2	7.1	A	7.2	A	A
209	26.45	0.82	3.10	-28.51	10.6	4.4	N	5.1	A	N
210	29	1.7	5.86	-21.62	8.0	5.8	N	7.1	A	N
211	36.4	1.8	4.95	-1.62	0.6	6.0	A	6.4	A	A
215	34.61	1.34	3.87	-6.46	2.4	5.2	A	5.6	A	A
216	40.3	1	2.48	8.92	3.3	4.7	A	4.8	A	A
217	40.09	2.29	5.71	8.35	3.1	7.1	A	7.0	A	A
218	35.454	0.306	0.86	-4.18	1.5	3.9	A	4.1	A	A
219	35.8	1.7	4.75	-3.24	1.2	5.8	A	6.2	A	A
220	36.81	2.5	6.79	-0.51	0.2	7.5	A	7.9	A	A
221	37.8	2.1	5.56	2.16	0.8	6.7	A	6.9	A	A
223	25.36	3.6	14.20	-31.46	11.6	10.1	N	14.8	A	N
227	35.63	2.28	6.40	-3.70	1.4	7.0	A	7.6	A	A
233	42.5	3.8	8.94	14.86	5.5	10.5	A	9.8	A	A
234	32.5	1.97	6.06	-12.16	4.5	6.4	A	7.3	A	A
235	34.63	1.41	4.07	-6.41	2.4	5.3	A	5.7	A	A
236	37.1	1.2	3.23	0.27	0.1	5.0	A	5.2	A	A
237	36.7	1.2	3.27	-0.81	0.3	5.0	A	5.2	A	A
238	36.9	0.8	2.17	-0.27	0.1	4.4	A	4.6	A	A
239	39.2	1.6	4.08	5.95	2.2	5.7	A	5.8	A	A
241	34.1	2.8	8.21	-7.84	2.9	8.2	A	9.2	A	A
244	33.1	1.72	5.20	-10.54	3.9	5.9	A	6.6	A	A
246	21.7	0.77	3.55	-41.35	15.3	4.4	N	5.4	A	N
251	39.33	3.82	9.71	6.30	2.3	10.6	A	10.5	A	A
252	36.7	1	2.72	-0.81	0.3	4.7	A	4.9	A	A
253	34	2	5.88	-8.11	3.0	6.5	A	7.1	A	A
255	34.2	0.5	1.46	-7.57	2.8	4.1	A	4.3	A	A

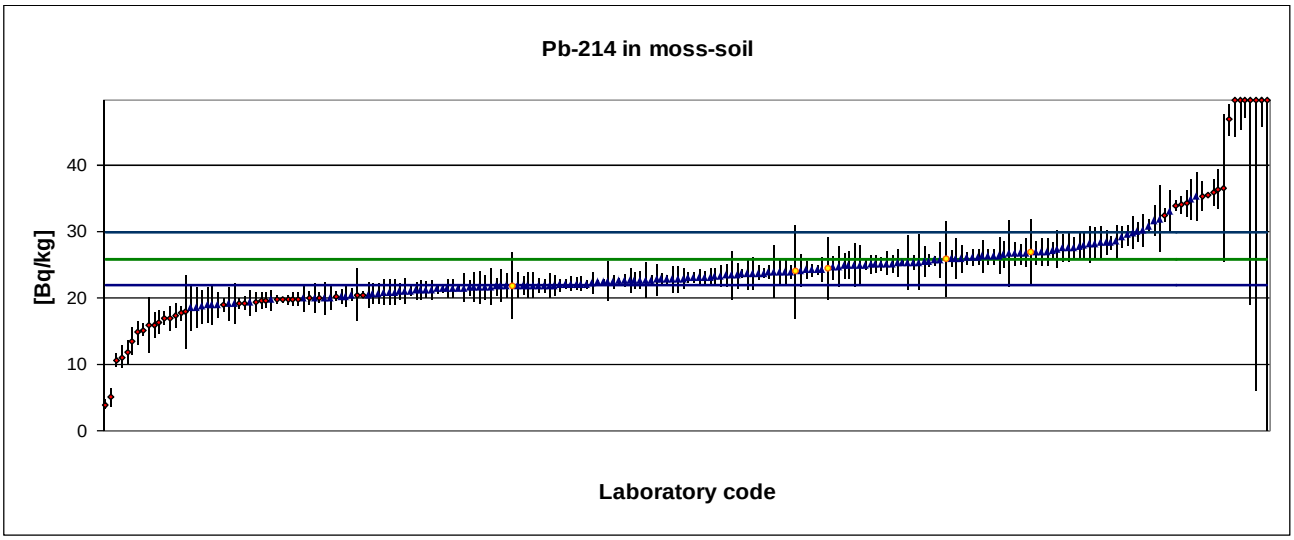
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
258	32.7	2.62	8.01	-11.62	4.3	7.8	A	9.0	A	A
259	32.86	1.99	6.06	-11.19	4.1	6.4	A	7.3	A	A
260	43.4	3.8	8.76	17.30	6.4	10.5	A	9.6	A	A
261	39	3.1	7.95	5.41	2.0	8.9	A	8.9	A	A
263	40.3	3.8	9.43	8.92	3.3	10.5	A	10.3	A	A
265	36.9	2.18	5.91	-0.27	0.1	6.8	A	7.2	A	A
267	37.2	2.6	6.99	0.54	0.2	7.7	A	8.1	A	A
268	41.5	1.1	2.65	12.16	4.5	4.8	A	4.8	A	A
269	35.9	2.6	7.24	-2.97	1.1	7.7	A	8.3	A	A
272	37.9	5.27	13.91	2.43	0.9	14.1	A	14.5	A	A
274	39.6	1.3	3.28	7.03	2.6	5.1	A	5.2	A	A
275	39.72	1.47	3.70	7.35	2.7	5.4	A	5.5	A	A
277	46.35	1.02	2.20	25.27	9.4	4.7	N	4.6	A	N
279	30.2	14.2	47.02	-18.38	6.8	36.8	A	47.2	N	W
284	33.49	2.71	8.09	-9.49	3.5	8.0	A	9.1	A	A
285	35.1	2.8	7.98	-5.14	1.9	8.2	A	8.9	A	A
288	44.3	3.645	8.23	19.73	7.3	10.2	A	9.2	A	A
290	35.1	3.03	8.63	-5.14	1.9	8.7	A	9.5	A	A
292	31	2.415	7.79	-16.22	6.0	7.3	A	8.8	A	A
293	31	1.8	5.81	-16.22	6.0	6.0	A	7.1	A	A
294	32	1.185	3.70	-13.51	5.0	4.9	N	5.5	A	W
297	40.5	0.57	1.41	9.46	3.5	4.1	A	4.3	A	A
299	37.9	-0.045	-0.12	2.43	0.9	3.9	A	4.1	A	A
300	33	-0.66	-2.00	-10.81	4.0	4.2	A	4.5	A	A

Performance evaluation of Pb-214 measurement results

IAEA-447 Moss-soil reference material

Target Value: 26.0 ± 2.0 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
1	22.87	2.4	10.49	-12.04	3.1	8.1	A	13.0	A	A
3	24	4	16.67	-7.69	2.0	11.5	A	18.4	A	A
5	23	2	8.70	-11.54	3.0	7.3	A	11.6	A	A
6	26.8	1.5	5.60	3.08	0.8	6.5	A	9.5	A	A
7	23.12	0.8	3.46	-11.08	2.9	5.6	A	8.4	A	A
10	25.72	0.75	2.92	-1.08	0.3	5.5	A	8.2	A	A
11	21.9	2.4	10.96	-15.77	4.1	8.1	A	13.4	A	A
12	21	2	9.52	-19.23	5.0	7.3	A	12.2	A	A
13	27.61	2.03	7.35	6.19	1.6	7.4	A	10.6	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
14	16.1	4.11	25.53	-38.08	9.9	11.8	A	26.7	N	N
15	16.1	1.99	12.36	-38.08	9.9	7.3	N	14.6	A	N
16	21.5	0.7	3.26	-17.31	4.5	5.5	A	8.4	A	A
17	19.3	3.1	16.06	-25.77	6.7	9.5	A	17.8	A	A
18	21.5	0.5	2.33	-17.31	4.5	5.3	A	8.0	A	A
19	25.1	0.7	2.79	-3.46	0.9	5.5	A	8.2	A	A
20	21.6	0.5	2.31	-16.92	4.4	5.3	A	8.0	A	A
22	22.5	0.3	1.33	-13.46	3.5	5.2	A	7.8	A	A
23	25.7	1	3.89	-1.15	0.3	5.8	A	8.6	A	A
24	22.7	0.5	2.20	-12.69	3.3	5.3	A	8.0	A	A
25	4.06	0.73	17.98	-84.38	21.9	5.5	N	19.6	A	N
26	19	2.65	13.95	-26.92	7.0	8.6	A	15.9	A	A
27	26.737	4.928	18.43	2.83	0.7	13.7	A	20.0	A	A
29	26.4	2.4	9.09	1.54	0.4	8.1	A	11.9	A	A
30	19.9	1.1	5.53	-23.46	6.1	5.9	N	9.5	A	N
31	27.9	2.1	7.53	7.31	1.9	7.5	A	10.8	A	A
32	22.2	1.1	4.95	-14.62	3.8	5.9	A	9.2	A	A
34	28	2	7.14	7.69	2.0	7.3	A	10.5	A	A
36	19.4	2	10.31	-25.38	6.6	7.3	A	12.9	A	A
37	21.36	1.37	6.41	-17.85	4.6	6.3	A	10.0	A	A
39	22	5	22.73	-15.38	4.0	13.9	A	24.0	N	W
40	20.8	1.6	7.69	-20.00	5.2	6.6	A	10.9	A	A
41	21	2	9.52	-19.23	5.0	7.3	A	12.2	A	A
42	23	2	8.70	-11.54	3.0	7.3	A	11.6	A	A
43	22.3	1.6	7.17	-14.23	3.7	6.6	A	10.5	A	A
44	22.61	0.98	4.33	-13.04	3.4	5.7	A	8.8	A	A
45	26.2	0.9	3.44	0.77	0.2	5.7	A	8.4	A	A
46	23.2	1	4.31	-10.77	2.8	5.8	A	8.8	A	A
47	25.3	1.8	7.11	-2.69	0.7	6.9	A	10.5	A	A
50	28.2	2.8	9.93	8.46	2.2	8.9	A	12.6	A	A
51	28.4	2.6	9.15	9.23	2.4	8.5	A	12.0	A	A
52	19	3	15.79	-26.92	7.0	9.3	A	17.6	A	A
53	22.1	0.9	4.07	-15.00	3.9	5.7	A	8.7	A	A
54	22.6	3	13.27	-13.08	3.4	9.3	A	15.3	A	A
55	25.2	1.5	5.95	-3.08	0.8	6.5	A	9.7	A	A
56	24	2	8.33	-7.69	2.0	7.3	A	11.3	A	A
57	20.8	1.52	7.31	-20.00	5.2	6.5	A	10.6	A	A
59	36	2	5.56	38.46	10.0	7.3	N	9.5	A	N
60	23.7	0.6	2.53	-8.85	2.3	5.4	A	8.1	A	A
61	21.1	1.3	6.16	-18.85	4.9	6.2	A	9.9	A	A
62	24.3	1.25	5.14	-6.54	1.7	6.1	A	9.3	A	A
63	26.77	1.79	6.69	2.96	0.8	6.9	A	10.2	A	A
65	25.5	1.12	4.39	-1.92	0.5	5.9	A	8.9	A	A
70	27	5	18.52	3.85	1.0	13.9	A	20.1	N	W
71	20.6	0.9	4.37	-20.77	5.4	5.7	A	8.8	A	A
72	19.84	0.7	3.53	-23.69	6.2	5.5	N	8.5	A	N
73	21.3	1.5	7.04	-18.08	4.7	6.5	A	10.4	A	A
74	3785	190	5.02	14457.	3759.0	490.2	N	9.2	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
76	21.5	1.4	6.51	-17.31	4.5	6.3	A	10.1	A	A
77	19.82	0.59	2.98	-23.77	6.2	5.4	N	8.2	A	N
78	18.8	2.55	13.56	-27.69	7.2	8.4	A	15.6	A	A
79	26.5	2.7	10.19	1.92	0.5	8.7	A	12.8	A	A
80	20.6	3.9	18.93	-20.77	5.4	11.3	A	20.4	N	N
81	35.4	3.7	10.45	36.15	9.4	10.9	A	13.0	A	A
82	17.01	0.95	5.58	-34.58	9.0	5.7	N	9.5	A	N
83	18.74	3.08	16.44	-27.92	7.3	9.5	A	18.1	A	A
84	22.8	2.7	11.84	-12.31	3.2	8.7	A	14.1	A	A
85	22.7	0.9	3.96	-12.69	3.3	5.7	A	8.7	A	A
86	24	2	8.33	-7.69	2.0	7.3	A	11.3	A	A
87	23.1	0.8	3.46	-11.15	2.9	5.6	A	8.4	A	A
88	19	2	10.53	-26.92	7.0	7.3	A	13.0	A	A
89	33.23	3.2	9.63	27.81	7.2	9.7	A	12.3	A	A
90	21.6	2.14	9.91	-16.92	4.4	7.6	A	12.5	A	A
91	20.2	1.9	9.41	-22.31	5.8	7.1	A	12.2	A	A
92	23.4	1.2	5.13	-10.00	2.6	6.0	A	9.2	A	A
93	28.3	2.4	8.48	8.85	2.3	8.1	A	11.4	A	A
94	25.5	4.1	16.08	-1.92	0.5	11.8	A	17.8	A	A
95	19.2	2.6	13.54	-26.15	6.8	8.5	A	15.6	A	A
99	23.4	1.7	7.26	-10.00	2.6	6.8	A	10.6	A	A
101	27.4	2.9	10.58	5.38	1.4	9.1	A	13.1	A	A
109	62.1	4.5	7.25	138.85	36.1	12.7	N	10.6	A	N
110	26.6	2	7.52	2.31	0.6	7.3	A	10.8	A	A
111	20.09	2.26	11.25	-22.73	5.9	7.8	A	13.6	A	A
112	26.4	1.1	4.17	1.54	0.4	5.9	A	8.7	A	A
113	22.75	1.16	5.10	-12.50	3.3	6.0	A	9.2	A	A
114	22	2	9.09	-15.38	4.0	7.3	A	11.9	A	A
115	25	3.3	13.20	-3.85	1.0	10.0	A	15.3	A	A
118	22.8	0.75	3.29	-12.31	3.2	5.5	A	8.4	A	A
119	24.7	1.8	7.29	-5.00	1.3	6.9	A	10.6	A	A
120	26.4	1.1	4.17	1.54	0.4	5.9	A	8.7	A	A
121	26	5.75	22.12	0.00	0.0	15.7	A	23.4	N	W
122	22.9	0.9	3.93	-11.92	3.1	5.7	A	8.6	A	A
123	25.6	2.2	8.59	-1.54	0.4	7.7	A	11.5	A	A
124	20.07	0.95	4.73	-22.81	5.9	5.7	N	9.0	A	N
125	21.2	1.9	8.96	-18.46	4.8	7.1	A	11.8	A	A
126	11.9	1.8	15.13	-54.23	14.1	6.9	N	17.0	A	N
127	25.3	1.4	5.53	-2.69	0.7	6.3	A	9.5	A	A
130	24.9	2	8.03	-4.23	1.1	7.3	A	11.1	A	A
131	25.4	2.07	8.15	-2.31	0.6	7.4	A	11.2	A	A
132	25.29	1.386	5.48	-2.73	0.7	6.3	A	9.4	A	A
133	27.7	2.1	7.58	6.54	1.7	7.5	A	10.8	A	A
134	24.3	0.86	3.54	-6.54	1.7	5.6	A	8.5	A	A
136	23.26	1.34	5.76	-10.54	2.7	6.2	A	9.6	A	A
137	488.94	4.21	0.86	1780.5	462.9	12.0	N	7.7	A	N
140	26.3	1.05	3.99	1.15	0.3	5.8	A	8.7	A	A
141	26.9	2.2	8.18	3.46	0.9	7.7	A	11.2	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
142	35.63	0.011	0.03	37.04	9.6	5.2	N	7.7	A	N
143	19.06	1.1	5.77	-26.69	6.9	5.9	N	9.6	A	N
144	22.78	1.34	5.88	-12.38	3.2	6.2	A	9.7	A	A
146	17.08	1.86	10.89	-34.31	8.9	7.0	N	13.3	A	N
150	46.96	2.4	5.11	80.62	21.0	8.1	N	9.2	A	N
151	34	0.8	2.35	30.77	8.0	5.6	N	8.0	A	N
152	35	3	8.57	34.62	9.0	9.3	A	11.5	A	A
153	24.16	2.5	10.35	-7.08	1.8	8.3	A	12.9	A	A
154	22	1.4	6.36	-15.38	4.0	6.3	A	10.0	A	A
155	22	2	9.09	-15.38	4.0	7.3	A	11.9	A	A
157	24.4	1.8	7.38	-6.15	1.6	6.9	A	10.7	A	A
159	25.4	0.5	1.97	-2.31	0.6	5.3	A	7.9	A	A
160	23.8	2.52	10.59	-8.46	2.2	8.3	A	13.1	A	A
161	25.29	1.01	3.99	-2.73	0.7	5.8	A	8.7	A	A
163	19.5	1.4	7.18	-25.00	6.5	6.3	N	10.5	A	N
164	24.97	1.984	7.95	-3.96	1.0	7.3	A	11.1	A	A
165	15.3	0.9	5.88	-41.15	10.7	5.7	N	9.7	A	N
166	21.93	1.82	8.30	-15.65	4.1	7.0	A	11.3	A	A
168	20.6	0.6	2.91	-20.77	5.4	5.4	N	8.2	A	N
169	26	1.3	5.00	0.00	0.0	6.2	A	9.2	A	A
170	21	2	9.52	-19.23	5.0	7.3	A	12.2	A	A
171	34.1	1.4	4.11	31.15	8.1	6.3	N	8.7	A	N
172	23.5	1.7	7.23	-9.62	2.5	6.8	A	10.6	A	A
173	21.84	1.31	6.00	-16.00	4.2	6.2	A	9.8	A	A
174	10.7	1.1	10.28	-58.85	15.3	5.9	N	12.8	A	N
175	27	1.7	6.30	3.85	1.0	6.8	A	9.9	A	A
176	19.7	1.2	6.09	-24.23	6.3	6.0	N	9.8	A	N
177	22.2	0.9	4.05	-14.62	3.8	5.7	A	8.7	A	A
178	23.81	1.1	4.62	-8.42	2.2	5.9	A	9.0	A	A
179	21.21	0.7	3.30	-18.42	4.8	5.5	A	8.4	A	A
181	19.83	0.34	1.71	-23.73	6.2	5.2	N	7.9	A	N
183	24.1	7	29.05	-7.31	1.9	18.8	A	30.0	N	W
185	13.6	2	14.71	-47.69	12.4	7.3	N	16.6	A	N
190	25.45	4.04	15.87	-2.12	0.6	11.6	A	17.6	A	A
191	23.16	1.19	5.14	-10.92	2.8	6.0	A	9.3	A	A
192	25	3	12.00	-3.85	1.0	9.3	A	14.3	A	A
193	22	2	9.09	-15.38	4.0	7.3	A	11.9	A	A
194	26	3	11.54	0.00	0.0	9.3	A	13.9	A	A
195	31.78	2.24	7.05	22.23	5.8	7.7	A	10.4	A	A
197	69.5	2.83	4.07	167.31	43.5	8.9	N	8.7	A	N
199	27.7	1.5	5.42	6.54	1.7	6.5	A	9.4	A	A
200	27.2	1.3	4.78	4.62	1.2	6.2	A	9.1	A	A
201	30.08	1.48	4.92	15.69	4.1	6.4	A	9.1	A	A
202	89.43	31.02	34.69	243.96	63.4	80.2	A	35.5	N	N
205	23.73	2.37	9.99	-8.73	2.3	8.0	A	12.6	A	A
206	34.32	2.03	5.91	32.00	8.3	7.4	N	9.7	A	N
208	18.6	3.3	17.74	-28.46	7.4	10.0	A	19.3	A	A
209	21.65	1.16	5.36	-16.73	4.4	6.0	A	9.4	A	A

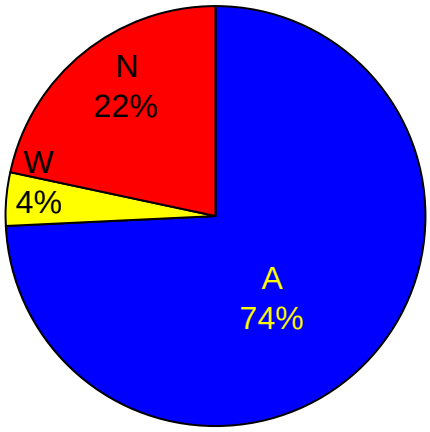
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
210	23	1.5	6.52	-11.54	3.0	6.5	A	10.1	A	A
211	19.9	1	5.03	-23.46	6.1	5.8	N	9.2	A	N
215	19.35	1	5.17	-25.58	6.7	5.8	N	9.3	A	N
216	28.5	0.98	3.44	9.62	2.5	5.7	A	8.4	A	A
217	22.2	1.15	5.18	-14.62	3.8	6.0	A	9.3	A	A
218	22.597	0.43	1.90	-13.09	3.4	5.3	A	7.9	A	A
219	22	1.1	5.00	-15.38	4.0	5.9	A	9.2	A	A
220	22.72	1.8	7.92	-12.62	3.3	6.9	A	11.0	A	A
221	22.01	1.6	7.27	-15.35	4.0	6.6	A	10.6	A	A
223	14.94	1.7	11.38	-42.54	11.1	6.8	N	13.7	A	N
225	237.6	44	18.52	813.85	211.6	113.6	N	20.1	N	N
227	19.73	1.14	5.78	-24.12	6.3	5.9	N	9.6	A	N
230	36.52	2.88	7.89	40.46	10.5	9.0	N	11.0	A	N
233	20	1.9	9.50	-23.08	6.0	7.1	A	12.2	A	A
234	17.5	1.82	10.40	-32.69	8.5	7.0	N	12.9	A	N
235	18.13	5.54	30.56	-30.27	7.9	15.2	A	31.5	N	N
236	20.1	0.8	3.98	-22.69	5.9	5.6	N	8.7	A	N
237	21.7	2.2	10.14	-16.54	4.3	7.7	A	12.7	A	A
238	35.4	2.2	6.21	36.15	9.4	7.7	N	9.9	A	N
240	26	2	7.69	0.00	0.0	7.3	A	10.9	A	A
241	11.2	1.7	15.18	-56.92	14.8	6.8	N	17.0	A	N
242	23.91	1.02	4.27	-8.04	2.1	5.8	A	8.8	A	A
244	29.3	1.62	5.53	12.69	3.3	6.6	A	9.5	A	A
245	20.4	0.7	3.43	-21.54	5.6	5.5	N	8.4	A	N
246	16.5	1.8	10.91	-36.54	9.5	6.9	N	13.3	A	N
251	25.82	2.58	9.99	-0.69	0.2	8.4	A	12.6	A	A
252	22.9	0.7	3.06	-11.92	3.1	5.5	A	8.3	A	A
253	24	1	4.17	-7.69	2.0	5.8	A	8.7	A	A
254	22	1	4.55	-15.38	4.0	5.8	A	8.9	A	A
255	20.4	1.2	5.88	-21.54	5.6	6.0	A	9.7	A	A
257	21.5	1.4	6.51	-17.31	4.5	6.3	A	10.1	A	A
258	21.31	1.25	5.87	-18.04	4.7	6.1	A	9.7	A	A
259	21.24	1.29	6.07	-18.31	4.8	6.1	A	9.8	A	A
260	32	5	15.63	23.08	6.0	13.9	A	17.4	A	A
261	22	1.8	8.18	-15.38	4.0	6.9	A	11.2	A	A
263	28.6	2.5	8.74	10.00	2.6	8.3	A	11.6	A	A
264	20.4	1.44	7.06	-21.54	5.6	6.4	A	10.4	A	A
265	5.11	1.43	27.98	-80.35	20.9	6.3	N	29.0	N	N
267	20.1	2.4	11.94	-22.69	5.9	8.1	A	14.2	A	A
268	22.17	0.74	3.34	-14.73	3.8	5.5	A	8.4	A	A
269	23.5	3.7	15.74	-9.62	2.5	10.9	A	17.5	A	A
270	23.5	1.9	8.09	-9.62	2.5	7.1	A	11.2	A	A
271	62	5.6	9.03	138.46	36.0	15.3	N	11.9	A	N
272	28.4	1.86	6.55	9.23	2.4	7.0	A	10.1	A	A
273	36.7	11.1	30.25	41.15	10.7	29.1	A	31.2	N	N
274	24.3	0.8	3.29	-6.54	1.7	5.6	A	8.4	A	A
275	26.24	1.17	4.46	0.92	0.2	6.0	A	8.9	A	A
277	23.81	0.68	2.86	-8.42	2.2	5.5	A	8.2	A	A

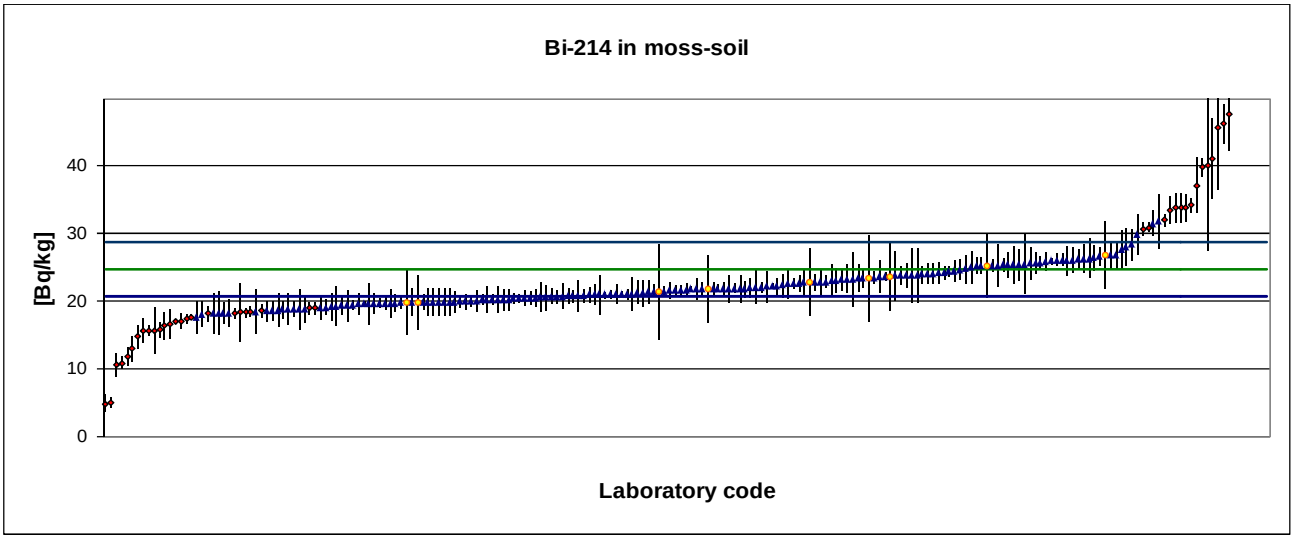
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
278	21.7	2.4	11.06	-16.54	4.3	8.1	A	13.5	A	A
279	17.8	1.1	6.18	-31.54	8.2	5.9	N	9.9	A	N
283	30.93	1.1	3.56	18.96	4.9	5.9	A	8.5	A	A
284	30.36	2.49	8.20	16.77	4.4	8.2	A	11.2	A	A
285	29.9	2.45	8.19	15.00	3.9	8.2	A	11.2	A	A
288	29.6	1.6	5.41	13.85	3.6	6.6	A	9.4	A	A
289	21.7	1.8	8.29	-16.54	4.3	6.9	A	11.3	A	A
290	24.8	3.1	12.50	-4.62	1.2	9.5	A	14.7	A	A
292	27	2	7.41	3.85	1.0	7.3	A	10.7	A	A
293	27	2	7.41	3.85	1.0	7.3	A	10.7	A	A
294	19.3	0.9	4.66	-25.77	6.7	5.7	N	9.0	A	N
295	19.8	1.6	8.08	-23.85	6.2	6.6	A	11.2	A	A
296	20.6	2	9.71	-20.77	5.4	7.3	A	12.4	A	A
297	32.5	1	3.08	25.00	6.5	5.8	N	8.3	A	N
298	22.2	0.57	2.57	-14.62	3.8	5.4	A	8.1	A	A
299	21.8	2.8	12.84	-16.15	4.2	8.9	A	15.0	A	A
300	24.6	4.7	19.11	-5.38	1.4	13.2	A	20.6	N	W

Performance evaluation of Bi-214 measurement results

IAEA-447 Moss-soil reference material

Target Value: 24.8 ± 2.0 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
1	20.37	2.01	9.87	-17.86	4.4	7.3	A	12.7	A	A
3	24	4	16.67	-3.23	0.8	11.5	A	18.5	A	A
5	23	2	8.70	-7.26	1.8	7.3	A	11.9	A	A
6	24.2	1.5	6.20	-2.42	0.6	6.5	A	10.2	A	A
7	22.66	0.75	3.31	-8.63	2.1	5.5	A	8.7	A	A
10	25.39	0.82	3.23	2.38	0.6	5.6	A	8.7	A	A
11	21.1	2.9	13.74	-14.92	3.7	9.1	A	15.9	A	A
12	22	1	4.55	-11.29	2.8	5.8	A	9.3	A	A
13	23.39	2.05	8.76	-5.69	1.4	7.4	A	11.9	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
14	19.3	1.99	10.31	-22.18	5.5	7.3	A	13.1	A	A
15	20.67	2.2	10.64	-16.65	4.1	7.7	A	13.4	A	A
16	20.5	0.6	2.93	-17.34	4.3	5.4	A	8.6	A	A
17	20	4.8	24.00	-19.35	4.8	13.4	A	25.3	N	W
18	21.2	0.4	1.89	-14.52	3.6	5.3	A	8.3	A	A
19	26.1	0.5	1.92	5.24	1.3	5.3	A	8.3	A	A
20	21.1	0.5	2.37	-14.92	3.7	5.3	A	8.4	A	A
22	22.3	0.4	1.79	-10.08	2.5	5.3	A	8.3	A	A
23	26.2	0.9	3.44	5.65	1.4	5.7	A	8.8	A	A
24	22	0.5	2.27	-11.29	2.8	5.3	A	8.4	A	A
26	19	2.24	11.79	-23.39	5.8	7.7	A	14.3	A	A
27	18.403	4.226	22.96	-25.79	6.4	12.1	A	24.3	N	N
29	21.1	0.6	2.84	-14.92	3.7	5.4	A	8.6	A	A
30	19	1.1	5.79	-23.39	5.8	5.9	A	9.9	A	A
31	25.5	1.9	7.45	2.82	0.7	7.1	A	11.0	A	A
32	20.6	1	4.85	-16.94	4.2	5.8	A	9.4	A	A
34	32	4	12.50	29.03	7.2	11.5	A	14.9	A	A
36	20.3	2	9.85	-18.15	4.5	7.3	A	12.7	A	A
37	19.01	0.95	5.00	-23.35	5.8	5.7	N	9.5	A	N
39	23	5	21.74	-7.26	1.8	13.9	A	23.2	N	W
40	20.4	1.6	7.84	-17.74	4.4	6.6	A	11.2	A	A
41	19	3	15.79	-23.39	5.8	9.3	A	17.7	A	A
42	20	2	10.00	-19.35	4.8	7.3	A	12.8	A	A
43	20.2	1.6	7.92	-18.55	4.6	6.6	A	11.3	A	A
44	21.53	0.89	4.13	-13.19	3.3	5.6	A	9.1	A	A
45	26.2	0.9	3.44	5.65	1.4	5.7	A	8.8	A	A
46	20.1	1.1	5.47	-18.95	4.7	5.9	A	9.7	A	A
47	23.2	2.3	9.91	-6.45	1.6	7.9	A	12.8	A	A
50	28.2	2.8	9.93	13.71	3.4	8.9	A	12.8	A	A
51	24.9	2.1	8.43	0.40	0.1	7.5	A	11.7	A	A
52	20	4	20.00	-19.35	4.8	11.5	A	21.6	N	W
53	21.8	0.9	4.13	-12.10	3.0	5.7	A	9.1	A	A
54	19.4	2.9	14.95	-21.77	5.4	9.1	A	17.0	A	A
55	23.9	1.4	5.86	-3.63	0.9	6.3	A	10.0	A	A
56	22	1	4.55	-11.29	2.8	5.8	A	9.3	A	A
57	21.9	1.67	7.63	-11.69	2.9	6.7	A	11.1	A	A
59	33.5	2	5.97	35.08	8.7	7.3	N	10.0	A	N
60	25.8	1	3.88	4.03	1.0	5.8	A	8.9	A	A
61	19.6	0.7	3.57	-20.97	5.2	5.5	A	8.8	A	A
62	20	1.08	5.40	-19.35	4.8	5.9	A	9.7	A	A
63	25.77	1.6	6.21	3.91	1.0	6.6	A	10.2	A	A
65	25.3	1.21	4.78	2.02	0.5	6.0	A	9.4	A	A
70	24	4	16.67	-3.23	0.8	11.5	A	18.5	A	A
71	20.3	0.8	3.94	-18.15	4.5	5.6	A	9.0	A	A
72	17.43	0.67	3.84	-29.72	7.4	5.4	N	8.9	A	N
73	21.1	1.4	6.64	-14.92	3.7	6.3	A	10.4	A	A
74	2523	174	6.90	10073.	2498.2	448.9	N	10.6	A	N
76	21.6	7	32.41	-12.90	3.2	18.8	A	33.4	N	W

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
77	17.72	0.47	2.65	-28.55	7.1	5.3	N	8.5	A	N
78	22.3	1.26	5.65	-10.08	2.5	6.1	A	9.8	A	A
79	23.7	2.4	10.13	-4.44	1.1	8.1	A	12.9	A	A
80	15.7	1.8	11.46	-36.69	9.1	6.9	N	14.0	A	N
81	37.2	4.1	11.02	50.00	12.4	11.8	N	13.7	A	N
82	18.22	1.04	5.71	-26.53	6.6	5.8	N	9.9	A	N
83	18.26	3.05	16.70	-26.37	6.5	9.4	A	18.5	A	A
84	19.5	2.3	11.79	-21.37	5.3	7.9	A	14.3	A	A
85	20.1	0.8	3.98	-18.95	4.7	5.6	A	9.0	A	A
86	22	2	9.09	-11.29	2.8	7.3	A	12.2	A	A
87	24.3	1	4.12	-2.02	0.5	5.8	A	9.1	A	A
88	20	2	10.00	-19.35	4.8	7.3	A	12.8	A	A
89	31.6	1.93	6.11	27.42	6.8	7.2	A	10.1	A	A
90	19.7	1.52	7.72	-20.56	5.1	6.5	A	11.2	A	A
91	19.1	1.8	9.42	-22.98	5.7	6.9	A	12.4	A	A
92	23	1.2	5.22	-7.26	1.8	6.0	A	9.6	A	A
93	25.4	3.1	12.20	2.42	0.6	9.5	A	14.6	A	A
94	23.4	4	17.09	-5.65	1.4	11.5	A	18.9	A	A
95	18.8	2.5	13.30	-24.19	6.0	8.3	A	15.6	A	A
99	23.5	1.4	5.96	-5.24	1.3	6.3	A	10.0	A	A
101	26.4	2.9	10.98	6.45	1.6	9.1	A	13.6	A	A
109	47.8	5.4	11.30	92.74	23.0	14.9	N	13.9	A	N
110	11	0.826	7.51	-55.65	13.8	5.6	N	11.0	A	N
111	14.85	1.72	11.58	-40.12	10.0	6.8	N	14.1	A	N
112	21.7	0.8	3.69	-12.50	3.1	5.6	A	8.9	A	A
113	19.15	1.06	5.54	-22.78	5.7	5.8	A	9.8	A	A
115	25.5	2.8	10.98	2.82	0.7	8.9	A	13.6	A	A
118	21.6	0.7	3.24	-12.90	3.2	5.5	A	8.7	A	A
119	26.5	1.9	7.17	6.85	1.7	7.1	A	10.8	A	A
120	21.7	0.8	3.69	-12.50	3.1	5.6	A	8.9	A	A
121	45.61	9.11	19.97	83.91	20.8	24.1	A	21.5	N	N
122	21.2	0.8	3.77	-14.52	3.6	5.6	A	8.9	A	A
123	22.2	2.5	11.26	-10.48	2.6	8.3	A	13.9	A	A
124	18.7	0.97	5.19	-24.60	6.1	5.7	N	9.6	A	N
125	20.7	1.9	9.18	-16.53	4.1	7.1	A	12.2	A	A
126	16.7	2.2	13.17	-32.66	8.1	7.7	N	15.4	A	N
127	22.8	1.2	5.26	-8.06	2.0	6.0	A	9.6	A	A
130	24.1	1.3	5.39	-2.82	0.7	6.2	A	9.7	A	A
131	20.74	1.1	5.30	-16.37	4.1	5.9	A	9.7	A	A
132	19.03	0.938	4.93	-23.27	5.8	5.7	N	9.5	A	N
133	26.2	2.2	8.40	5.65	1.4	7.7	A	11.6	A	A
134	22	0.79	3.59	-11.29	2.8	5.5	A	8.8	A	A
136	22.19	1.4	6.31	-10.52	2.6	6.3	A	10.2	A	A
137	711.74	4.68	0.66	2769.9	686.9	13.1	N	8.1	A	N
140	24.5	0.82	3.35	-1.21	0.3	5.6	A	8.7	A	A
141	19.79	1.53	7.73	-20.20	5.0	6.5	A	11.2	A	A
142	17.15	0.003	0.02	-30.85	7.7	5.2	N	8.1	A	N
143	24.24	1.58	6.52	-2.26	0.6	6.6	A	10.4	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
144	23.59	6.4	27.13	-4.88	1.2	17.3	A	28.3	N	W
146	22.65	2.1	9.27	-8.67	2.2	7.5	A	12.3	A	A
150	46.21	2.88	6.23	86.33	21.4	9.0	N	10.2	A	N
151	31	0.7	2.26	25.00	6.2	5.5	N	8.4	A	N
152	30	3	10.00	20.97	5.2	9.3	A	12.8	A	A
153	18.84	1.28	6.79	-24.03	6.0	6.1	A	10.5	A	A
154	18.7	1.5	8.02	-24.60	6.1	6.5	A	11.4	A	A
155	22	2	9.09	-11.29	2.8	7.3	A	12.2	A	A
157	24.6	1.6	6.50	-0.81	0.2	6.6	A	10.4	A	A
159	24.2	1.5	6.20	-2.42	0.6	6.5	A	10.2	A	A
160	23.84	3.67	15.39	-3.87	1.0	10.8	A	17.4	A	A
161	22.22	2.34	10.53	-10.40	2.6	7.9	A	13.3	A	A
163	23.2	1.8	7.76	-6.45	1.6	6.9	A	11.2	A	A
164	21.385	1.726	8.07	-13.77	3.4	6.8	A	11.4	A	A
165	15.7	0.8	5.10	-36.69	9.1	5.6	N	9.5	A	N
166	19.46	1.31	6.73	-21.53	5.3	6.2	A	10.5	A	A
168	19.8	0.7	3.54	-20.16	5.0	5.5	A	8.8	A	A
169	23.6	0.9	3.81	-4.84	1.2	5.7	A	8.9	A	A
170	20	2	10.00	-19.35	4.8	7.3	A	12.8	A	A
171	34.3	1.1	3.21	38.31	9.5	5.9	N	8.7	A	N
172	23.9	1.8	7.53	-3.63	0.9	6.9	A	11.0	A	A
173	20.03	0.9	4.49	-19.23	4.8	5.7	A	9.2	A	A
174	11.9	1.4	11.76	-52.02	12.9	6.3	N	14.3	A	N
175	23.3	1.5	6.44	-6.05	1.5	6.5	A	10.3	A	A
176	18.3	3.2	17.49	-26.21	6.5	9.7	A	19.3	A	A
177	18.6	0.8	4.30	-25.00	6.2	5.6	N	9.1	A	N
178	21.66	1.22	5.63	-12.66	3.1	6.0	A	9.8	A	A
179	23.44	2	8.53	-5.48	1.4	7.3	A	11.7	A	A
181	20.23	0.78	3.86	-18.43	4.6	5.5	A	8.9	A	A
182	66.3	5.8	8.75	167.34	41.5	15.8	N	11.9	A	N
183	18.4	2	10.87	-25.81	6.4	7.3	A	13.5	A	A
185	13.1	1.9	14.50	-47.18	11.7	7.1	N	16.6	A	N
190	15.7	3.45	21.97	-36.69	9.1	10.3	A	23.4	N	N
191	21.03	1.13	5.37	-15.20	3.8	5.9	A	9.7	A	A
192	20	2	10.00	-19.35	4.8	7.3	A	12.8	A	A
193	19	2	10.53	-23.39	5.8	7.3	A	13.3	A	A
194	20	2	10.00	-19.35	4.8	7.3	A	12.8	A	A
195	33.88	2.21	6.52	36.61	9.1	7.7	N	10.4	A	N
197	74.2	6.65	8.96	199.19	49.4	17.9	N	12.1	A	N
199	26.3	1.4	5.32	6.05	1.5	6.3	A	9.7	A	A
200	25.3	1.2	4.74	2.02	0.5	6.0	A	9.4	A	A
201	30.69	1.02	3.32	23.75	5.9	5.8	N	8.7	A	N
202	171.9	8.66	5.04	593.15	147.1	22.9	N	9.5	A	N
205	22.48	1.72	7.65	-9.35	2.3	6.8	A	11.1	A	A
206	27.64	2.87	10.38	11.45	2.8	9.0	A	13.1	A	A
208	18.6	3.3	17.74	-25.00	6.2	10.0	A	19.5	A	A
209	20.51	1.1	5.36	-17.30	4.3	5.9	A	9.7	A	A
210	34	2.2	6.47	37.10	9.2	7.7	N	10.3	A	N

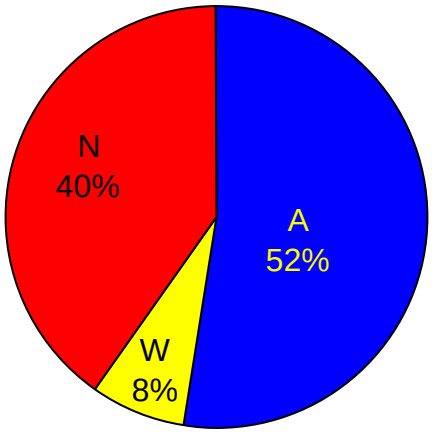
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
211	19.9	1	5.03	-19.76	4.9	5.8	A	9.5	A	A
215	15.81	1.1	6.96	-36.25	9.0	5.9	N	10.7	A	N
216	24.8	1.5	6.05	0.00	0.0	6.5	A	10.1	A	A
217	20.87	0.89	4.26	-15.85	3.9	5.6	A	9.1	A	A
218	23.702	0.542	2.29	-4.43	1.1	5.3	A	8.4	A	A
219	21.9	1	4.57	-11.69	2.9	5.8	A	9.3	A	A
220	21.41	1.71	7.99	-13.67	3.4	6.8	A	11.4	A	A
221	19.8	0.99	5.00	-20.16	5.0	5.8	A	9.5	A	A
223	16.48	1.93	11.71	-33.55	8.3	7.2	N	14.2	A	N
225	224.4	51	22.73	804.84	199.6	131.7	N	24.1	N	N
227	20.81	1.11	5.33	-16.09	4.0	5.9	A	9.7	A	A
230	41.16	5.93	14.41	65.97	16.4	16.1	N	16.5	A	N
233	21.4	2	9.35	-13.71	3.4	7.3	A	12.3	A	A
234	20.8	1.98	9.52	-16.13	4.0	7.3	A	12.5	A	A
235	40.13	12.61	31.42	61.81	15.3	32.9	A	32.4	N	N
236	18.4	0.8	4.35	-25.81	6.4	5.6	N	9.2	A	N
237	19.8	2.1	10.61	-20.16	5.0	7.5	A	13.3	A	A
238	34	2	5.88	37.10	9.2	7.3	N	10.0	A	N
240	20	2	10.00	-19.35	4.8	7.3	A	12.8	A	A
241	10.7	1.7	15.89	-56.85	14.1	6.8	N	17.8	A	N
242	20.6	1.37	6.65	-16.94	4.2	6.3	A	10.5	A	A
244	26.7	1.41	5.28	7.66	1.9	6.3	A	9.6	A	A
245	20.9	2.3	11.00	-15.73	3.9	7.9	A	13.6	A	A
246	18.2	1.91	10.49	-26.61	6.6	7.1	A	13.2	A	A
251	25.71	2.49	9.68	3.67	0.9	8.2	A	12.6	A	A
252	22.2	0.8	3.60	-10.48	2.6	5.6	A	8.8	A	A
253	21	1	4.76	-15.32	3.8	5.8	A	9.4	A	A
254	23	2	8.70	-7.26	1.8	7.3	A	11.9	A	A
255	20.4	1.6	7.84	-17.74	4.4	6.6	A	11.2	A	A
257	19.8	1.3	6.57	-20.16	5.0	6.2	A	10.4	A	A
258	21.05	1.46	6.94	-15.12	3.8	6.4	A	10.6	A	A
259	17.18	1.15	6.69	-30.73	7.6	6.0	N	10.5	A	N
260	27	5	18.52	8.87	2.2	13.9	A	20.2	N	W
261	20	1.6	8.00	-19.35	4.8	6.6	A	11.4	A	A
263	23.8	5.1	21.43	-4.03	1.0	14.1	A	22.9	N	W
264	18.7	1.35	7.22	-24.60	6.1	6.2	A	10.8	A	A
265	4.96	1.35	27.22	-80.00	19.8	6.2	N	28.4	N	N
267	5.1	0.78	15.29	-79.44	19.7	5.5	N	17.3	A	N
268	20.49	0.72	3.51	-17.38	4.3	5.5	A	8.8	A	A
269	25.6	4.5	17.58	3.23	0.8	12.7	A	19.3	A	A
270	25.5	2.3	9.02	2.82	0.7	7.9	A	12.1	A	A
271	103.2	5.4	5.23	316.13	78.4	14.9	N	9.6	A	N
272	26.2	1.86	7.10	5.65	1.4	7.0	A	10.7	A	A
273	21.9	5	22.83	-11.69	2.9	13.9	A	24.2	N	W
274	23	0.9	3.91	-7.26	1.8	5.7	A	9.0	A	A
275	25.45	0.99	3.89	2.62	0.6	5.8	A	9.0	A	A
277	20.76	1.03	4.96	-16.29	4.0	5.8	A	9.5	A	A
278	17.8	2.4	13.48	-28.23	7.0	8.1	A	15.7	A	A

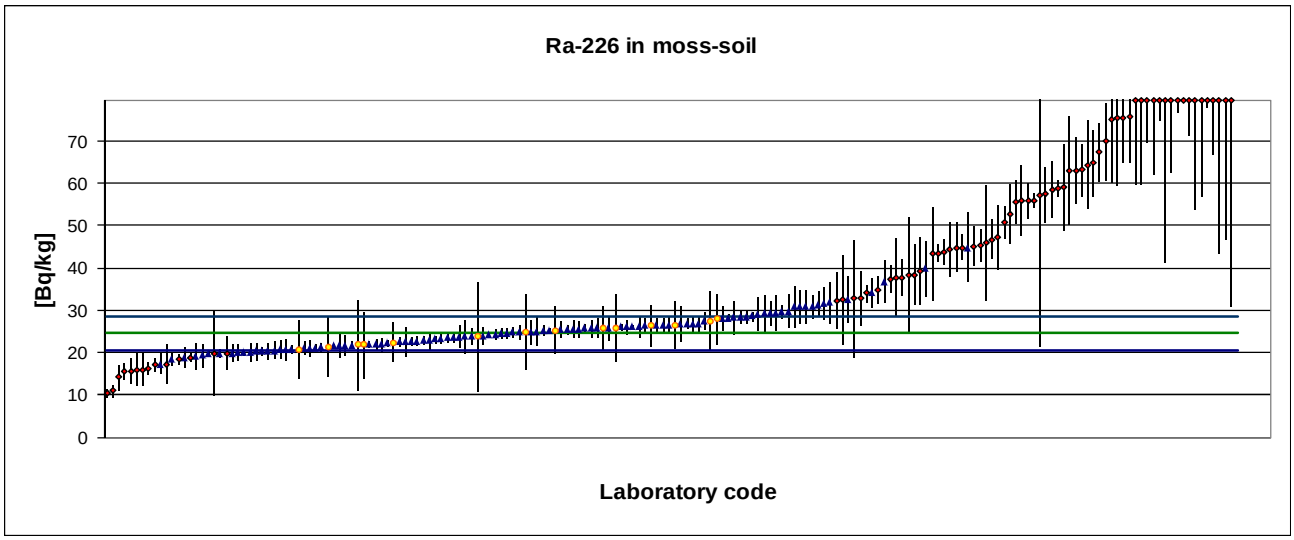
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
279	18.3	1.6	8.74	-26.21	6.5	6.6	A	11.9	A	A
283	39.87	1.4	3.51	60.77	15.1	6.3	N	8.8	A	N
284	26.35	2.13	8.08	6.25	1.6	7.5	A	11.4	A	A
285	28.43	2.3	8.09	14.64	3.6	7.9	A	11.4	A	A
288	25.9	1.4	5.41	4.44	1.1	6.3	A	9.7	A	A
289	22	1.2	5.45	-11.29	2.8	6.0	A	9.7	A	A
290	25.2	2.4	9.52	1.61	0.4	8.1	A	12.5	A	A
292	27	2	7.41	8.87	2.2	7.3	A	11.0	A	A
293	27	2	7.41	8.87	2.2	7.3	A	11.0	A	A
294	18.5	0.7	3.78	-25.40	6.3	5.5	N	8.9	A	N
295	19.7	0.4	2.03	-20.56	5.1	5.3	A	8.3	A	A
296	21.2	2.5	11.79	-14.52	3.6	8.3	A	14.3	A	A
297	32.1	0.9	2.80	29.44	7.3	5.7	N	8.5	A	N
298	21.87	0.44	2.01	-11.81	2.9	5.3	A	8.3	A	A
299	19.7	3.1	15.74	-20.56	5.1	9.5	A	17.7	A	A
300	25.3	4.8	18.97	2.02	0.5	13.4	A	20.6	N	W

Performance evaluation of Ra-226 measurement results

IAEA-447 Moss-soil reference material

Target Value: 25.1 ± 2.0 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
1	25.75	1.94	7.53	2.59	0.6	7.2	A	11.0	A	A
3	24	4	16.67	-4.38	1.1	11.5	A	18.5	A	A
4	17.4	1.6	9.20	-30.68	7.7	6.6	N	12.2	A	N
5	38	9	23.68	51.39	12.9	23.8	A	25.0	N	N
6	28.1	5.8	20.64	11.95	3.0	15.8	A	22.1	N	W
7	22.89	1.1	4.81	-8.80	2.2	5.9	A	9.3	A	A
10	25.4	0.48	1.89	1.20	0.3	5.3	A	8.2	A	A
11	21.9	2.4	10.96	-12.75	3.2	8.1	A	13.5	A	A
12	23	1	4.35	-8.37	2.1	5.8	A	9.1	A	A
13	44.51	6.42	14.42	77.33	19.4	17.3	N	16.5	A	N
14	117	8.53	7.29	366.14	91.9	22.6	N	10.8	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
15	75.52	15.95	21.12	200.88	50.4	41.5	N	22.6	N	N
16	24.5	1.3	5.31	-2.39	0.6	6.2	A	9.6	A	A
17	19.5	2.7	13.85	-22.31	5.6	8.7	A	16.0	A	A
18	24.7	1.4	5.67	-1.59	0.4	6.3	A	9.8	A	A
19	30	1.6	5.33	19.52	4.9	6.6	A	9.6	A	A
20	24.9	1.3	5.22	-0.80	0.2	6.2	A	9.5	A	A
22	28.4	0.9	3.17	13.15	3.3	5.7	A	8.6	A	A
23	29.6	2.8	9.46	17.93	4.5	8.9	A	12.4	A	A
24	25.3	1.2	4.74	0.80	0.2	6.0	A	9.3	A	A
26	19	2.44	12.84	-24.30	6.1	8.1	A	15.1	A	A
27	25.11	3.416	13.60	0.06	0.0	10.2	A	15.8	A	A
31	26.7	1.7	6.37	6.37	1.6	6.8	A	10.2	A	A
32	21.3	0.8	3.76	-15.14	3.8	5.6	A	8.8	A	A
36	19.9	10	50.25	-20.72	5.2	26.3	A	50.9	N	N
37	14.43	3.07	21.28	-42.51	10.7	9.5	N	22.7	N	N
38	111	0.007	0.01	342.23	85.9	5.2	N	8.0	A	N
39	31	5	16.13	23.51	5.9	13.9	A	18.0	A	A
40	22.8	3.6	15.79	-9.16	2.3	10.6	A	17.7	A	A
41	20	4	20.00	-20.32	5.1	11.5	A	21.5	N	N
43	76	11	14.47	202.79	50.9	28.8	N	16.5	A	N
44	22.07	1.32	5.98	-12.07	3.0	6.2	A	10.0	A	A
45	26.2	0.9	3.44	4.38	1.1	5.7	A	8.7	A	A
46	22.4	0.76	3.39	-10.76	2.7	5.5	A	8.7	A	A
47	86.4	17.8	20.60	244.22	61.3	46.2	N	22.1	N	N
50	28.2	2.8	9.93	12.35	3.1	8.9	A	12.7	A	A
51	31.1	2.7	8.68	23.90	6.0	8.7	A	11.8	A	A
52	45	6	13.33	79.28	19.9	16.3	N	15.5	A	N
53	21.9	0.8	3.65	-12.75	3.2	5.6	A	8.8	A	A
56	44	3	6.82	75.30	18.9	9.3	N	10.5	A	N
58	28.5	1.5	5.26	13.55	3.4	6.5	A	9.5	A	A
59	34.2	2	5.85	36.25	9.1	7.3	N	9.9	A	N
60	24.4	0.5	2.05	-2.79	0.7	5.3	A	8.2	A	A
61	40	6.6	16.50	59.36	14.9	17.8	A	18.3	A	A
62	22.8	1.08	4.74	-9.16	2.3	5.9	A	9.3	A	A
63	25.89	2.03	7.84	3.15	0.8	7.4	A	11.2	A	A
64	23.46	1.33	5.67	-6.53	1.6	6.2	A	9.8	A	A
65	25.9	2.3	8.88	3.19	0.8	7.9	A	11.9	A	A
68	21.2	1.6	7.55	-15.54	3.9	6.6	A	11.0	A	A
70	26	5	19.23	3.59	0.9	13.9	A	20.8	N	W
71	20.6	0.9	4.37	-17.93	4.5	5.7	A	9.1	A	A
72	20.3	2.29	11.28	-19.12	4.8	7.8	A	13.8	A	A
76	21.6	7.1	32.87	-13.94	3.5	19.0	A	33.8	N	W
77	19.82	0.59	2.98	-21.04	5.3	5.4	A	8.5	A	A
79	25	1.8	7.20	-0.40	0.1	6.9	A	10.7	A	A
80	19.3	3.1	16.06	-23.11	5.8	9.5	A	17.9	A	A
82	70.09	9.15	13.05	179.24	45.0	24.2	N	15.3	A	N
83	<102.									
84	25	9	36.00	-0.40	0.1	23.8	A	36.9	N	W

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
86	24	2	8.33	-4.38	1.1	7.3	A	11.5	A	A
87	23.4	0.8	3.42	-6.77	1.7	5.6	A	8.7	A	A
88	20	2	10.00	-20.32	5.1	7.3	A	12.8	A	A
90	20.6	1.88	9.13	-17.93	4.5	7.1	A	12.1	A	A
91	20.2	1.9	9.41	-19.52	4.9	7.1	A	12.3	A	A
93	26.8	5.5	20.52	6.77	1.7	15.1	A	22.0	N	W
94	22	10.8	49.09	-12.35	3.1	28.3	A	49.7	N	W
97	100	17	17.00	298.41	74.9	44.2	N	18.8	A	N
99	23.7	1.2	5.06	-5.58	1.4	6.0	A	9.4	A	A
101	26.9	4.1	15.24	7.17	1.8	11.8	A	17.2	A	A
106	82.3	20.1	24.42	227.89	57.2	52.1	N	25.7	N	N
109	118	26	22.03	370.12	92.9	67.3	N	23.4	N	N
110	56.1	4.22	7.52	123.51	31.0	12.0	N	11.0	A	N
112	16.1	4	24.84	-35.86	9.0	11.5	A	26.1	N	N
113	22.75	1.16	5.10	-9.36	2.4	6.0	A	9.5	A	A
119	25.6	1.9	7.42	1.99	0.5	7.1	A	10.9	A	A
120	16.1	4	24.84	-35.86	9.0	11.5	A	26.1	N	N
121	254.4	48.92	19.23	913.59	229.3	126.3	N	20.8	N	N
122	35	3.2	9.14	39.44	9.9	9.7	N	12.1	A	N
123	24.2	2.1	8.68	-3.59	0.9	7.5	A	11.8	A	A
124	20.41	2.05	10.04	-18.69	4.7	7.4	A	12.8	A	A
125	32.7	10.5	32.11	30.28	7.6	27.6	A	33.1	N	N
126	38.5	13.7	35.58	53.39	13.4	35.7	A	36.5	N	N
127	26.2	1.8	6.87	4.38	1.1	6.9	A	10.5	A	A
130	37.4	3.2	8.56	49.00	12.3	9.7	N	11.7	A	N
131	56.05	8.34	14.88	123.31	31.0	22.1	N	16.9	A	N
132	58.68	6.721	11.45	133.78	33.6	18.1	N	14.0	A	N
133	27.7	2.1	7.58	10.36	2.6	7.5	A	11.0	A	A
134	25.5	5.65	22.16	1.59	0.4	15.5	A	23.5	N	W
136	229.9	33.2	14.44	815.94	204.8	85.8	N	16.5	A	N
137	10.51	0.97	9.23	-58.13	14.6	5.7	N	12.2	A	N
138	26	3	11.54	3.59	0.9	9.3	A	14.0	A	A
140	30	4	13.33	19.52	4.9	11.5	A	15.5	A	A
144	33.18	6.4	19.29	32.19	8.1	17.3	A	20.9	N	N
150	67.6	6.9	10.21	169.32	42.5	18.5	N	12.9	A	N
151	95	5	5.26	278.49	69.9	13.9	N	9.5	A	N
152	45	3	6.67	79.28	19.9	9.3	N	10.4	A	N
153	63.28	7.91	12.50	152.11	38.2	21.1	N	14.8	A	N
154	53	7	13.21	111.16	27.9	18.8	N	15.4	A	N
157	64.6	10.3	15.94	157.37	39.5	27.1	N	17.8	A	N
159	31.8	3.9	12.26	26.69	6.7	11.3	A	14.6	A	A
160	39.55	8.03	20.30	57.57	14.5	21.4	A	21.8	N	N
161	16.48	1.43	8.68	-34.34	8.6	6.3	N	11.8	A	N
163	27.7	7.1	25.63	10.36	2.6	19.0	A	26.8	N	W
164	75.72	10.61	14.02	201.69	50.6	27.9	N	16.1	A	N
165	17.5	2.3	13.14	-30.28	7.6	7.9	A	15.4	A	A
166	32.38	6.73	20.78	29.00	7.3	18.1	A	22.3	N	N
168	38	4.4	11.58	51.39	12.9	12.5	N	14.1	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
169	24.8	1.3	5.24	-1.20	0.3	6.2	A	9.5	A	A
170	26	8	30.77	3.59	0.9	21.3	A	31.8	N	W
171	29.4	4.3	14.63	17.13	4.3	12.2	A	16.7	A	A
172	23.7	1.2	5.06	-5.58	1.4	6.0	A	9.4	A	A
173	47.44	7.59	16.00	89.00	22.3	20.3	N	17.9	A	N
174	63.4	6.2	9.78	152.59	38.3	16.8	N	12.6	A	N
177	28.8	1.1	3.82	14.74	3.7	5.9	A	8.8	A	A
178	26.58	1.52	5.72	5.90	1.5	6.5	A	9.8	A	A
179	21.8	0.5	2.29	-13.15	3.3	5.3	A	8.3	A	A
181	43.76	2.07	4.73	74.34	18.7	7.4	N	9.3	A	N
183	57.6	6.5	11.28	129.48	32.5	17.5	N	13.8	A	N
185	59.3	10.2	17.20	136.25	34.2	26.8	N	19.0	A	N
190	97.93	38.76	39.58	290.16	72.8	100.1	A	40.4	N	N
191	29.31	4.05	13.82	16.77	4.2	11.7	A	16.0	A	A
192	31	4	12.90	23.51	5.9	11.5	A	15.2	A	A
193	21	7	33.33	-16.33	4.1	18.8	A	34.3	N	W
194	37	5	13.51	47.41	11.9	13.9	A	15.7	A	A
195	43.48	11	25.30	73.23	18.4	28.8	A	26.5	N	N
197	18.7	1.56	8.34	-25.50	6.4	6.5	A	11.5	A	A
199	27	1.4	5.19	7.57	1.9	6.3	A	9.5	A	A
200	22	8	36.36	-12.35	3.1	21.3	A	37.2	N	W
201	38.62	7.33	18.98	53.86	13.5	19.6	A	20.6	N	N
202	57.34	35.72	62.30	128.45	32.2	92.3	A	62.8	N	N
207	17.5	4.7	26.86	-30.28	7.6	13.2	A	28.0	N	N
209	45.34	4.58	10.10	80.64	20.2	12.9	N	12.9	A	N
210	176	13	7.39	601.20	150.9	33.9	N	10.9	A	N
211	19.9	1	5.03	-20.72	5.2	5.8	A	9.4	A	A
216	26.7	2	7.49	6.37	1.6	7.3	A	10.9	A	A
217	21.54	1.02	4.74	-14.18	3.6	5.8	A	9.3	A	A
218	26.24	0.508	1.94	4.55	1.1	5.3	A	8.2	A	A
219	22	0.7	3.18	-12.35	3.1	5.5	A	8.6	A	A
220	22.07	1.76	7.97	-12.07	3.0	6.9	A	11.3	A	A
221	20.88	2.5	11.97	-16.81	4.2	8.3	A	14.4	A	A
223	15.71	1.82	11.58	-37.41	9.4	7.0	N	14.1	A	N
225	120.8	23	19.04	381.27	95.7	59.6	N	20.6	N	N
227	20.27	0.58	2.86	-19.24	4.8	5.4	A	8.5	A	A
232	25.6	1.2	4.69	1.99	0.5	6.0	A	9.2	A	A
234	63.1	12.8	20.29	151.39	38.0	33.4	N	21.8	N	N
235	85.37	10.2	11.95	240.12	60.3	26.8	N	14.4	A	N
237	20.7	2.2	10.63	-17.53	4.4	7.7	A	13.3	A	A
238	34.3	3.5	10.20	36.65	9.2	10.4	A	12.9	A	A
239	20.9	0.9	4.31	-16.73	4.2	5.7	A	9.1	A	A
240	83	20	24.10	230.68	57.9	51.9	N	25.4	N	N
241	11.1	1.3	11.71	-55.78	14.0	6.2	N	14.2	A	N
242	75.49	15.06	19.95	200.76	50.4	39.2	N	21.5	N	N
244	55.9	5.17	9.25	122.71	30.8	14.3	N	12.2	A	N
245	23.9	2.7	11.30	-4.78	1.2	8.7	A	13.8	A	A
246	15.9	3.11	19.56	-36.65	9.2	9.5	A	21.1	N	N

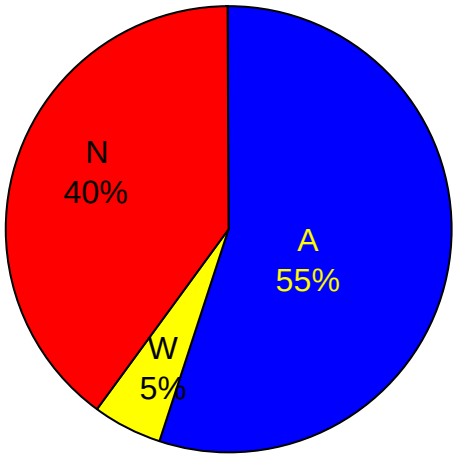
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
249	56.27	1.64	2.91	124.18	31.2	6.7	N	8.5	A	N
250	59.12	1.88	3.18	135.54	34.0	7.1	N	8.6	A	N
251	31.56	3.08	9.76	25.74	6.5	9.5	A	12.6	A	A
252	45	8.1	18.00	79.28	19.9	21.5	A	19.7	A	A
253	31	4	12.90	23.51	5.9	11.5	A	15.2	A	A
254	23	2	8.70	-8.37	2.1	7.3	A	11.8	A	A
258	21.27	1.86	8.74	-15.26	3.8	7.0	A	11.8	A	A
260	32	5	15.63	27.49	6.9	13.9	A	17.5	A	A
261	65	7.8	12.00	158.96	39.9	20.8	N	14.4	A	N
263	32.9	14	42.55	31.08	7.8	36.5	A	43.3	N	N
264	18.7	1.35	7.22	-25.50	6.4	6.2	N	10.8	A	N
265	24	13	54.17	-4.38	1.1	33.9	A	54.7	N	W
267	22.6	4.7	20.80	-9.96	2.5	13.2	A	22.3	N	W
269	21.8	2.9	13.30	-13.15	3.3	9.1	A	15.5	A	A
272	26.5	1.88	7.09	5.58	1.4	7.1	A	10.7	A	A
273	194.5	36.4	18.71	674.90	169.4	94.1	N	20.3	N	N
274	28.6	1.5	5.24	13.94	3.5	6.5	A	9.5	A	A
275	25.84	1.08	4.18	2.95	0.7	5.9	A	9.0	A	A
276	25	3	12.00	-0.40	0.1	9.3	A	14.4	A	A
277	45.54	3.94	8.65	81.43	20.4	11.4	N	11.8	A	N
278	46.1	13.7	29.72	83.67	21.0	35.7	A	30.8	N	N
279	125.3	1.9	1.52	399.20	100.2	7.1	N	8.1	A	N
283	101.6	3.2	3.15	305.02	76.6	9.7	N	8.6	A	N
284	28.46	4.04	14.20	13.39	3.4	11.6	A	16.3	A	A
285	29.6	4.1	13.85	17.93	4.5	11.8	A	16.0	A	A
288	25.7	2.1	8.17	2.39	0.6	7.5	A	11.4	A	A
289	51	4	7.84	103.19	25.9	11.5	N	11.2	A	N
290	26.3	2.4	9.13	4.78	1.2	8.1	A	12.1	A	A
292	27	2	7.41	7.57	1.9	7.3	A	10.9	A	A
293	27	2	7.41	7.57	1.9	7.3	A	10.9	A	A
294	19	1	5.26	-24.30	6.1	5.8	N	9.5	A	N
295	32.8	5.4	16.46	30.68	7.7	14.9	A	18.3	A	A
296	20.8	2.2	10.58	-17.13	4.3	7.7	A	13.2	A	A
297	46.9	4.7	10.02	86.85	21.8	13.2	N	12.8	A	N
300	26.5	5	18.87	5.58	1.4	13.9	A	20.5	N	W

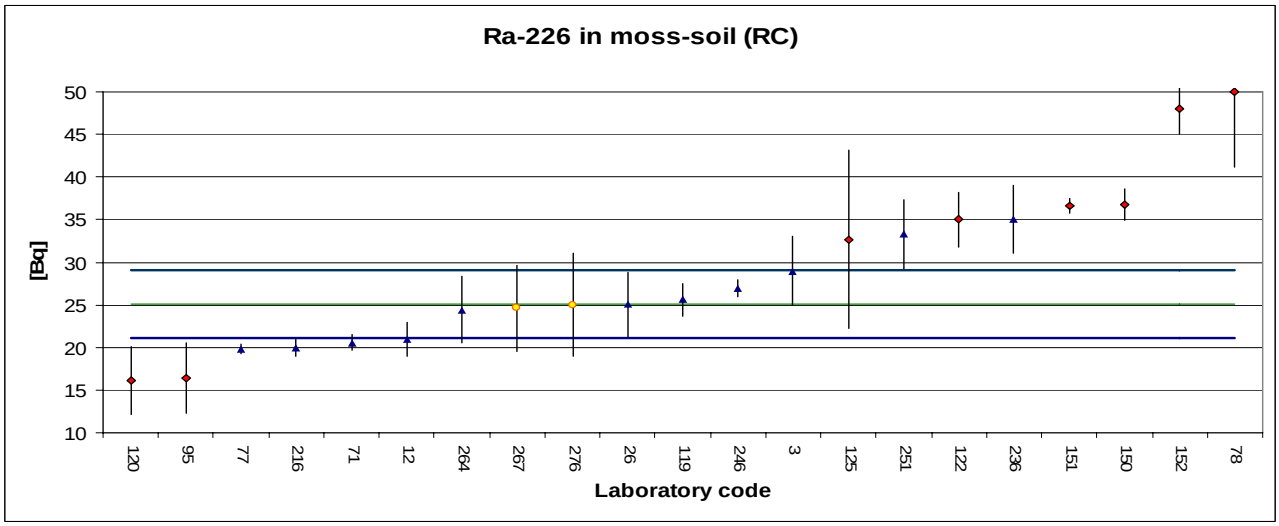
Performance evaluation of Ra-226 measurement results

IAEA-447 Moss-soil reference material

Target Value: 25.1 ± 2.0 [Bq/kg]

Radiochemical methods



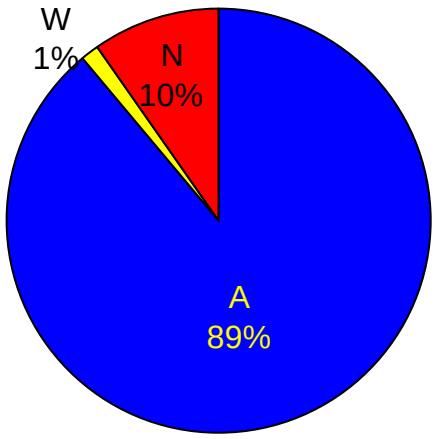


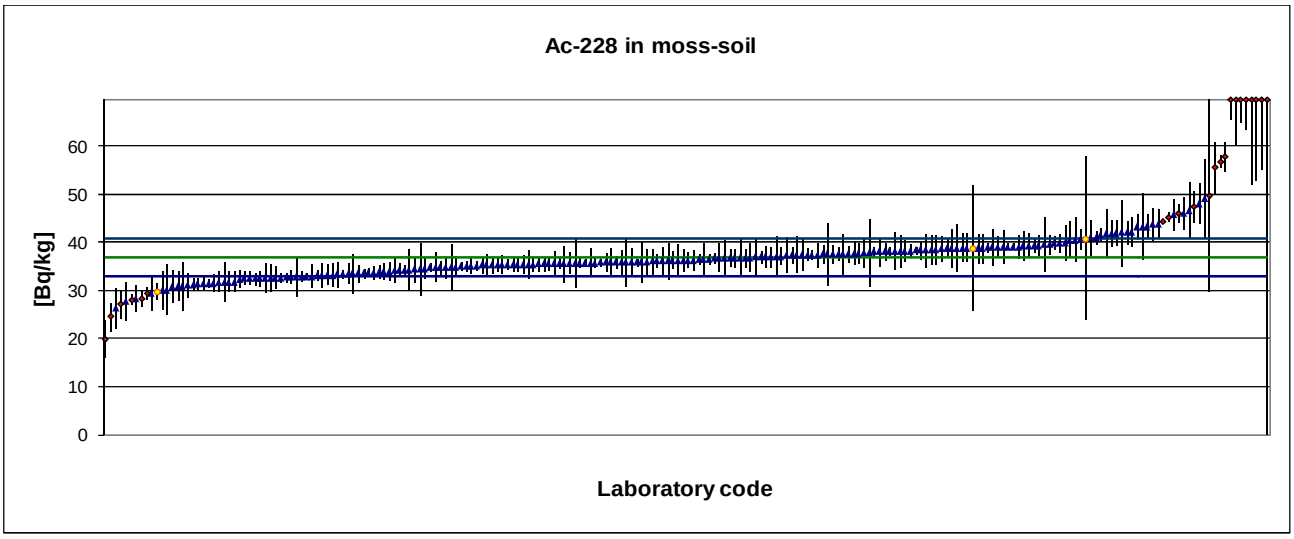
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
3	29	4	13.79	15.54	3.9	11.5	A	15.9	A	A
12	21	2	9.52	-16.33	4.1	7.3	A	12.4	A	A
26	25.06	3.75	14.96	-0.16	0.0	11.0	A	17.0	A	A
71	20.6	0.9	4.37	-17.93	4.5	5.7	A	9.1	A	A
77	19.82	0.59	2.98	-21.04	5.3	5.4	A	8.5	A	A
78	252	8.78	3.48	903.98	226.9	23.2	N	8.7	A	N
95	16.4	4.1	25.00	-34.66	8.7	11.8	A	26.2	N	N
119	25.6	1.9	7.42	1.99	0.5	7.1	A	10.9	A	A
120	16.1	4	24.84	-35.86	9.0	11.5	A	26.1	N	N
122	35	3.2	9.14	39.44	9.9	9.7	N	12.1	A	N
125	32.7	10.5	32.11	30.28	7.6	27.6	A	33.1	N	N
150	36.71	1.85	5.04	46.25	11.6	7.0	N	9.4	A	N
151	36.58	0.88	2.41	45.74	11.5	5.6	N	8.3	A	N
152	48	3	6.25	91.24	22.9	9.3	N	10.1	A	N
216	20	1	5.00	-20.32	5.1	5.8	A	9.4	A	A
236	35	4	11.43	39.44	9.9	11.5	A	13.9	A	A
246	26.9	1.01	3.75	7.17	1.8	5.8	A	8.8	A	A
251	33.3	4.1	12.31	32.67	8.2	11.8	A	14.7	A	A
264	24.4	3.92	16.07	-2.79	0.7	11.4	A	17.9	A	A
267	24.6	5	20.33	-1.99	0.5	13.9	A	21.8	N	W
276	25	6	24.00	-0.40	0.1	16.3	A	25.3	N	W

Performance evaluation of Ac-228 measurement results

IAEA-447 Moss-soil reference material

Target Value: 37.0 ± 2.0 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	37.47	3.56	9.50	1.27	0.5	10.5	A	10.9	A	A
3	39	5	12.82	5.41	2.0	13.9	A	13.9	A	A
5	36	2	5.56	-2.70	1.0	7.3	A	7.8	A	A
6	33.6	2.1	6.25	-9.19	3.4	7.5	A	8.3	A	A
7	31.56	0.73	2.31	-14.70	5.4	5.5	A	5.9	A	A
10	35.87	0.92	2.56	-3.05	1.1	5.7	A	6.0	A	A
11	37.1	3.9	10.51	0.27	0.1	11.3	A	11.8	A	A
12	37	3	8.11	0.00	0.0	9.3	A	9.7	A	A
13	37.15	2.24	6.03	0.41	0.1	7.7	A	8.1	A	A
14	46.7	5.87	12.57	26.22	9.7	16.0	A	13.7	A	A
15	27.23	2.93	10.76	-26.41	9.8	9.2	N	12.0	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
16	38.5	0.8	2.08	4.05	1.5	5.6	A	5.8	A	A
17	35.5	1.5	4.23	-4.05	1.5	6.5	A	6.9	A	A
18	39.3	0.6	1.53	6.22	2.3	5.4	A	5.6	A	A
19	34.5	1.4	4.06	-6.76	2.5	6.3	A	6.8	A	A
20	38.3	0.8	2.09	3.51	1.3	5.6	A	5.8	A	A
21	37.3	4	10.72	0.81	0.3	11.5	A	12.0	A	A
22	34.9	0.8	2.29	-5.68	2.1	5.6	A	5.9	A	A
23	39.1	1	2.56	5.68	2.1	5.8	A	6.0	A	A
24	39.3	0.6	1.53	6.22	2.3	5.4	A	5.6	A	A
25	20.04	3.88	19.36	-45.84	17.0	11.3	N	20.1	N	N
26	34.55	2.79	8.08	-6.62	2.5	8.9	A	9.7	A	A
27	37.798	6.586	17.42	2.16	0.8	17.8	A	18.2	A	A
29	35.8	1.2	3.35	-3.24	1.2	6.0	A	6.4	A	A
30	38.5	1.8	4.68	4.05	1.5	6.9	A	7.1	A	A
31	31.3	2.6	8.31	-15.41	5.7	8.5	A	9.9	A	A
32	32.6	1.4	4.29	-11.89	4.4	6.3	A	6.9	A	A
34	41	17	41.46	10.81	4.0	44.2	A	41.8	N	W
36	35.6	3	8.43	-3.78	1.4	9.3	A	10.0	A	A
37	36.26	2.68	7.39	-2.00	0.7	8.6	A	9.2	A	A
39	34	1.4	4.12	-8.11	3.0	6.3	A	6.8	A	A
40	39.5	2.4	6.08	6.76	2.5	8.1	A	8.1	A	A
41	38	3	7.89	2.70	1.0	9.3	A	9.6	A	A
42	36	3	8.33	-2.70	1.0	9.3	A	9.9	A	A
43	31	3.3	10.65	-16.22	6.0	10.0	A	11.9	A	A
44	33.22	1.11	3.34	-10.22	3.8	5.9	A	6.4	A	A
45	36	1.3	3.61	-2.70	1.0	6.2	A	6.5	A	A
46	31.5	1.4	4.44	-14.86	5.5	6.3	A	7.0	A	A
47	42.1	2.8	6.65	13.78	5.1	8.9	A	8.6	A	A
50	37	3.7	10.00	0.00	0.0	10.9	A	11.4	A	A
51	43.5	2.5	5.75	17.57	6.5	8.3	A	7.9	A	A
52	31	3	9.68	-16.22	6.0	9.3	A	11.1	A	A
53	35.6	1.5	4.21	-3.78	1.4	6.5	A	6.9	A	A
54	33.7	4.1	12.17	-8.92	3.3	11.8	A	13.3	A	A
55	37.2	2.1	5.65	0.54	0.2	7.5	A	7.8	A	A
56	39	3	7.69	5.41	2.0	9.3	A	9.4	A	A
57	35.4	2.34	6.61	-4.32	1.6	7.9	A	8.5	A	A
58	39.6	2	5.05	7.03	2.6	7.3	A	7.4	A	A
59	38.9	2	5.14	5.14	1.9	7.3	A	7.5	A	A
60	33.8	0.9	2.66	-8.65	3.2	5.7	A	6.0	A	A
61	32.9	1	3.04	-11.08	4.1	5.8	A	6.2	A	A
62	37.8	1.89	5.00	2.16	0.8	7.1	A	7.4	A	A
63	37.33	1.89	5.06	0.89	0.3	7.1	A	7.4	A	A
64	36.5	1.63	4.47	-1.35	0.5	6.7	A	7.0	A	A
65	36.7	1.06	2.89	-0.81	0.3	5.8	A	6.1	A	A
70	38	7	18.42	2.70	1.0	18.8	A	19.2	A	A
71	32.6	1.4	4.29	-11.89	4.4	6.3	A	6.9	A	A
72	32.83	1.08	3.29	-11.27	4.2	5.9	A	6.3	A	A
73	44	3	6.82	18.92	7.0	9.3	A	8.7	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
74	486	122	25.10	1213.51	449.0	314.8	N	25.7	N	N
76	33.12	0.74	2.23	-10.49	3.9	5.5	A	5.8	A	A
77	35.36	1	2.83	-4.43	1.6	5.8	A	6.1	A	A
78	46.1	1.97	4.27	24.59	9.1	7.2	N	6.9	A	N
79	38.8	2.6	6.70	4.86	1.8	8.5	A	8.6	A	A
80	45.8	3.3	7.21	23.78	8.8	10.0	A	9.0	A	A
81	36	2.7	7.50	-2.70	1.0	8.7	A	9.2	A	A
82	36.65	3.26	8.89	-0.95	0.4	9.9	A	10.4	A	A
83	38.38	3.36	8.75	3.73	1.4	10.1	A	10.3	A	A
84	37.6	3.8	10.11	1.62	0.6	11.1	A	11.5	A	A
85	37.6	3.3	8.78	1.62	0.6	10.0	A	10.3	A	A
86	32	2	6.25	-13.51	5.0	7.3	A	8.3	A	A
87	38.2	0.9	2.36	3.24	1.2	5.7	A	5.9	A	A
88	39	3	7.69	5.41	2.0	9.3	A	9.4	A	A
89	34.56	5.6	16.20	-6.59	2.4	15.3	A	17.1	A	A
90	35.1	2.24	6.38	-5.14	1.9	7.7	A	8.4	A	A
91	35	3	8.57	-5.41	2.0	9.3	A	10.1	A	A
92	34.8	2.2	6.32	-5.95	2.2	7.7	A	8.3	A	A
93	40.8	2.1	5.15	10.27	3.8	7.5	A	7.5	A	A
94	49.2	8.4	17.07	32.97	12.2	22.3	A	17.9	A	A
95	39.7	5.6	14.11	7.30	2.7	15.3	A	15.1	A	A
99	37.6	1.2	3.19	1.62	0.6	6.0	A	6.3	A	A
100	50	20	40.00	35.14	13.0	51.9	A	40.4	N	N
101	36.1	4.1	11.36	-2.43	0.9	11.8	A	12.6	A	A
109	79.5	9.5	11.95	114.86	42.5	25.0	N	13.1	A	N
110	32.8	2.46	7.50	-11.35	4.2	8.2	A	9.2	A	A
111	38.54	3.54	9.19	4.16	1.5	10.5	A	10.7	A	A
112	35.7	1.6	4.48	-3.51	1.3	6.6	A	7.0	A	A
113	38.23	1.73	4.53	3.32	1.2	6.8	A	7.0	A	A
114	28	4	14.29	-24.32	9.0	11.5	A	15.3	A	A
115	42.2	6.9	16.35	14.05	5.2	18.5	A	17.2	A	A
118	33	1.3	3.94	-10.81	4.0	6.2	A	6.7	A	A
119	42.3	3.1	7.33	14.32	5.3	9.5	A	9.1	A	A
120	35.7	1.6	4.48	-3.51	1.3	6.6	A	7.0	A	A
121	55.66	5.61	10.08	50.43	18.7	15.4	N	11.4	A	N
122	37.1	1.3	3.50	0.27	0.1	6.2	A	6.4	A	A
123	33.4	2	5.99	-9.73	3.6	7.3	A	8.1	A	A
124	35.56	1.46	4.11	-3.89	1.4	6.4	A	6.8	A	A
125	37.9	2.3	6.07	2.43	0.9	7.9	A	8.1	A	A
126	30.2	3.9	12.91	-18.38	6.8	11.3	A	14.0	A	A
127	39.2	2.2	5.61	5.95	2.2	7.7	A	7.8	A	A
130	35.5	2	5.63	-4.05	1.5	7.3	A	7.8	A	A
131	38.38	2.19	5.71	3.73	1.4	7.7	A	7.9	A	A
132	34.08	1.764	5.18	-7.89	2.9	6.9	A	7.5	A	A
133	37	1.8	4.86	0.00	0.0	6.9	A	7.3	A	A
134	36.3	1.43	3.94	-1.89	0.7	6.3	A	6.7	A	A
136	42.25	2.37	5.61	14.19	5.3	8.0	A	7.8	A	A
138	32	4	12.50	-13.51	5.0	11.5	A	13.6	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
140	35.7	1.24	3.47	-3.51	1.3	6.1	A	6.4	A	A
141	40.7	3.8	9.34	10.00	3.7	11.1	A	10.8	A	A
142	44.54	0.007	0.02	20.38	7.5	5.2	N	5.4	A	N
143	48.22	4.12	8.54	30.32	11.2	11.8	A	10.1	A	A
144	32.71	2.92	8.93	-11.59	4.3	9.1	A	10.4	A	A
146	39.48	3.13	7.93	6.70	2.5	9.6	A	9.6	A	A
150	75.22	4.3	5.72	103.30	38.2	12.2	N	7.9	A	N
151	57	1.2	2.11	54.05	20.0	6.0	N	5.8	A	N
152	58	3	5.17	56.76	21.0	9.3	N	7.5	A	N
153	39.28	3.52	8.96	6.16	2.3	10.4	A	10.5	A	A
154	35.7	2.5	7.00	-3.51	1.3	8.3	A	8.8	A	A
155	40	2	5.00	8.11	3.0	7.3	A	7.4	A	A
157	36.2	2.6	7.18	-2.16	0.8	8.5	A	9.0	A	A
159	35.5	1.1	3.10	-4.05	1.5	5.9	A	6.2	A	A
160	38.31	4.05	10.57	3.54	1.3	11.7	A	11.9	A	A
161	36.46	3.26	8.94	-1.46	0.5	9.9	A	10.4	A	A
163	46.1	3.4	7.38	24.59	9.1	10.2	A	9.1	A	A
164	33.477	2.729	8.15	-9.52	3.5	8.7	A	9.8	A	A
165	28.6	1.7	5.94	-22.70	8.4	6.8	N	8.0	A	N
166	43.87	3.53	8.05	18.57	6.9	10.5	A	9.7	A	A
168	34.5	1.1	3.19	-6.76	2.5	5.9	A	6.3	A	A
169	35.2	0.9	2.56	-4.86	1.8	5.7	A	6.0	A	A
170	36	5	13.89	-2.70	1.0	13.9	A	14.9	A	A
171	41.7	1.4	3.36	12.70	4.7	6.3	A	6.4	A	A
172	37	2	5.41	0.00	0.0	7.3	A	7.6	A	A
173	39.5	1.35	3.42	6.76	2.5	6.2	A	6.4	A	A
174	37.5	1.8	4.80	1.35	0.5	6.9	A	7.2	A	A
175	33.4	2.3	6.89	-9.73	3.6	7.9	A	8.8	A	A
176	39.3	2.4	6.11	6.22	2.3	8.1	A	8.2	A	A
177	29.5	1.2	4.07	-20.27	7.5	6.0	N	6.8	A	N
178	35.39	1.62	4.58	-4.35	1.6	6.6	A	7.1	A	A
179	35.52	1.5	4.22	-4.00	1.5	6.5	A	6.9	A	A
181	36.02	0.65	1.80	-2.65	1.0	5.4	A	5.7	A	A
182	82	4.8	5.85	121.62	45.0	13.4	N	8.0	A	N
183	39.8	2	5.03	7.57	2.8	7.3	A	7.4	A	A
185	35.8	3.8	10.61	-3.24	1.2	11.1	A	11.9	A	A
190	30.24	5.26	17.39	-18.27	6.8	14.5	A	18.2	A	A
191	31.67	1.77	5.59	-14.41	5.3	6.9	A	7.8	A	A
192	36	3	8.33	-2.70	1.0	9.3	A	9.9	A	A
193	42	5	11.90	13.51	5.0	13.9	A	13.1	A	A
194	37	4	10.81	0.00	0.0	11.5	A	12.1	A	A
195	38.2	2.92	7.64	3.24	1.2	9.1	A	9.4	A	A
197	149	16.9	11.34	302.70	112.0	43.9	N	12.6	A	N
199	36.5	2.2	6.03	-1.35	0.5	7.7	A	8.1	A	A
200	35	1.4	4.00	-5.41	2.0	6.3	A	6.7	A	A
201	33.76	0.97	2.87	-8.76	3.2	5.7	A	6.1	A	A
202	282.4	14.66	5.19	663.24	245.4	38.2	N	7.5	A	N
205	41.07	3.67	8.94	11.00	4.1	10.8	A	10.4	A	A

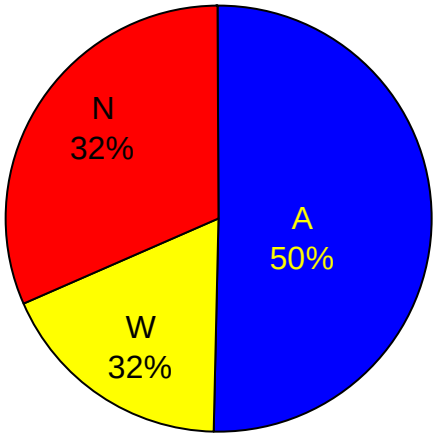
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
206	36.32	3.83	10.55	-1.84	0.7	11.1	A	11.8	A	A
207	43.5	6.8	15.63	17.57	6.5	18.3	A	16.5	A	A
208	39	13	33.33	5.41	2.0	33.9	A	33.8	N	W
209	34.11	1.85	5.42	-7.81	2.9	7.0	A	7.7	A	A
210	35	2.3	6.57	-5.41	2.0	7.9	A	8.5	A	A
211	36.4	1.8	4.95	-1.62	0.6	6.9	A	7.3	A	A
212	37.8	1.4	3.70	2.16	0.8	6.3	A	6.6	A	A
215	33.84	1.53	4.52	-8.54	3.2	6.5	A	7.0	A	A
216	38.4	1.4	3.65	3.78	1.4	6.3	A	6.5	A	A
217	35.595	2.02	5.67	-3.80	1.4	7.3	A	7.8	A	A
218	33.496	0.85	2.54	-9.47	3.5	5.6	A	6.0	A	A
219	32.6	1.3	3.99	-11.89	4.4	6.2	A	6.7	A	A
220	35.43	1.5	4.23	-4.24	1.6	6.5	A	6.9	A	A
221	34.3	2.5	7.29	-7.30	2.7	8.3	A	9.1	A	A
223	24.7	2.96	11.98	-33.24	12.3	9.2	N	13.1	A	N
225	118	18	15.25	218.92	81.0	46.7	N	16.2	A	N
227	35.32	1.56	4.42	-4.54	1.7	6.5	A	7.0	A	A
232	37.8	4.3	11.38	2.16	0.8	12.2	A	12.6	A	A
233	40	3.6	9.00	8.11	3.0	10.6	A	10.5	A	A
234	38.9	3.88	9.97	5.14	1.9	11.3	A	11.3	A	A
235	33.13	2.46	7.43	-10.46	3.9	8.2	A	9.2	A	A
236	37.8	1.7	4.50	2.16	0.8	6.8	A	7.0	A	A
237	32.6	1.5	4.60	-11.89	4.4	6.5	A	7.1	A	A
238	35.9	0.7	1.95	-2.97	1.1	5.5	A	5.7	A	A
239	37.7	2	5.31	1.89	0.7	7.3	A	7.6	A	A
241	35.9	3	8.36	-2.97	1.1	9.3	A	10.0	A	A
242	36.88	1.07	2.90	-0.32	0.1	5.9	A	6.1	A	A
244	33.7	1.75	5.19	-8.92	3.3	6.9	A	7.5	A	A
245	28.2	1	3.55	-23.78	8.8	5.8	N	6.5	A	N
246	26.5	4.13	15.58	-28.38	10.5	11.8	A	16.5	A	A
251	38.55	3.12	8.09	4.19	1.6	9.6	A	9.7	A	A
252	37.6	1	2.66	1.62	0.6	5.8	A	6.0	A	A
253	37	2	5.41	0.00	0.0	7.3	A	7.6	A	A
254	37	3	8.11	0.00	0.0	9.3	A	9.7	A	A
255	29.8	1.7	5.70	-19.46	7.2	6.8	N	7.9	A	W
256	37.6	2.5	6.65	1.62	0.6	8.3	A	8.6	A	A
257	35.8	2.3	6.42	-3.24	1.2	7.9	A	8.4	A	A
258	32.46	1.84	5.67	-12.27	4.5	7.0	A	7.8	A	A
259	31.49	1.31	4.16	-14.89	5.5	6.2	A	6.8	A	A
260	31	5	16.13	-16.22	6.0	13.9	A	17.0	A	A
261	39	3.1	7.95	5.41	2.0	9.5	A	9.6	A	A
263	32.6	3.1	9.51	-11.89	4.4	9.5	A	10.9	A	A
264	38.6	3.14	8.13	4.32	1.6	9.6	A	9.8	A	A
265	39.1	3.82	9.77	5.68	2.1	11.1	A	11.2	A	A
267	39.01	3.1	7.95	5.43	2.0	9.5	A	9.6	A	A
268	45.5	1.1	2.42	22.97	8.5	5.9	N	5.9	A	N
269	34.5	4.4	12.75	-6.76	2.5	12.5	A	13.9	A	A
270	29.6	3.6	12.16	-20.00	7.4	10.6	A	13.3	A	A

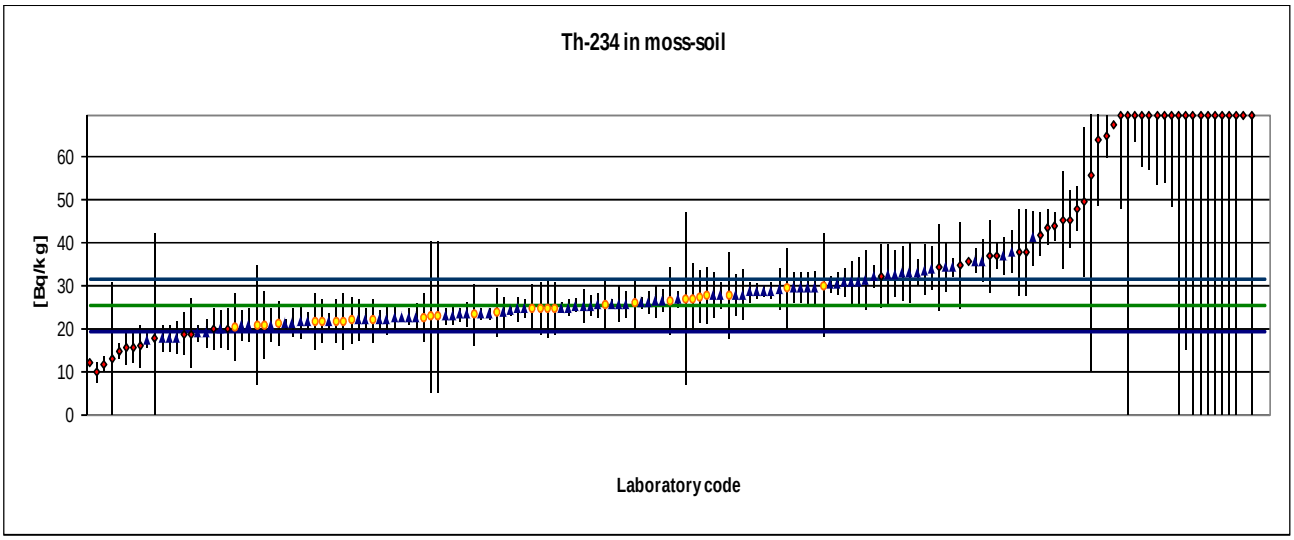
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
271	103.6	6.3	6.08	180.00	66.6	17.1	N	8.1	A	N
272	43.5	2.5	5.75	17.57	6.5	8.3	A	7.9	A	A
273	35	4.8	13.71	-5.41	2.0	13.4	A	14.7	A	A
274	41.2	1.4	3.40	11.35	4.2	6.3	A	6.4	A	A
275	36.48	2.38	6.52	-1.41	0.5	8.0	A	8.5	A	A
277	36.55	1.14	3.12	-1.22	0.5	5.9	A	6.2	A	A
278	33	4	12.12	-10.81	4.0	11.5	A	13.3	A	A
279	39.9	1.4	3.51	7.84	2.9	6.3	A	6.4	A	A
283	47.59	3.21	6.75	28.62	10.6	9.8	N	8.6	A	N
284	33.33	2.6	7.80	-9.92	3.7	8.5	A	9.5	A	A
285	36.3	2.8	7.71	-1.89	0.7	8.9	A	9.4	A	A
288	37.9	2.1	5.54	2.43	0.9	7.5	A	7.7	A	A
289	35.2	1.1	3.13	-4.86	1.8	5.9	A	6.2	A	A
290	42.1	2.7	6.41	13.78	5.1	8.7	A	8.4	A	A
292	32	2	6.25	-13.51	5.0	7.3	A	8.3	A	A
293	32	2	6.25	-13.51	5.0	7.3	A	8.3	A	A
294	33	1.2	3.64	-10.81	4.0	6.0	A	6.5	A	A
295	31.4	1.3	4.14	-15.14	5.6	6.2	A	6.8	A	A
296	28.5	2.9	10.18	-22.97	8.5	9.1	A	11.5	A	A
297	35.9	0.9	2.51	-2.97	1.1	5.7	A	6.0	A	A
298	35.97	0.74	2.06	-2.78	1.0	5.5	A	5.8	A	A
299	40.7	4.6	11.30	10.00	3.7	12.9	A	12.5	A	A
300	35.8	5	13.97	-3.24	1.2	13.9	A	15.0	A	A

Performance evaluation of Th-234 measurement results

IAEA-447 Moss-soil reference material

Target Value: 25.5 ± 3.0 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
7	12.31	0.4	3.25	-51.73	13.2	7.8	N	12.2	A	N
10	19.19	3.26	16.99	-24.75	6.3	11.4	A	20.7	A	A
11	31.4	6.9	21.97	23.14	5.9	19.4	A	24.9	A	A
12	16	5	31.25	-37.25	9.5	15.0	A	33.4	N	N
13	33.79	5.83	17.25	32.51	8.3	16.9	A	20.9	A	A
16	23.5	1.2	5.11	-7.84	2.0	8.3	A	12.8	A	A
17	35	10	28.57	37.25	9.5	26.9	A	30.9	N	N
18	23.4	1.5	6.41	-8.24	2.1	8.7	A	13.4	A	A
19	23.1	2.3	9.96	-9.41	2.4	9.8	A	15.4	A	A
20	24.5	1.4	5.71	-3.92	1.0	8.5	A	13.1	A	A
22	32.2	2.7	8.39	26.27	6.7	10.4	A	14.4	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
23	25.1	2.1	8.37	-1.57	0.4	9.4	A	14.4	A	A
24	25.5	1.6	6.27	0.00	0.0	8.8	A	13.3	A	A
26	24.9	2	8.03	-2.35	0.6	9.3	A	14.2	A	A
30	23.4	2.8	11.97	-8.24	2.1	10.6	A	16.8	A	A
31	23.4	7.2	30.77	-8.24	2.1	20.1	A	32.9	N	W
36	20.6	8	38.83	-19.22	4.9	22.0	A	40.6	N	W
37	20.88	3.44	16.48	-18.12	4.6	11.8	A	20.2	A	A
38	2713	0.0661	0.00	10539	2687.5	7.7	N	11.8	A	N
39	18	3	16.67	-29.41	7.5	10.9	A	20.4	A	A
40	18	3.7	20.56	-29.41	7.5	12.3	A	23.7	A	A
44	27.94	5.35	19.15	9.57	2.4	15.8	A	22.5	A	A
45	26.5	3.6	13.58	3.92	1.0	12.1	A	18.0	A	A
46	87	12	13.79	241.18	61.5	31.9	N	18.1	A	N
50	45.5	6.8	14.95	78.43	20.0	19.2	N	19.0	A	N
51	160.6	71.7	44.65	529.80	135.1	185.1	A	46.2	N	N
52	19	5	26.32	-25.49	6.5	15.0	A	28.8	N	N
53	22	1.8	8.18	-13.73	3.5	9.0	A	14.3	A	A
54	45.4	11.3	24.89	78.04	19.9	30.2	A	27.5	N	N
56	38	5	13.16	49.02	12.5	15.0	A	17.7	A	A
57	21.4	5.34	24.95	-16.08	4.1	15.8	A	27.6	N	W
58	36	3	8.33	41.18	10.5	10.9	A	14.4	A	A
59	21	4	19.05	-17.65	4.5	12.9	A	22.4	A	A
61	21.9	6.5	29.68	-14.12	3.6	18.5	A	31.9	N	W
62	22.1	5.63	25.48	-13.33	3.4	16.5	A	28.1	N	W
63	25.89	4.1	15.84	1.53	0.4	13.1	A	19.7	A	A
64	33.17	6.78	20.44	30.08	7.7	19.1	A	23.6	A	A
65	24.1	5.7	23.65	-5.49	1.4	16.6	A	26.4	N	W
70	27	20	74.07	5.88	1.5	52.2	A	75.0	N	W
71	20	4.8	24.00	-21.57	5.5	14.6	A	26.7	N	N
72	348.42	54.66	15.69	1266	322.9	141.2	N	19.6	A	N
74	25	6	24.00	-1.96	0.5	17.3	A	26.7	N	W
76	28.8	1.9	6.60	12.94	3.3	9.2	A	13.5	A	A
77	21.58	3.13	14.50	-15.37	3.9	11.2	A	18.7	A	A
78	94.3	13	13.79	269.80	68.8	34.4	N	18.1	A	N
79	30.2	12	39.74	18.43	4.7	31.9	A	41.4	N	W
81	37.1	4.3	11.59	45.49	11.6	13.5	A	16.5	A	A
82	32.99	6.46	19.58	29.37	7.5	18.4	A	22.8	A	A
83	<169.6									
84	11.8	1.7	14.41	-53.73	13.7	8.9	N	18.6	A	N
85	29.2	4.7	16.10	14.51	3.7	14.4	A	19.9	A	A
86	28	3	10.71	9.80	2.5	10.9	A	15.9	A	A
87	17.7	2.1	11.86	-30.59	7.8	9.4	A	16.7	A	A
89	49.9	17.48	35.03	95.69	24.4	45.8	A	37.0	N	N
91	22	5	22.73	-13.73	3.5	15.0	A	25.6	N	W
92	26.7	2.5	9.36	4.71	1.2	10.1	A	15.0	A	A
93	27.9	6.5	23.30	9.41	2.4	18.5	A	26.1	N	W
94	21	14	66.67	-17.65	4.5	36.9	A	67.7	N	W
95	25.5	3.9	15.29	0.00	0.0	12.7	A	19.3	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
97	1640	530	32.32	6331	1614.5	1367.4	N	34.4	N	N
99	47.9	5.2	10.86	87.84	22.4	15.5	N	16.0	A	N
101	31	5	16.13	21.57	5.5	15.0	A	20.0	A	A
109	64	15	23.44	150.98	38.5	39.5	A	26.2	N	N
110	86.4	6.49	7.51	238.82	60.9	18.4	N	14.0	A	N
111	34.43	5.68	16.50	35.02	8.9	16.6	A	20.3	A	A
112	23	17.7	76.96	-9.80	2.5	46.3	A	77.9	N	W
113	28.09	4.88	17.37	10.16	2.6	14.8	A	21.0	A	A
114	25	7	28.00	-1.96	0.5	19.6	A	30.4	N	W
118	1270	141	11.10	4880	1244.5	363.9	N	16.2	A	N
119	115	16	13.91	350.98	89.5	42.0	N	18.2	A	N
120	23	17.7	76.96	-9.80	2.5	46.3	A	77.9	N	W
122	34.5	2.2	6.38	35.29	9.0	9.6	A	13.4	A	A
123	25.8	5.9	22.87	1.18	0.3	17.1	A	25.7	N	W
124	29.68	4.11	13.85	16.39	4.2	13.1	A	18.2	A	A
125	21.1	4	18.96	-17.25	4.4	12.9	A	22.3	A	A
127	33.2	3.2	9.64	30.20	7.7	11.3	A	15.2	A	A
130	41.3	6.3	15.25	61.96	15.8	18.0	A	19.3	A	A
132	20.17	4.382	21.73	-20.90	5.3	13.7	A	24.7	A	A
134	15.8	3.85	24.37	-38.04	9.7	12.6	A	27.1	N	N
141	21.99	4.9	22.28	-13.76	3.5	14.8	A	25.2	N	W
142	35.71	0.005	0.01	40.04	10.2	7.7	N	11.8	A	N
150	32.76	5.44	16.61	28.47	7.3	16.0	A	20.4	A	A
152	42	5	11.90	64.71	16.5	15.0	N	16.7	A	N
153	32.67	6.92	21.18	28.12	7.2	19.5	A	24.2	A	A
157	28.1	5.8	20.64	10.20	2.6	16.8	A	23.8	A	A
159	28.9	1.4	4.84	13.33	3.4	8.5	A	12.7	A	A
160	26.02	5.85	22.48	2.04	0.5	17.0	A	25.4	N	W
161	43.89	3.18	7.25	72.12	18.4	11.3	N	13.8	A	N
163	27.3	7.9	28.94	7.06	1.8	21.8	A	31.2	N	W
164	26.724	7.819	29.26	4.80	1.2	21.6	A	31.5	N	W
165	25	6	24.00	-1.96	0.5	17.3	A	26.7	N	W
166	34.15	4.99	14.61	33.92	8.7	15.0	A	18.8	A	A
169	22.7	2.8	12.33	-10.98	2.8	10.6	A	17.0	A	A
170	21	8	38.10	-17.65	4.5	22.0	A	39.9	N	W
171	30.4	1.8	5.92	19.22	4.9	9.0	A	13.2	A	A
174	64.8	5.2	8.02	154.12	39.3	15.5	N	14.2	A	N
176	22.9	3.4	14.85	-10.20	2.6	11.7	A	18.9	A	A
177	26.9	1.8	6.69	5.49	1.4	9.0	A	13.5	A	A
178	23.57	1.34	5.69	-7.57	1.9	8.5	A	13.1	A	A
179	23.03	2	8.68	-9.69	2.5	9.3	A	14.6	A	A
183	402	89	22.14	1476	376.5	229.8	N	25.1	N	N
185	29.6	3.4	11.49	16.08	4.1	11.7	A	16.4	A	A
191	17.99	3.12	17.34	-29.45	7.5	11.2	A	21.0	A	A
192	36	5	13.89	41.18	10.5	15.0	A	18.2	A	A
194	37	3	8.11	45.10	11.5	10.9	N	14.3	A	N
197	27.5	6.08	22.11	7.84	2.0	17.5	A	25.0	N	W
199	19	8	42.11	-25.49	6.5	22.0	A	43.7	N	N

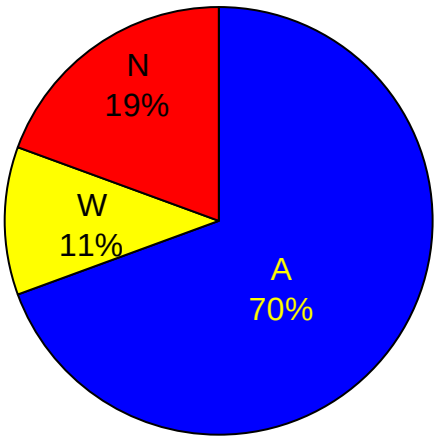
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
200	19.1	2	10.47	-25.10	6.4	9.3	A	15.7	A	A
201	43.86	4.09	9.33	72.00	18.4	13.1	N	15.0	A	N
205	29.6	3.57	12.06	16.08	4.1	12.0	A	16.8	A	A
209	917.6	145.19	15.82	3498	892.1	374.7	N	19.7	A	N
210	850	190	22.35	3233	824.5	490.3	N	25.3	N	N
216	22.9	5.7	24.89	-10.20	2.6	16.6	A	27.5	N	W
217	21.82	2.4	11.00	-14.43	3.7	9.9	A	16.1	A	A
218	22.89	2.01	8.78	-10.24	2.6	9.3	A	14.7	A	A
219	22.3	2.2	9.87	-12.55	3.2	9.6	A	15.4	A	A
220	20.21	4.9	24.25	-20.75	5.3	14.8	A	26.9	N	N
221	22.1	4.8	21.72	-13.33	3.4	14.6	A	24.7	A	A
227	24.77	2.88	11.63	-2.86	0.7	10.7	A	16.5	A	A
234	32.2	7.35	22.83	26.27	6.7	20.5	A	25.7	N	N
235	95.75	16.17	16.89	275.49	70.3	42.4	N	20.6	A	N
236	24.9	5.6	22.49	-2.35	0.6	16.4	A	25.4	N	W
237	25.6	2.9	11.33	0.39	0.1	10.8	A	16.3	A	A
238	22.1	2.6	11.76	-13.33	3.4	10.2	A	16.6	A	A
239	21.7	3.7	17.05	-14.90	3.8	12.3	A	20.7	A	A
242	440.5	130.3	29.58	1627	415.0	336.3	N	31.8	N	N
244	15.9	3.55	22.33	-37.65	9.6	12.0	A	25.2	N	N
245	28	10	35.71	9.80	2.5	26.9	A	37.6	N	W
246	22.3	3.33	14.93	-12.55	3.2	11.6	A	19.0	A	A
251	29.5	9.2	31.19	15.69	4.0	25.0	A	33.3	N	W
253	56	46	82.14	119.61	30.5	118.9	A	83.0	N	N
254	29	2	6.90	13.73	3.5	9.3	A	13.6	A	A
255	22.8	0.3	1.32	-10.59	2.7	7.8	A	11.8	A	A
258	22.1	5.1	23.08	-13.33	3.4	15.3	A	25.9	N	W
260	24.1	3.45	14.32	-5.49	1.4	11.8	A	18.5	A	A
261	15	1.8	12.00	-41.18	10.5	9.0	N	16.8	A	N
263	34.4	10	29.07	34.90	8.9	26.9	A	31.4	N	N
264	13	18.1	139.23	-49.02	12.5	47.3	A	139.7	N	N
265	72.9	22.2	30.45	185.88	47.4	57.8	A	32.6	N	N
267	22	6.5	29.55	-13.73	3.5	18.5	A	31.8	N	W
268	26.4	2.6	9.85	3.53	0.9	10.2	A	15.3	A	A
269	<1.1									
270	73.1	215	294.12	186.67	47.6	554.8	A	294.4	N	N
272	21.4	1.08	5.05	-16.08	4.1	8.2	A	12.8	A	A
273	67.7		0.00	165.49	42.2	7.7	N	11.8	A	N
274	25.5	2.5	9.80	0.00	0.0	10.1	A	15.3	A	A
275	25.84	1.08	4.18	1.33	0.3	8.2	A	12.5	A	A
277	1056.5	117.01	11.07	4043.2	1031.0	302.0	N	16.2	A	N
278	17.9	24.3	135.75	-29.80	7.6	63.2	A	136.3	N	N
279	126	21.6	17.14	394.12	100.5	56.3	N	20.8	A	N
283	25.03	1.2	4.79	-1.84	0.5	8.3	A	12.7	A	A
284	28.67	2.44	8.51	12.43	3.2	10.0	A	14.5	A	A
285	30.4	2.6	8.55	19.22	4.9	10.2	A	14.5	A	A
288	30.8	3.1	10.06	20.78	5.3	11.1	A	15.5	A	A
289	9.9	2.3	23.23	-61.18	15.6	9.8	N	26.0	N	N

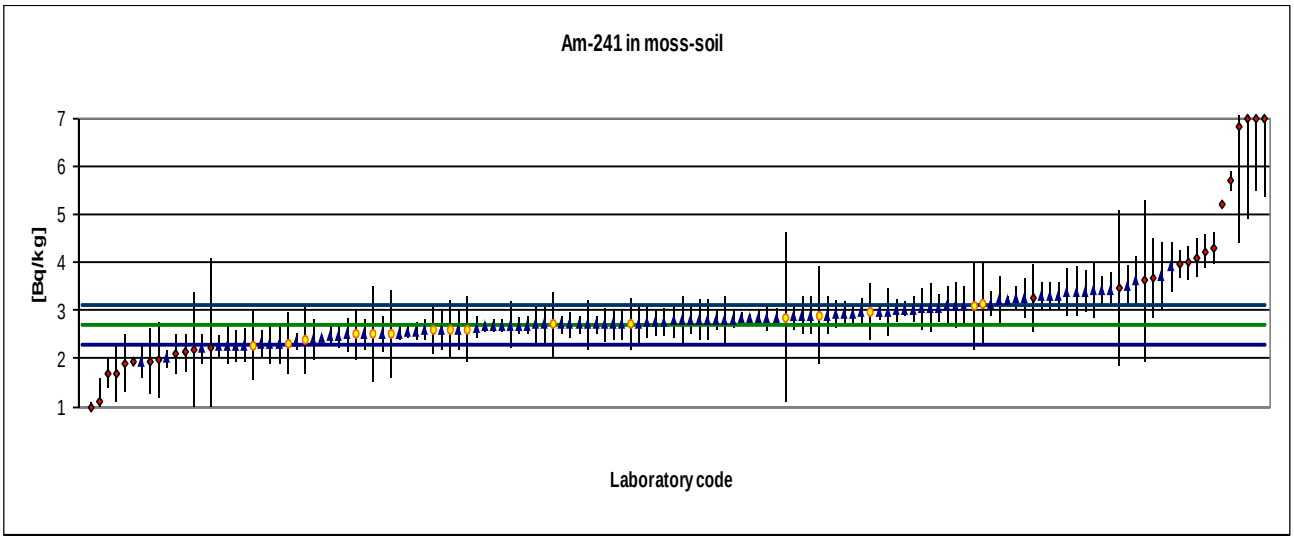
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
290	36.9	8.5	23.04	44.71	11.4	23.3	A	25.9	N	N
292	38	10	26.32	49.02	12.5	26.9	A	28.8	N	N
293	38	10	26.32	49.02	12.5	26.9	A	28.8	N	N
294	25.9	3.1	11.97	1.57	0.4	11.1	A	16.8	A	A
295	26.3	1.2	4.56	3.14	0.8	8.3	A	12.6	A	A
296	31	5.5	17.74	21.57	5.5	16.2	A	21.3	A	A
297	29.6	3.8	12.84	16.08	4.1	12.5	A	17.4	A	A
298	3043	436.44	14.34	11833	3017.5	1126.0	N	18.6	A	N

Performance evaluation of Am-241 measurement results

IAEA-447 Moss-soil reference material

Target Value: 2.2 ± 0.2 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
1	2.6	0.47	18.08	18.18	0.4	1.3	A	20.2	A	A
3	2	0.3	15.00	-9.09	0.2	0.9	A	17.5	A	A
5	3.16	0.83	26.27	43.64	1.0	2.2	A	27.8	N	N
7	1.43	0.07	4.90	-35.00	0.8	0.5	N	10.3	A	N
10	2.28	0.37	16.23	3.64	0.1	1.1	A	18.6	A	A
11	3.2	0.7	21.88	45.45	1.0	1.9	A	23.7	A	A
12	2.3	0.5	21.74	4.55	0.1	1.4	A	23.6	A	A
16	2.18	0.13	5.96	-0.91	0.0	0.6	A	10.9	A	A
18	2.19	0.16	7.31	-0.45	0.0	0.7	A	11.7	A	A
19	2.37	0.28	11.81	7.73	0.2	0.9	A	14.9	A	A
20	2.05	0.14	6.83	-6.82	0.2	0.6	A	11.4	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
22	1.8	0.3	16.67	-18.18	0.4	0.9	A	19.0	A	A
23	2.45	0.29	11.84	11.36	0.3	0.9	A	14.9	A	A
24	2.19	0.2	9.13	-0.45	0.0	0.7	A	12.9	A	A
29	2.64	0.26	9.85	20.00	0.4	0.8	A	13.4	A	A
30	1.2	0.3	25.00	-45.45	1.0	0.9	N	26.6	N	N
31	2.2	0.4	18.18	0.00	0.0	1.2	A	20.3	A	A
32	1.75	0.23	13.14	-20.45	0.5	0.8	A	16.0	A	A
33	2.55	0.48	18.82	15.91	0.4	1.3	A	20.9	A	A
36	2.89	0.5	17.30	31.36	0.7	1.4	A	19.5	A	A
37	2.31	0.18	7.79	5.00	0.1	0.7	A	12.0	A	A
39	2.6	0.4	15.38	18.18	0.4	1.2	A	17.9	A	A
40	1.6	0.4	25.00	-27.27	0.6	1.2	A	26.6	N	N
44	1.78	0.38	21.35	-19.09	0.4	1.1	A	23.2	A	A
45	1.78	0.33	18.54	-19.09	0.4	1.0	A	20.6	A	A
46	1.2	0.58	48.33	-45.45	1.0	1.6	A	49.2	N	N
51	<3.5									A
52	2.1	0.5	23.81	-4.55	0.1	1.4	A	25.5	N	W
53	2.06	0.18	8.74	-6.36	0.1	0.7	A	12.6	A	A
54	2.76	0.69	25.00	25.45	0.6	1.9	A	26.6	N	N
55	2.7	0.5	18.52	22.73	0.5	1.4	A	20.6	A	A
56	2.2	0.4	18.18	0.00	0.0	1.2	A	20.3	A	A
57	2.25	0.32	14.22	2.27	0.0	1.0	A	16.9	A	A
58	2.75	0.25	9.09	25.00	0.6	0.8	A	12.9	A	A
59	2.4	0.4	16.67	9.09	0.2	1.2	A	19.0	A	A
60	2.52	0.14	5.56	14.55	0.3	0.6	A	10.7	A	A
61	2.4	0.4	16.67	9.09	0.2	1.2	A	19.0	A	A
62	2.53	0.45	17.79	15.00	0.3	1.3	A	20.0	A	A
63	2.75	0.4	14.55	25.00	0.6	1.2	A	17.2	A	A
64	3.486	0.3531	10.13	58.45	1.3	1.0	N	13.6	A	N
65	2.43	0.22	9.05	10.45	0.2	0.8	A	12.8	A	A
70	1.7	1.2	70.59	-22.73	0.5	3.1	A	71.2	N	N
71	2.8	0.3	10.71	27.27	0.6	0.9	A	14.1	A	A
74	3.6	0.4	11.11	63.64	1.4	1.2	N	14.4	A	N
76	2.35	0.18	7.66	6.82	0.2	0.7	A	11.9	A	A
77	2.487	0.222	8.93	13.05	0.3	0.8	A	12.7	A	A
79	3.4	0.5	14.71	54.55	1.2	1.4	A	17.3	A	A
81	2.63	0.85	32.32	19.55	0.4	2.3	A	33.6	N	W
82	477.25	1.65	0.35	21593.	475.1	4.3	N	9.1	A	N
83	<2.78									A
84	2.3	0.3	13.04	4.55	0.1	0.9	A	15.9	A	A
86	2.8	0.3	10.71	27.27	0.6	0.9	A	14.1	A	A
87	2.33	0.15	6.44	5.91	0.1	0.6	A	11.1	A	A
89	1.89	0.7	37.04	-14.09	0.3	1.9	A	38.1	N	W
91	2.1	0.4	19.05	-4.55	0.1	1.2	A	21.1	A	A
92	2.52	0.26	10.32	14.55	0.3	0.8	A	13.8	A	A
93	2.2	0.7	31.82	0.00	0.0	1.9	A	33.1	N	W
95	1.99	0.34	17.09	-9.55	0.2	1.0	A	19.4	A	A
97	3.71	0.35	9.43	68.64	1.5	1.0	N	13.1	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
101	2.9	0.44	15.17	31.82	0.7	1.2	A	17.7	A	A
109	6.3	2.4	38.10	186.36	4.1	6.2	A	39.2	N	N
110	1.93		0.00	-12.27	0.3	0.5	A	9.1	A	A
111	2.11	0.68	32.23	-4.09	0.1	1.8	A	33.5	N	W
112	1.78	0.36	20.22	-19.09	0.4	1.1	A	22.2	A	A
113	1.99	0.53	26.63	-9.55	0.2	1.5	A	28.1	N	W
114	2	1	50.00	-9.09	0.2	2.6	A	50.8	N	W
118	1.44	0.32	22.22	-34.55	0.8	1.0	A	24.0	A	A
119	2.22	0.52	23.42	0.91	0.0	1.4	A	25.1	N	W
120	1.8	0.4	22.22	-18.18	0.4	1.2	A	24.0	A	A
122	1.4	0.6	42.86	-36.36	0.8	1.6	A	43.8	N	N
123	1.89	0.42	22.22	-14.09	0.3	1.2	A	24.0	A	A
125	0.6	0.5	83.33	-72.73	1.6	1.4	N	83.8	N	N
130	2.42	0.24	9.92	10.00	0.2	0.8	A	13.5	A	A
132	2.182	0.476	21.81	-0.82	0.0	1.3	A	23.6	A	A
133	2.2	0.2	9.09	0.00	0.0	0.7	A	12.9	A	A
134	2.2	0.28	12.73	0.00	0.0	0.9	A	15.6	A	A
138	1.45	0.67	46.21	-34.09	0.8	1.8	A	47.1	N	N
139	2.41	0.284	11.78	9.55	0.2	0.9	A	14.9	A	A
153	3.12	0.49	15.71	41.82	0.9	1.4	A	18.1	A	A
155	2.2	0.2	9.09	0.00	0.0	0.7	A	12.9	A	A
157	<6.4									A
159	2.33	0.11	4.72	5.91	0.1	0.6	A	10.2	A	A
160	2.89	0.52	17.99	31.36	0.7	1.4	A	20.2	A	A
161	2.02	0.15	7.43	-8.18	0.2	0.6	A	11.7	A	A
163	1.82	0.63	34.62	-17.27	0.4	1.7	A	35.8	N	W
164	<5.460									A
165	2.6	0.9	34.62	18.18	0.4	2.4	A	35.8	N	W
166	2.46	0.59	23.98	11.82	0.3	1.6	A	25.6	N	W
169	2.2	0.5	22.73	0.00	0.0	1.4	A	24.5	A	A
171	2.55	0.3	11.76	15.91	0.4	0.9	A	14.9	A	A
176	15.9	2.1	13.21	622.73	13.7	5.4	N	16.0	A	N
178	2.17	0.11	5.07	-1.36	0.0	0.6	A	10.4	A	A
179	2.2	0.2	9.09	0.00	0.0	0.7	A	12.9	A	A
181	2.93	0.29	9.90	33.18	0.7	0.9	A	13.4	A	A
183	1.8	0.4	22.22	-18.18	0.4	1.2	A	24.0	A	A
190	3.12	1.67	53.53	41.82	0.9	4.3	A	54.3	N	N
192	2.94	0.36	12.24	33.64	0.7	1.1	A	15.3	A	A
194	3	0.4	13.33	36.36	0.8	1.2	A	16.1	A	A
197	2.7	0.09	3.33	22.73	0.5	0.6	A	9.7	A	A
199	2.1	0.6	28.57	-4.55	0.1	1.6	A	30.0	N	W
200	2.08	0.2	9.62	-5.45	0.1	0.7	A	13.2	A	A
201	1.47	0.79	53.74	-33.18	0.7	2.1	A	54.5	N	N
207	2.3	0.4	17.39	4.55	0.1	1.2	A	19.6	A	A
209	0.5	0.11	22.00	-77.27	1.7	0.6	N	23.8	A	N
210	2.8	0.3	10.71	27.27	0.6	0.9	A	14.1	A	A
211	2.46	0.15	6.10	11.82	0.3	0.6	A	10.9	A	A
216	2.34	0.23	9.83	6.36	0.1	0.8	A	13.4	A	A

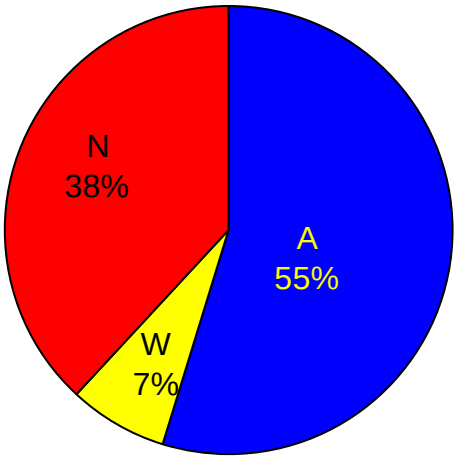
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
217	1.98	0.25	12.63	-10.00	0.2	0.8	A	15.6	A	A
218	2.16	0.119	5.51	-1.82	0.0	0.6	A	10.6	A	A
219	2.91	0.57	19.59	32.27	0.7	1.6	A	21.6	A	A
220	1.97	0.21	10.66	-10.45	0.2	0.7	A	14.0	A	A
221	1.85	0.18	9.73	-15.91	0.4	0.7	A	13.3	A	A
226	5.2	0.2	3.85	136.36	3.0	0.7	N	9.9	A	N
227	2.15	0.24	11.16	-2.27	0.1	0.8	A	14.4	A	A
233	1.62	0.39	24.07	-26.36	0.6	1.1	A	25.7	N	N
236	2.33	0.16	6.87	5.91	0.1	0.7	A	11.4	A	A
237	2.1	0.4	19.05	-4.55	0.1	1.2	A	21.1	A	A
238	2.25	0.27	12.00	2.27	0.0	0.9	A	15.1	A	A
239	2.3	0.4	17.39	4.55	0.1	1.2	A	19.6	A	A
251	2.01	0.92	45.77	-8.64	0.2	2.4	A	46.7	N	W
253	1.72	1.85	107.56	-21.82	0.5	4.8	A	107.9	N	N
255	2.23	0.41	18.39	1.36	0.0	1.2	A	20.5	A	A
258	1.71	0.31	18.13	-22.27	0.5	1.0	A	20.3	A	A
260	2.2	0.34	15.45	0.00	0.0	1.0	A	17.9	A	A
261	1.5	0.2	13.33	-31.82	0.7	0.7	A	16.1	A	A
264	2.95	1.62	54.92	34.09	0.8	4.2	A	55.7	N	N
265	2.36	1.75	74.15	7.27	0.2	4.5	A	74.7	N	W
267	0.085	0.16	188.24	-96.14	2.1	0.7	N	188.5	N	N
268	2.59	0.42	16.22	17.73	0.4	1.2	A	18.6	A	A
269	<2.7									A
272	1.78	0.73	41.01	-19.09	0.4	2.0	A	42.0	N	W
273	4.7		0.00	113.64	2.5	0.5	N	9.1	A	N
274	2.3	0.2	8.70	4.55	0.1	0.7	A	12.6	A	A
276	2.4	1	41.67	9.09	0.2	2.6	A	42.6	N	W
277	2.25	0.29	12.89	2.27	0.0	0.9	A	15.8	A	A
283	29.48	1.52	5.16	1240.0	27.3	4.0	N	10.5	A	N
284	3.79	0.32	8.44	72.27	1.6	1.0	N	12.4	A	N
285	3.45	0.29	8.41	56.82	1.3	0.9	N	12.4	A	N
288	2.3	0.5	21.74	4.55	0.1	1.4	A	23.6	A	A
290	2.4	0.4	16.67	9.09	0.2	1.2	A	19.0	A	A
292	2.2	0.3	13.64	0.00	0.0	0.9	A	16.4	A	A
293	2.2	0.3	13.64	0.00	0.0	0.9	A	16.4	A	A
294	2.47	0.49	19.84	12.27	0.3	1.4	A	21.8	A	A
300	2	0.38	19.00	-9.09	0.2	1.1	A	21.1	A	A

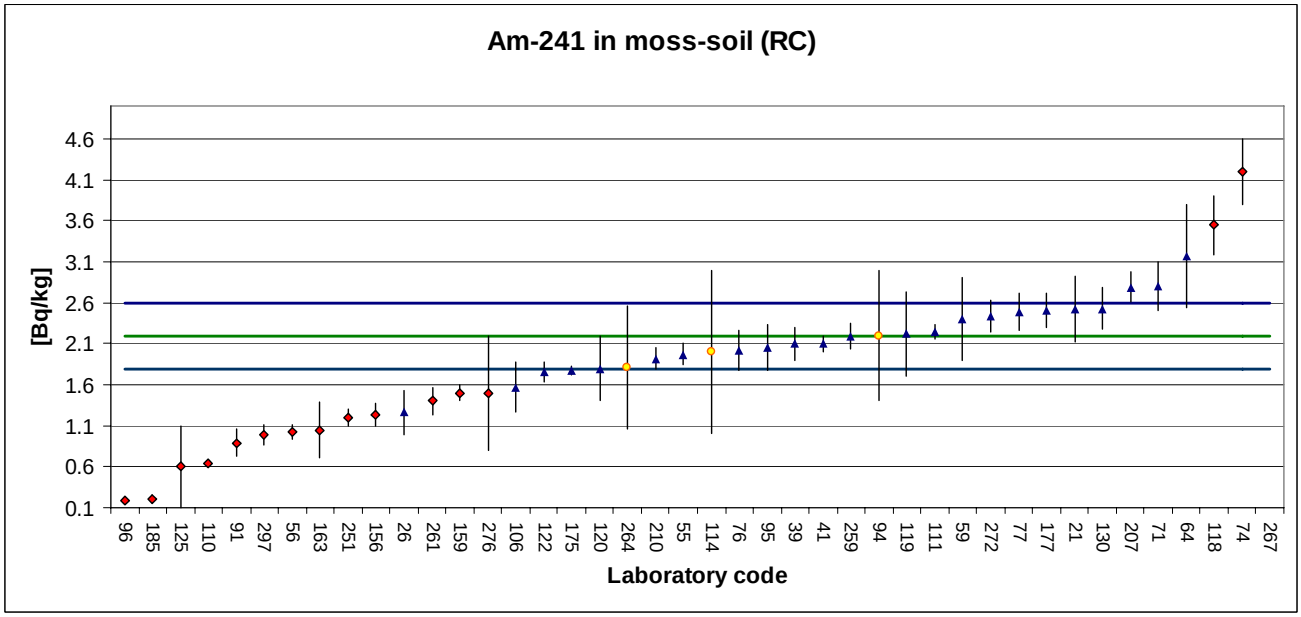
Performance evaluation of Am-241 measurement results

IAEA-447 Moss-soil reference material

Target Value: 2.2 ± 0.2 [Bq/kg]

Radiochemical methods





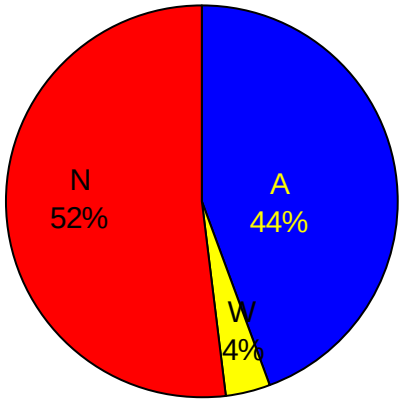
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
21	2.52	0.4	15.87	20.00	0.4	1.2	A	18.5	A	A
26	1.26	0.27	21.43	-40.00	0.8	0.9	A	23.4	A	A
39	2.1	0.2	9.52	0.00	0.0	0.7	A	13.5	A	A
41	2.1	0.1	4.76	0.00	0.0	0.6	A	10.6	A	A
55	1.97	0.13	6.60	-6.19	0.1	0.6	A	11.6	A	A
56	1.02	0.083	8.14	-51.43	1.1	0.6	N	12.5	A	N
59	2.4	0.5	20.83	14.29	0.3	1.4	A	22.9	A	A
64	3.17	0.63	19.87	50.95	1.1	1.7	A	22.0	A	A

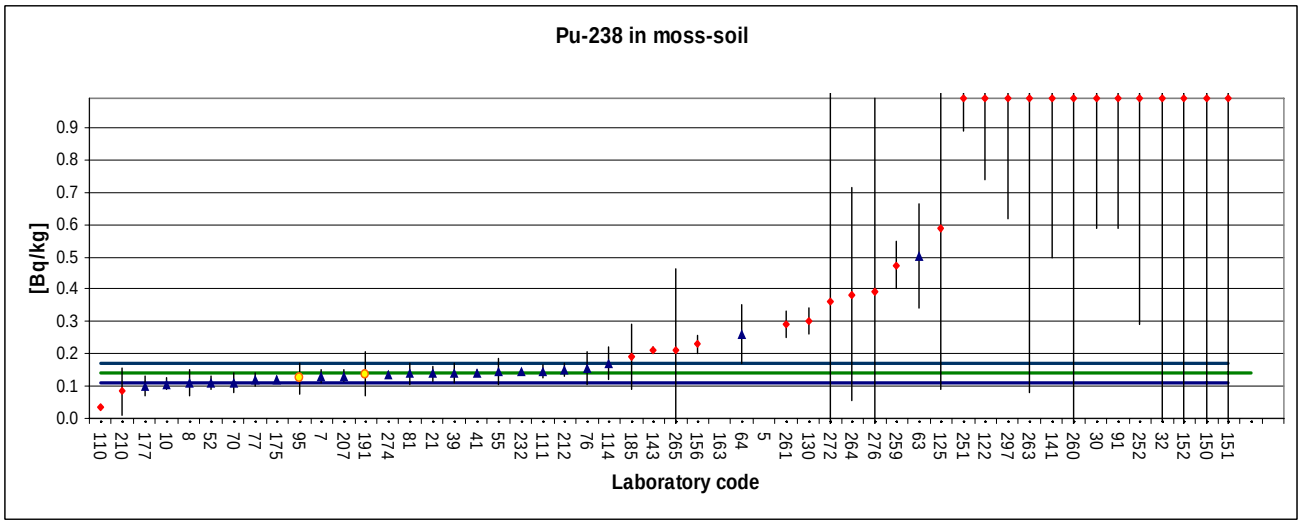
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
71	2.8	0.3	10.71	33.33	0.7	0.9	A	14.3	A	A
74	4.2	0.4	9.52	100.00	2.1	1.2	N	13.5	A	N
76	2.02	0.25	12.38	-3.81	0.1	0.8	A	15.6	A	A
77	2.487	0.222	8.93	18.43	0.4	0.8	A	13.1	A	A
91	0.89	0.17	19.10	-57.62	1.2	0.7	N	21.3	A	N
94	2.2	0.8	36.36	4.76	0.1	2.1	A	37.6	N	W
95	2.06	0.28	13.59	-1.90	0.0	0.9	A	16.6	A	A
96	0.18	0.03	16.67	-91.43	1.9	0.5	N	19.2	A	N
106	1.57	0.3	19.11	-25.24	0.5	0.9	A	21.4	A	A
110	0.645	0.0287	4.45	-69.29	1.5	0.5	N	10.5	A	N
111	2.24	0.09	4.02	6.67	0.1	0.6	A	10.3	A	A
114	2	1	50.00	-4.76	0.1	2.6	A	50.9	N	W
118	3.55	0.36	10.14	69.05	1.5	1.1	N	13.9	A	N
119	2.22	0.52	23.42	5.71	0.1	1.4	A	25.3	A	A
120	1.8	0.4	22.22	-14.29	0.3	1.2	A	24.2	A	A
122	1.75	0.12	6.86	-16.67	0.4	0.6	A	11.7	A	A
125	0.6	0.5	83.33	-71.43	1.5	1.4	N	83.9	N	N
130	2.53	0.25	9.88	20.48	0.4	0.8	A	13.7	A	A
156	1.23	0.139	11.30	-41.43	0.9	0.6	N	14.8	A	N
159	1.5	0.1	6.67	-28.57	0.6	0.6	N	11.6	A	N
163	1.05	0.34	32.38	-50.00	1.1	1.0	N	33.8	N	N
175	1.77	0.052	2.94	-15.71	0.3	0.5	A	10.0	A	A
177	2.5	0.21	8.40	19.05	0.4	0.7	A	12.7	A	A
185	0.21	0.04	19.05	-90.00	1.9	0.5	N	21.3	A	N
207	2.79	0.18	6.45	32.86	0.7	0.7	A	11.5	A	A
210	1.92	0.13	6.77	-8.57	0.2	0.6	A	11.7	A	A
251	1.2	0.1	8.33	-42.86	0.9	0.6	N	12.7	A	N
259	2.19	0.1535	7.00	4.41	0.1	0.7	A	11.8	A	A
261	1.4	0.16	11.43	-33.33	0.7	0.7	N	14.9	A	N
264	1.81	0.749	41.38	-13.81	0.3	2.0	A	42.5	N	W
267	29.5	12	40.68	1304.7	27.4	31.0	A	41.8	N	N
272	2.44	0.19	7.79	16.19	0.3	0.7	A	12.3	A	A
276	1.5	0.7	46.67	-28.57	0.6	1.9	A	47.6	N	N
297	0.99	0.12	12.12	-52.86	1.1	0.6	N	15.4	A	N

Performance evaluation of Pu-238 measurement results

IAEA-447 Moss-soil reference material

Target Value: 0.15 ± 0.015 [Bq/kg]





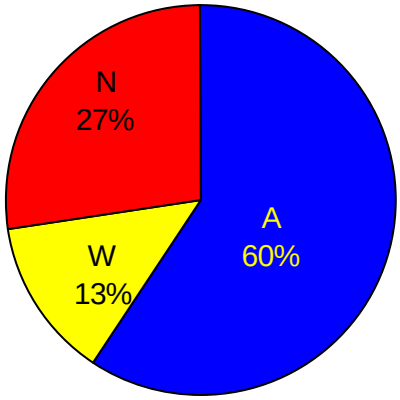
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
5	0.29	0.18	62.07	93	0.14	0.47	A	62.9	N	N
7	0.14	0.02	14.29	-6.67	0.01	0.06	A	17.4	A	A
8	0.12	0.04	33.33	-20.00	0.03	0.11	A	34.8	A	A
10	0.118	0.02	16.95	-21.33	0.03	0.06	A	19.7	A	A
21	0.15	0.022	14.67	0.00	0.00	0.07	A	17.8	A	A
30	3.4	0.4	11.76	2166	3.25	1.03	N	15.4	A	N
32	27.5	1	3.64	18233	27.35	2.58	N	10.6	A	N
39	0.15	0.03	20.00	0.00	0.00	0.09	A	22.4	A	A
41	0.15	0.01	6.67	0.00	0.00	0.05	A	12.0	A	A
52	0.12	0.02	16.67	-20.00	0.03	0.06	A	19.4	A	A
55	0.155	0.039	25.16	3.33	0.01	0.11	A	27.1	A	A
63	0.512	0.161	31.45	241	0.36	0.42	A	33.0	A	A
64	0.27	0.09	33.33	80.00	0.12	0.24	A	34.8	A	A

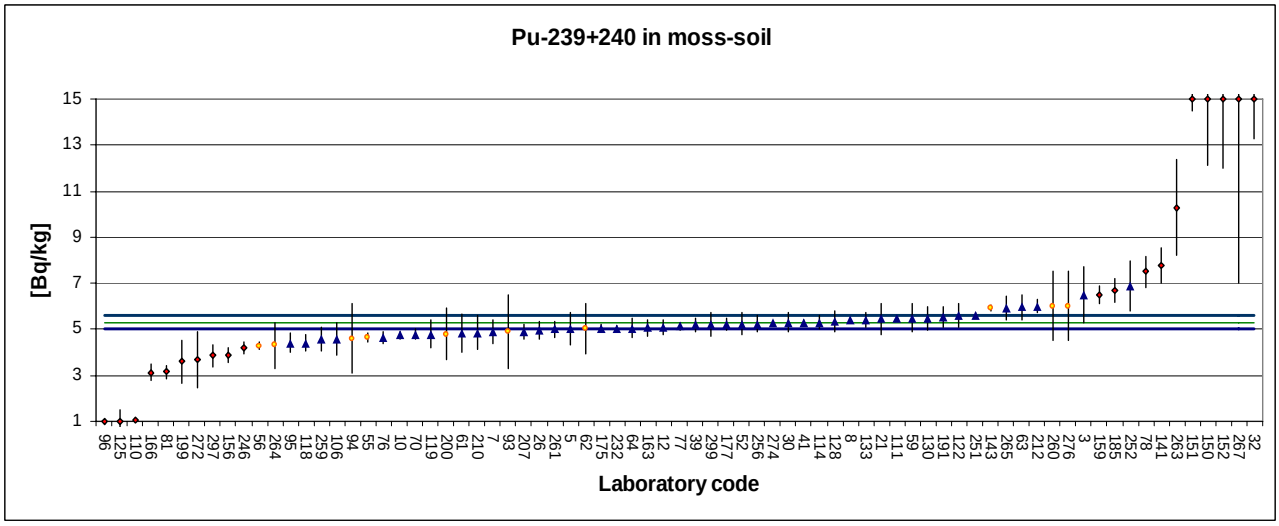
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
70	0.12	0.03	25.00	-20.00	0.03	0.09	A	26.9	A	A
76	0.166	0.05	30.12	10.67	0.02	0.13	A	31.7	A	A
77	0.13	0.021	16.15	-13.33	0.02	0.07	A	19.0	A	A
81	0.149	0.031	20.81	-0.67	0.00	0.09	A	23.1	A	A
91	3.7	0.4	10.81	2366	3.55	1.03	N	14.7	A	N
95	0.134	0.048	35.82	-10.67	0.02	0.13	A	37.2	N	W
96	<0.05									A
106	<0.66									N
110	0.0463	0.0012	2.68	-69.13	0.10	0.04	N	10.4	A	N
111	0.158	0.02	12.66	5.33	0.01	0.06	A	16.1	A	A
114	0.18	0.05	27.78	20.00	0.03	0.13	A	29.5	A	A
122	1.70	0.25	14.71	1033	1.55	0.65	N	17.8	A	N
125	0.6	0.5	83.33	300	0.45	1.29	A	83.9	N	N
130	0.31	0.04	12.90	106	0.16	0.11	N	16.3	A	N
141	3.03	0.49	16.17	1920	2.88	1.26	N	19.0	A	N
143	0.22	0.01	4.55	46.67	0.07	0.05	N	11.0	A	N
150	671.4	87.29	13.00	44754	671.31	225.21	N	16.4	A	N
151	671.4	18.2	2.71	44754	671.31	46.96	N	10.4	A	N
152	665	75	11.28	44323	664.85	193.50	N	15.1	A	N
156	0.239	0.0268	11.21	59.33	0.09	0.08	N	15.0	A	N
163	0.261	0.076	29.12	74.00	0.11	0.20	A	30.8	A	A
175	0.133	0.0091	6.84	-11.33	0.02	0.05	A	12.1	A	A
177	0.11	0.03	27.27	-26.67	0.04	0.09	A	29.0	A	A
185	0.2	0.1	50.00	33.33	0.05	0.26	A	51.0	N	N
191	0.148	0.066	44.59	-1.33	0.00	0.17	A	45.7	N	W
207	0.143	0.016	11.19	-4.67	0.01	0.06	A	15.0	A	A
210	0.095	0.073	76.84	-36.67	0.06	0.19	A	77.5	N	N
212	0.16	0.02	12.50	6.67	0.01	0.06	A	16.0	A	A
232	0.1553	0.0031	2.00	3.53	0.01	0.04	A	10.2	A	A
251	1.04	0.1	9.62	593	0.89	0.26	N	13.9	A	N
252	4.6	0.7	15.22	2966	4.45	1.81	N	18.2	A	N
259	0.4839	0.0719	14.86	222	0.33	0.19	N	17.9	A	N
260	3.1	1.5	48.39	1966	2.95	3.87	A	49.4	N	N
261	0.3	0.04	13.33	100	0.15	0.11	N	16.7	A	N
263	3	0.91	30.33	1900	2.85	2.35	N	31.9	A	N
264	0.394	0.331	84.01	162	0.24	0.85	A	84.6	N	N
265	0.22	0.25	113	46.67	0.07	0.65	A	114.1	N	N
272	0.37	3.09	835	146	0.22	7.97	A	835.2	N	N
274	0.148	0.006	4.05	-1.33	0.00	0.04	A	10.8	A	A
276	0.4	0.6	150	166	0.25	1.55	A	150.3	N	N
297	2.2	0.37	16.82	1366	2.05	0.96	N	19.6	A	N

Performance evaluation of Pu-239+240 measurement results

IAEA-447 Moss-soil reference material

Target Value: 5.3 ± 0.16 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
3	6.5	1.2	18.46	22.64	1.2	3.1	A	18.7	A	A
5	5.03	0.73	14.51	-5.09	0.3	1.9	A	14.8	A	A
7	4.9	0.49	10.00	-7.55	0.4	1.3	A	10.4	A	A
8	5.4	0.1	1.85	1.89	0.1	0.5	A	3.5	A	A
10	4.76	0.155	3.26	-10.19	0.5	0.6	A	4.4	A	A
12	5.1	0.3	5.88	-3.77	0.2	0.9	A	6.6	A	A
21	5.46	0.66	12.09	3.02	0.2	1.8	A	12.5	A	A
26	4.98	0.39	7.83	-6.04	0.3	1.1	A	8.4	A	A
30	5.3	0.4	7.55	0.00	0.0	1.1	A	8.1	A	A
32	43.9	1.7	3.87	728.30	38.6	4.4	N	4.9	A	N
39	5.2	0.3	5.77	-1.89	0.1	0.9	A	6.5	A	A
41	5.3	0.1	1.89	0.00	0.0	0.5	A	3.6	A	A
52	5.25	0.46	8.76	-0.94	0.0	1.3	A	9.3	A	A

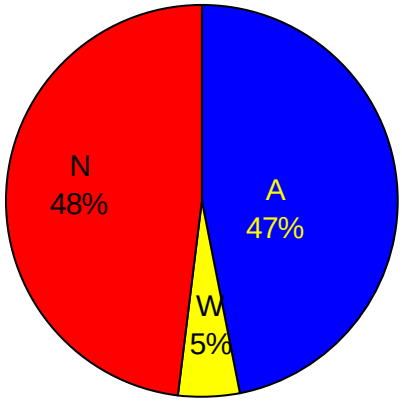
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
55	4.65	0.18	3.87	-12.26	0.6	0.6	N	4.9	A	W
56	4.27	0.16	3.75	-19.43	1.0	0.6	N	4.8	A	W
59	5.5	0.6	10.91	3.77	0.2	1.6	A	11.3	A	A
61	4.82	0.82	17.01	-9.06	0.5	2.2	A	17.3	A	A
62	5.03	1.09	21.67	-5.09	0.3	2.8	A	21.9	N	W
63	5.96	0.56	9.40	12.45	0.7	1.5	A	9.9	A	A
64	5.05	0.43	8.51	-4.72	0.3	1.2	A	9.0	A	A
70	4.78	0.23	4.81	-9.81	0.5	0.7	A	5.7	A	A
76	4.65	0.27	5.81	-12.26	0.6	0.8	A	6.5	A	A
77	5.131	0.181	3.53	-3.19	0.2	0.6	A	4.6	A	A
78	7.51	0.678	9.03	41.70	2.2	1.8	N	9.5	A	N
81	3.16	0.29	9.18	-40.38	2.1	0.9	N	9.7	A	N
91	67.7	2.1	3.10	1177.3	62.4	5.4	N	4.3	A	N
93	4.9	1.6	32.65	-7.55	0.4	4.1	A	32.8	N	W
94	4.6	1.5	32.61	-13.21	0.7	3.9	A	32.7	N	W
95	4.42	0.44	9.95	-16.60	0.9	1.2	A	10.4	A	A
96	0.52	0.06	11.54	-90.19	4.8	0.4	N	11.9	A	N
106	4.58	0.68	14.85	-13.58	0.7	1.8	A	15.2	A	A
110	1.06	0.0412	3.89	-80.00	4.2	0.4	N	4.9	A	N
111	5.47	0.02	0.37	3.21	0.2	0.4	A	3.0	A	A
114	5.3	0.3	5.66	0.00	0.0	0.9	A	6.4	A	A
118	4.42	0.36	8.14	-16.60	0.9	1.0	A	8.7	A	A
119	4.78	0.61	12.76	-9.81	0.5	1.6	A	13.1	A	A
122	5.6	0.51	9.11	5.66	0.3	1.4	A	9.6	A	A
125	0.6	0.5	83.33	-88.68	4.7	1.4	N	83.4	N	N
128	5.33	0.45	8.44	0.57	0.0	1.2	A	9.0	A	A
130	5.5	0.51	9.27	3.77	0.2	1.4	A	9.8	A	A
133	5.41	0.35	6.47	2.08	0.1	1.0	A	7.1	A	A
141	7.785	0.77	9.89	46.89	2.5	2.0	N	10.3	A	N
143	5.91	0.11	1.86	11.51	0.6	0.5	N	3.5	A	W
150	21.9	2.85	13.01	313.21	16.6	7.4	N	13.4	A	N
151	21.87	0.48	2.19	312.64	16.6	1.3	N	3.7	A	N
152	23	3	13.04	333.96	17.7	7.8	N	13.4	A	N
156	3.87	0.331	8.55	-26.98	1.4	0.9	N	9.1	A	N
159	6.5	0.4	6.15	22.64	1.2	1.1	N	6.9	A	N
163	5.08	0.35	6.89	-4.15	0.2	1.0	A	7.5	A	A
166	3.13	0.35	11.18	-40.94	2.2	1.0	N	11.6	A	N
175	5.04	0.17	3.37	-4.91	0.3	0.6	A	4.5	A	A
177	5.21	0.25	4.80	-1.70	0.1	0.8	A	5.7	A	A
185	6.7	0.5	7.46	26.42	1.4	1.4	N	8.1	A	N
191	5.54	0.42	7.58	4.53	0.2	1.2	A	8.2	A	A
199	3.61	0.92	25.48	-31.89	1.7	2.4	A	25.7	N	N
200	4.8	1.1	22.92	-9.43	0.5	2.9	A	23.1	N	W
207	4.92	0.33	6.71	-7.17	0.4	0.9	A	7.4	A	A
210	4.86	0.73	15.02	-8.30	0.4	1.9	A	15.3	A	A
212	6	0.3	5.00	13.21	0.7	0.9	A	5.8	A	A
232	5.049	0.079	1.56	-4.74	0.3	0.5	A	3.4	A	A
246	4.2	0.24	5.71	-20.75	1.1	0.7	N	6.5	A	N

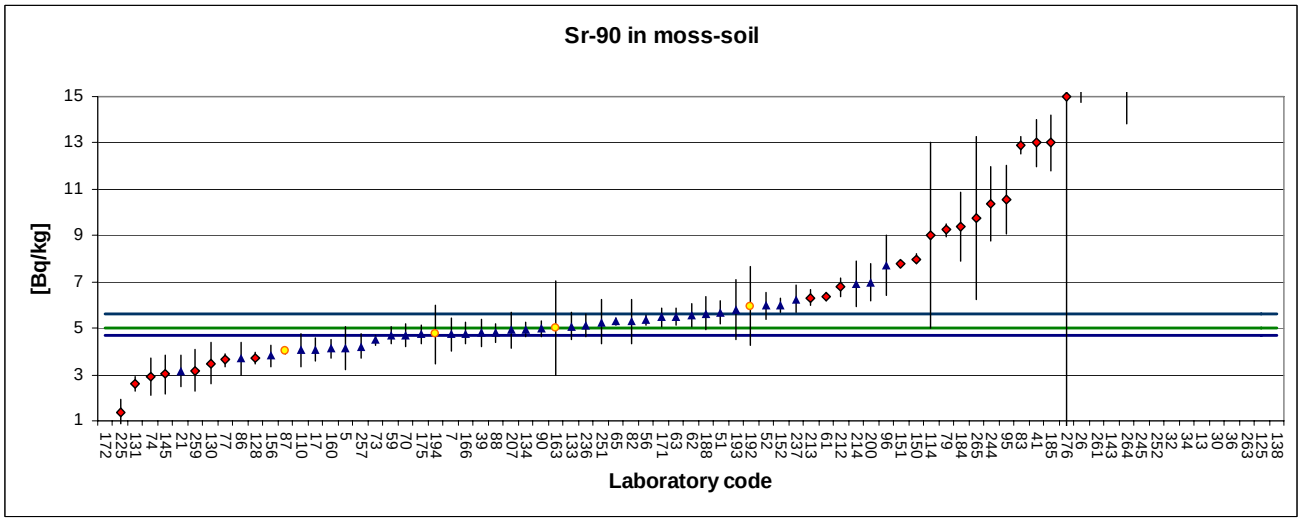
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
251	5.6	0.1	1.79	5.66	0.3	0.5	A	3.5	A	A
252	6.9	1.1	15.94	30.19	1.6	2.9	A	16.2	A	A
256	5.25	0.34	6.48	-0.94	0.0	1.0	A	7.1	A	A
259	4.58	0.52	11.28	-13.59	0.7	1.4	A	11.7	A	A
260	6	1.5	25.00	13.21	0.7	3.9	A	25.2	N	W
261	5	0.36	7.20	-5.66	0.3	1.0	A	7.8	A	A
263	10.3	2.1	20.39	94.34	5.0	5.4	A	20.6	N	N
264	4.32	0.99	22.92	-18.49	1.0	2.6	A	23.1	N	W
265	5.93	0.51	8.60	11.89	0.6	1.4	A	9.1	A	A
267	30.9	8	25.89	483.02	25.6	20.6	N	26.1	N	N
272	3.66	1.21	33.06	-30.94	1.6	3.1	A	33.2	N	N
274	5.29	0.01	0.19	-0.19	0.0	0.4	A	3.0	A	A
276	6	1.5	25.00	13.21	0.7	3.9	A	25.2	N	W
297	3.85	0.49	12.73	-27.36	1.5	1.3	N	13.1	A	N
299	5.2	0.5	9.62	-1.89	0.1	1.4	A	10.1	A	A

Performance evaluation of Sr-90 measurement results

IAEA-447 Moss-soil reference material

Target Value: 5.0 ± 0.3 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
5	4.13	0.91	22.03	-17.4	0.9	2.5	A	22.8	A	A
7	4.75	0.71	14.95	-5.0	0.3	2.0	A	16.1	A	A
13	45.82	5.66	12.35	816.4	40.8	14.6	N	13.7	A	N
17	4.1	0.5	12.20	-18.0	0.9	1.5	A	13.6	A	A
21	3.16	0.7	22.15	-36.8	1.8	2.0	A	23.0	A	A
26	16.82	2.07	12.31	236.4	11.8	5.4	N	13.7	A	N
30	66	21	31.82	1220.0	61.0	54.2	N	32.4	N	N
32	39.4	4.3	10.91	688.0	34.4	11.1	N	12.5	A	N
34	41	13	31.71	720.0	36.0	33.5	N	32.3	N	N
36	178	100	56.18	3460.0	173.0	258.0	A	56.5	N	N
39	4.8	0.6	12.50	-4.0	0.2	1.7	A	13.9	A	A
41	13	1	7.69	160.0	8.0	2.7	N	9.8	A	N
51	5.68	0.51	8.98	13.6	0.7	1.5	A	10.8	A	A

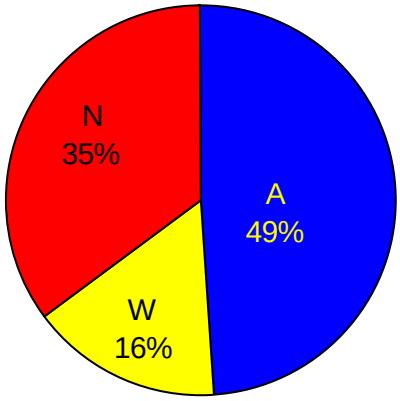
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
52	5.97	0.61	10.22	19.4	1.0	1.8	A	11.8	A	A
56	5.36	0.21	3.92	7.2	0.4	0.9	A	7.2	A	A
59	4.67	0.37	7.92	-6.6	0.3	1.2	A	9.9	A	A
61	6.37	0.21	3.30	27.4	1.4	0.9	N	6.8	A	N
62	5.54	0.5	9.03	10.8	0.5	1.5	A	10.8	A	A
63	5.5	0.36	6.55	10.0	0.5	1.2	A	8.9	A	A
65	5.29	0.15	2.84	5.8	0.3	0.9	A	6.6	A	A
70	4.7	0.5	10.64	-6.0	0.3	1.5	A	12.2	A	A
73	4.49	0.22	4.90	-10.2	0.5	1.0	A	7.7	A	A
74	2.9	0.8	27.59	-42.0	2.1	2.2	A	28.2	N	N
77	3.622	0.259	7.15	-27.6	1.4	1.0	N	9.3	A	N
79	9.25	0.27	2.92	85.0	4.3	1.0	N	6.7	A	N
82	5.29	0.96	18.15	5.8	0.3	2.6	A	19.1	A	A
83	12.88	0.37	2.87	157.6	7.9	1.2	N	6.7	A	N
86	3.7	0.7	18.92	-26.0	1.3	2.0	A	19.8	A	A
87	4.01	0.14	3.49	-19.8	1.0	0.9	N	6.9	A	W
88	4.8	0.4	8.33	-4.0	0.2	1.3	A	10.3	A	A
90	4.98	0.36	7.23	-0.4	0.0	1.2	A	9.4	A	A
95	10.56	1.48	14.02	111.2	5.6	3.9	N	15.2	A	N
96	7.7	1.3	16.88	54.0	2.7	3.4	A	17.9	A	A
110	4.06	0.706	17.39	-18.8	0.9	2.0	A	18.4	A	A
114	9	4	44.44	80.0	4.0	10.3	A	44.8	N	N
125	290	34	11.72	5700.0	285.0	87.7	N	13.2	A	N
128	3.7	0.25	6.76	-26.0	1.3	1.0	N	9.0	A	N
130	3.49	0.91	26.07	-30.2	1.5	2.5	A	26.8	N	N
131	2.58	0.31	12.02	-48.4	2.4	1.1	N	13.4	A	N
133	5.1	0.6	11.76	2.0	0.1	1.7	A	13.2	A	A
134	4.93	0.31	6.29	-1.4	0.1	1.1	A	8.7	A	A
138	353	26	7.37	6960.0	348.0	67.1	N	9.5	A	N
143	23.2	2.2	9.48	364.0	18.2	5.7	N	11.2	A	N
145	3.01	0.81	26.91	-39.8	2.0	2.2	A	27.6	N	N
150	8	0.24	3.00	60.0	3.0	1.0	N	6.7	A	N
151	7.8	0.08	1.03	56.0	2.8	0.8	N	6.1	A	N
152	6	0.3	5.00	20.0	1.0	1.1	A	7.8	A	A
156	3.81	0.46	12.07	-23.8	1.2	1.4	A	13.5	A	A
160	4.12	0.4	9.71	-17.6	0.9	1.3	A	11.4	A	A
163	5.02	2.05	40.84	0.4	0.0	5.3	A	41.3	N	W
166	4.78	0.45	9.41	-4.4	0.2	1.4	A	11.2	A	A
171	5.48	0.39	7.12	9.6	0.5	1.3	A	9.3	A	A
172	0.4	0.1	25.00	-92.0	4.6	0.8	N	25.7	N	N
175	4.74	0.41	8.65	-5.2	0.3	1.3	A	10.5	A	A
184	9.37	1.49	15.90	87.4	4.4	3.9	N	17.0	A	N
185	13	1.2	9.23	160.0	8.0	3.2	N	11.0	A	N
188	5.63	0.71	12.61	12.6	0.6	2.0	A	14.0	A	A
192	5.95	1.7	28.57	19.0	1.0	4.5	A	29.2	N	W
193	5.8	1.3	22.41	16.0	0.8	3.4	A	23.2	A	A
194	4.74	1.25	26.37	-5.2	0.3	3.3	A	27.0	N	W
200	6.96	0.8	11.49	39.2	2.0	2.2	A	13.0	A	A

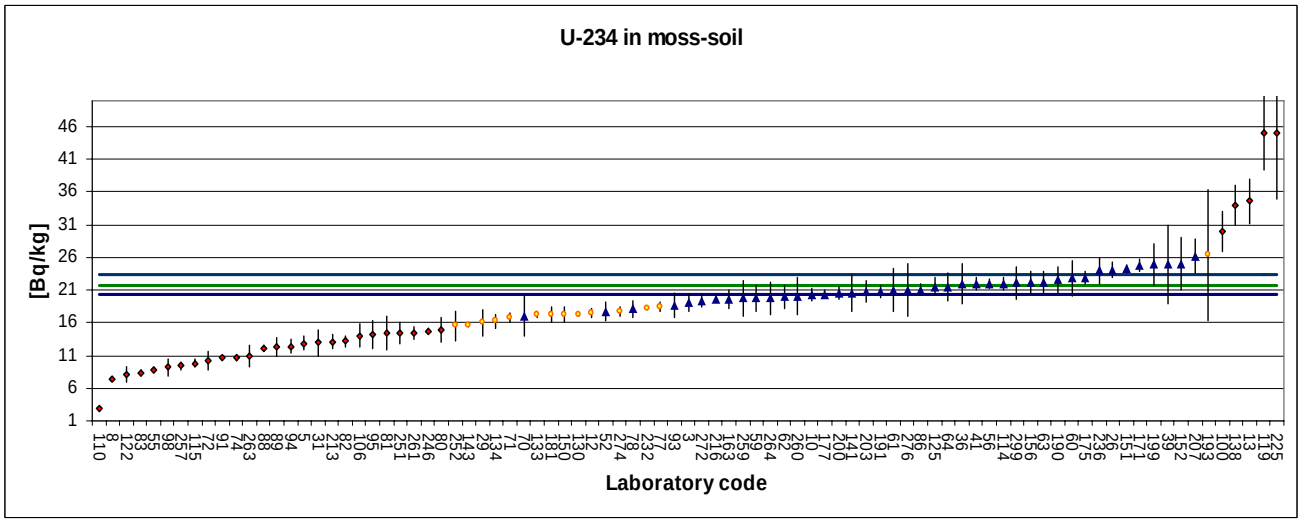
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
207	4.92	0.76	15.45	-1.6	0.1	2.1	A	16.6	A	A
212	6.79	0.4	5.89	35.8	1.8	1.3	N	8.4	A	N
213	6.32	0.35	5.54	26.4	1.3	1.2	N	8.2	A	N
214	6.92	0.98	14.16	38.4	1.9	2.6	A	15.4	A	A
225	1.4	0.5	35.71	-72.0	3.6	1.5	N	36.2	N	N
236	5.14	0.48	9.34	2.8	0.1	1.5	A	11.1	A	A
237	6.27	0.61	9.73	25.4	1.3	1.8	A	11.4	A	A
244	10.4	1.6	15.38	108.0	5.4	4.2	N	16.5	A	N
245	24.4	2.7	11.07	388.0	19.4	7.0	N	12.6	A	N
251	5.28	0.95	17.99	5.6	0.3	2.6	A	19.0	A	A
252	27.3	2.5	9.16	446.0	22.3	6.5	N	10.9	A	N
257	4.23	0.53	12.53	-15.4	0.8	1.6	A	13.9	A	A
259	3.18	0.88	27.67	-36.4	1.8	2.4	A	28.3	N	N
261	20	4	20.00	300.0	15.0	10.3	N	20.9	A	N
263	270	59	21.85	5300.0	265.0	152.2	N	22.7	A	N
264	24.2	10.4	42.98	384.0	19.2	26.8	A	43.4	N	N
265	9.78	3.52	35.99	95.6	4.8	9.1	A	36.5	N	N
276	15	25	166.67	200.0	10.0	64.5	A	166.8	N	N

Performance evaluation of U-234 measurement results

IAEA-447 Moss-soil reference material

Target Value: 21.8 ± 0.8 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
3	19.1	1.3	6.81	-12.39	2.7	3.9	A	7.7	A	A
5	12.85	1.05	8.17	-41.06	9.0	3.4	N	9.0	A	N
8	7.4	0.3	4.05	-66.06	14.4	2.2	N	5.5	A	N
10	20.24	0.93	4.59	-7.16	1.6	3.2	A	5.9	A	A
12	17.5	0.6	3.43	-19.72	4.3	2.6	N	5.0	A	W
13	34.6	3.4	9.83	58.72	12.8	9.0	N	10.5	A	N
26	24.03	1.18	4.91	10.23	2.2	3.7	A	6.1	A	A
29	16	2	12.50	-26.61	5.8	5.6	N	13.0	A	W
31	13	2	15.38	-40.37	8.8	5.6	N	15.8	A	N
36	22	3	13.64	0.92	0.2	8.0	A	14.1	A	A
39	25	6	24.00	14.68	3.2	15.6	A	24.3	A	A
41	22	1	4.55	0.92	0.2	3.3	A	5.8	A	A
52	17.7	1.4	7.91	-18.81	4.1	4.2	A	8.7	A	A

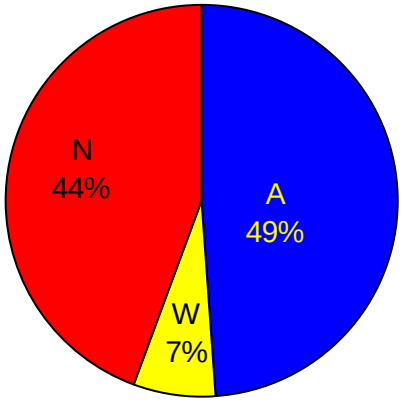
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
55	8.76	0.21	2.40	-59.82	13.0	2.1	N	4.4	A	N
56	22	0.64	2.91	0.92	0.2	2.6	A	4.7	A	A
59	19.8	2	10.10	-9.17	2.0	5.6	A	10.7	A	A
60	22.8	2.8	12.28	4.59	1.0	7.5	A	12.8	A	A
61	21	3.36	16.00	-3.67	0.8	8.9	A	16.4	A	A
62	20	1.7	8.50	-8.26	1.8	4.8	A	9.3	A	A
63	22.18	1.71	7.71	1.74	0.4	4.9	A	8.5	A	A
64	21.51	2.11	9.81	-1.33	0.3	5.8	A	10.5	A	A
70	17	3	17.65	-22.02	4.8	8.0	A	18.0	A	A
71	16.81	0.64	3.81	-22.89	5.0	2.6	N	5.3	A	W
72	10.2	1.42	13.92	-53.21	11.6	4.2	N	14.4	A	N
74	10.6	0.5	4.72	-51.38	11.2	2.4	N	6.0	A	N
77	18.44	0.66	3.58	-15.41	3.4	2.7	N	5.1	A	W
78	18.1	1.24	6.85	-16.97	3.7	3.8	A	7.8	A	A
80	14.9	1.9	12.75	-31.65	6.9	5.3	N	13.3	A	N
81	14.4	2.6	18.06	-33.94	7.4	7.0	N	18.4	A	N
82	13.14	0.91	6.93	-39.72	8.7	3.1	N	7.8	A	N
83	8.27	0.47	5.68	-62.06	13.5	2.4	N	6.8	A	N
86	21.1	0.9	4.27	-3.21	0.7	3.1	A	5.6	A	A
88	12.12	0.51	4.21	-44.40	9.7	2.4	N	5.6	A	N
89	12.3	1.33	10.81	-43.58	9.5	4.0	N	11.4	A	N
91	10.56	0.24	2.27	-51.56	11.2	2.2	N	4.3	A	N
93	18.6	1.9	10.22	-14.68	3.2	5.3	A	10.9	A	A
94	12.4	1.1	8.87	-43.12	9.4	3.5	N	9.6	A	N
95	14.21	2.13	14.99	-34.82	7.6	5.9	N	15.4	A	N
98	9.163	1.236	13.49	-57.97	12.6	3.8	N	14.0	A	N
100	30	3	10.00	37.61	8.2	8.0	N	10.7	A	N
106	14	1.78	12.71	-35.78	7.8	5.0	N	13.2	A	N
110	2.85	0.0627	2.20	-86.93	19.0	2.1	N	4.3	A	N
114	22	1	4.55	0.92	0.2	3.3	A	5.8	A	A
115	9.81	0.65	6.63	-55.00	12.0	2.7	N	7.6	A	N
119	60	5.6	9.33	175.23	38.2	14.6	N	10.0	A	N
122	8.10	1.2	14.81	-62.84	13.7	3.7	N	15.3	A	N
125	21.5	1.3	6.05	-1.38	0.3	3.9	A	7.1	A	A
130	17.3	0.3	1.73	-20.64	4.5	2.2	N	4.1	A	W
133	17.2	0.5	2.91	-21.10	4.6	2.4	N	4.7	A	W
134	16.2	1.06	6.54	-25.69	5.6	3.4	N	7.5	A	W
138	34	3	8.82	55.96	12.2	8.0	N	9.6	A	N
141	20.61	2.88	13.97	-5.46	1.2	7.7	A	14.4	A	A
143	15.68	0.32	2.04	-28.07	6.1	2.2	N	4.2	A	W
150	17.23	1.14	6.62	-20.96	4.6	3.6	N	7.6	A	W
151	24.23	0.6	2.48	11.15	2.4	2.6	A	4.4	A	A
152	25	4	16.00	14.68	3.2	10.5	A	16.4	A	A
156	22.13	1.746	7.89	1.51	0.3	5.0	A	8.7	A	A
163	19.7	1.4	7.11	-9.63	2.1	4.2	A	8.0	A	A
171	24.89	0.96	3.86	14.17	3.1	3.2	A	5.3	A	A
175	22.8	0.94	4.12	4.59	1.0	3.2	A	5.5	A	A
177	20.4	0.6	2.94	-6.42	1.4	2.6	A	4.7	A	A

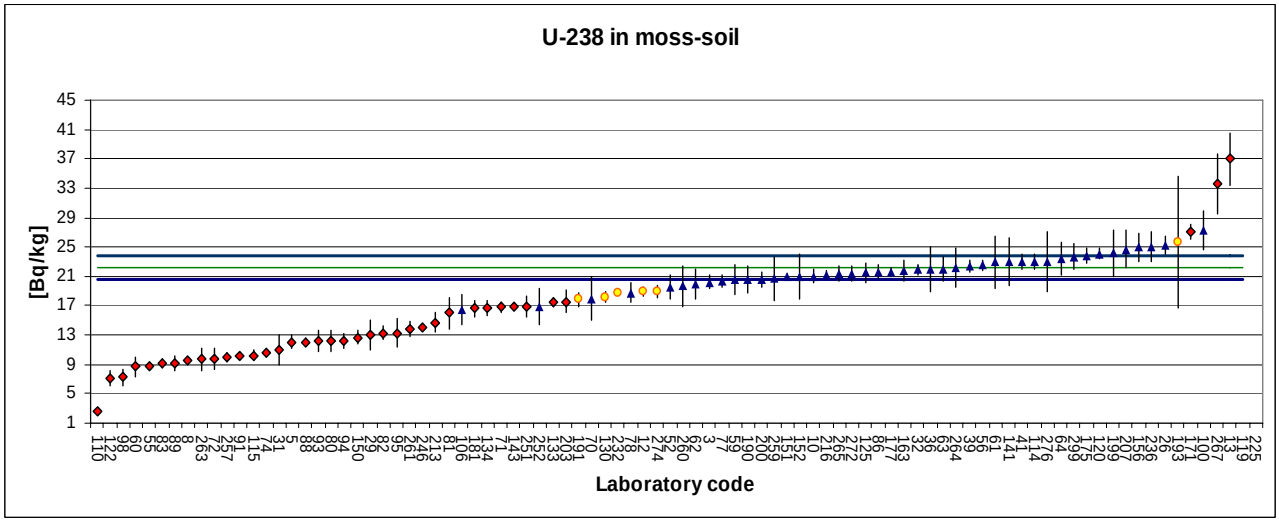
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
181	17.22	1.12	6.50	-21.01	4.6	3.6	N	7.5	A	W
190	22.61	1.95	8.62	3.72	0.8	5.4	A	9.4	A	A
191	20.76	0.98	4.72	-4.77	1.0	3.3	A	6.0	A	A
193	26.4	10	37.88	21.10	4.6	25.9	A	38.1	N	W
199	24.95	3.16	12.67	14.45	3.2	8.4	A	13.2	A	A
200	20.6	1	4.85	-5.50	1.2	3.3	A	6.1	A	A
203	20.74	1.59	7.64	-4.84	1.1	4.6	A	8.5	A	A
207	26.1	2.6	9.96	19.72	4.3	7.0	A	10.6	A	A
213	13.09	1.13	8.63	-39.95	8.7	3.6	N	9.4	A	N
216	19.6	0.5	2.55	-10.09	2.2	2.4	A	4.5	A	A
225	764	98	12.83	3404	742.2	252.8	N	13.3	A	N
232	18.14	0.29	1.60	-16.79	3.7	2.2	N	4.0	A	W
236	24	2	8.33	10.09	2.2	5.6	A	9.1	A	A
246	14.6	0.43	2.95	-33.03	7.2	2.3	N	4.7	A	N
251	14.4	1.6	11.11	-33.94	7.4	4.6	N	11.7	A	N
252	15.5	2.3	14.84	-28.90	6.3	6.3	N	15.3	A	W
257	9.45	0.58	6.14	-56.65	12.4	2.5	N	7.2	A	N
259	19.70	2.80	14.21	-9.50	2.1	7.5	A	14.7	A	A
260	20	2.8	14.00	-8.26	1.8	7.5	A	14.5	A	A
261	14.4	1	6.94	-33.94	7.4	3.3	N	7.9	A	N
263	10.9	1.6	14.68	-50.00	10.9	4.6	N	15.1	A	N
264	19.8	2.5	12.63	-9.17	2.0	6.8	A	13.1	A	A
265	19.2	0.94	4.90	-11.93	2.6	3.2	A	6.1	A	A
272	19.4	0.96	4.95	-11.01	2.4	3.2	A	6.2	A	A
274	17.7	0.7	3.95	-18.81	4.1	2.7	N	5.4	A	W
276	21	4	19.05	-3.67	0.8	10.5	A	19.4	A	A
299	22.1	2.4	10.86	1.38	0.3	6.5	A	11.5	A	A

Performance evaluation of U-238 measurement results

IAEA-447 Moss-soil reference material

Target Value: 22.2 ± 0.8 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
3	20.2	0.9	4.46	-9.01	2.0	3.1	A	5.7	A	A
5	12.09	1	8.27	-45.54	10.1	3.3	N	9.0	A	N
8	9.5	0.4	4.21	-57.21	12.7	2.3	N	5.5	A	N
10	21.06	0.96	4.56	-5.14	1.1	3.2	A	5.8	A	A
12	18.9	0.6	3.17	-14.86	3.3	2.6	N	4.8	A	W
13	37	3.6	9.73	66.67	14.8	9.5	N	10.4	A	N
26	25.25	1.23	4.87	13.74	3.1	3.8	A	6.1	A	A
29	13	2	15.38	-41.44	9.2	5.6	N	15.8	A	N
31	11	2	18.18	-50.45	11.2	5.6	N	18.5	A	N
32	21.9	0.7	3.20	-1.35	0.3	2.7	A	4.8	A	A
36	22	3	13.64	-0.90	0.2	8.0	A	14.1	A	A
39	22.4	0.8	3.57	0.90	0.2	2.9	A	5.1	A	A
41	23	1	4.35	3.60	0.8	3.3	A	5.6	A	A

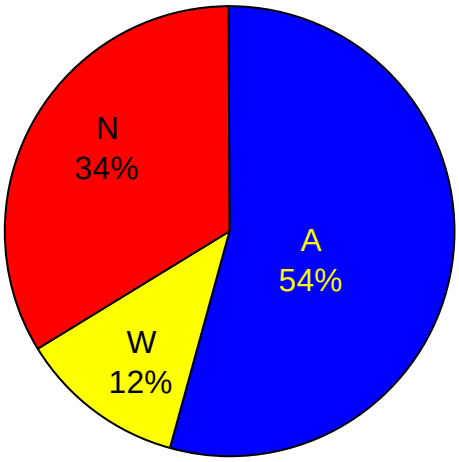
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
52	19.5	1.6	8.21	-12.16	2.7	4.6	A	9.0	A	A
55	8.78	0.17	1.94	-60.45	13.4	2.1	N	4.1	A	N
56	22.5	0.65	2.89	1.35	0.3	2.7	A	4.6	A	A
59	20.5	2	9.76	-7.66	1.7	5.6	A	10.4	A	A
60	8.67	1.38	15.92	-60.95	13.5	4.1	N	16.3	A	N
61	22.9	3.66	15.98	3.15	0.7	9.7	A	16.4	A	A
62	20	2	10.00	-9.91	2.2	5.6	A	10.6	A	A
63	22.05	1.62	7.35	-0.68	0.1	4.7	A	8.2	A	A
64	23.47	2.21	9.42	5.72	1.3	6.1	A	10.1	A	A
70	18	3	16.67	-18.92	4.2	8.0	A	17.1	A	A
71	16.79	0.64	3.81	-24.37	5.4	2.6	N	5.2	A	N
72	9.78	1.37	14.01	-55.95	12.4	4.1	N	14.5	A	N
74	10.5	0.4	3.81	-52.70	11.7	2.3	N	5.2	A	N
77	20.35	0.72	3.54	-8.33	1.9	2.8	A	5.1	A	A
78	18.8	1.25	6.65	-15.32	3.4	3.8	A	7.6	A	A
80	12.2	1.4	11.48	-45.05	10.0	4.2	N	12.0	A	N
81	16	2.2	13.75	-27.93	6.2	6.0	N	14.2	A	N
82	13.27	0.91	6.86	-40.23	8.9	3.1	N	7.7	A	N
83	9.1	0.6	6.59	-59.01	13.1	2.6	N	7.5	A	N
86	21.6	0.9	4.17	-2.70	0.6	3.1	A	5.5	A	A
88	12.09	0.47	3.89	-45.54	10.1	2.4	N	5.3	A	N
89	9.2	1.02	11.09	-58.56	13.0	3.3	N	11.7	A	N
91	10.12	0.24	2.37	-54.41	12.1	2.2	N	4.3	A	N
93	12.19	1.49	12.22	-45.09	10.0	4.4	N	12.7	A	N
94	12.2	1.1	9.02	-45.05	10.0	3.5	N	9.7	A	N
95	13.32	1.99	14.94	-40.00	8.9	5.5	N	15.4	A	N
98	7.265	1.075	14.80	-67.27	14.9	3.5	N	15.2	A	N
100	27.3	2.7	9.89	22.97	5.1	7.3	A	10.5	A	A
106	16.5	2.07	12.55	-25.68	5.7	5.7	A	13.1	A	A
110	2.72	0.0528	1.94	-87.75	19.5	2.1	N	4.1	A	N
114	23	1	4.35	3.60	0.8	3.3	A	5.6	A	A
115	10.24	0.66	6.45	-53.87	12.0	2.7	N	7.4	A	N
119	51.1	4.7	9.20	130.18	28.9	12.3	N	9.9	A	N
120	24.1	0.7	2.90	8.56	1.9	2.7	A	4.6	A	A
122	7.1	1.05	14.79	-68.02	15.1	3.4	N	15.2	A	N
125	21.5	1.3	6.05	-3.15	0.7	3.9	A	7.0	A	A
130	18.2	0.7	3.85	-18.02	4.0	2.7	N	5.3	A	W
133	17.5	0.6	3.43	-21.17	4.7	2.6	N	5.0	A	N
134	16.7	1.08	6.47	-24.77	5.5	3.5	N	7.4	A	N
141	22.97	3.27	14.24	3.47	0.8	8.7	A	14.7	A	A
143	16.86	0.34	2.02	-24.05	5.3	2.2	N	4.1	A	N
150	12.7	0.9	7.09	-42.79	9.5	3.1	N	8.0	A	N
151	20.99	0.35	1.67	-5.45	1.2	2.3	A	4.0	A	A
152	21	3	14.29	-5.41	1.2	8.0	A	14.7	A	A
156	24.99	1.947	7.79	12.57	2.8	5.4	A	8.6	A	A
163	21.8	1.5	6.88	-1.80	0.4	4.4	A	7.8	A	A
171	27.1	1	3.69	22.07	4.9	3.3	N	5.2	A	N
175	23.8	0.97	4.08	7.21	1.6	3.2	A	5.4	A	A

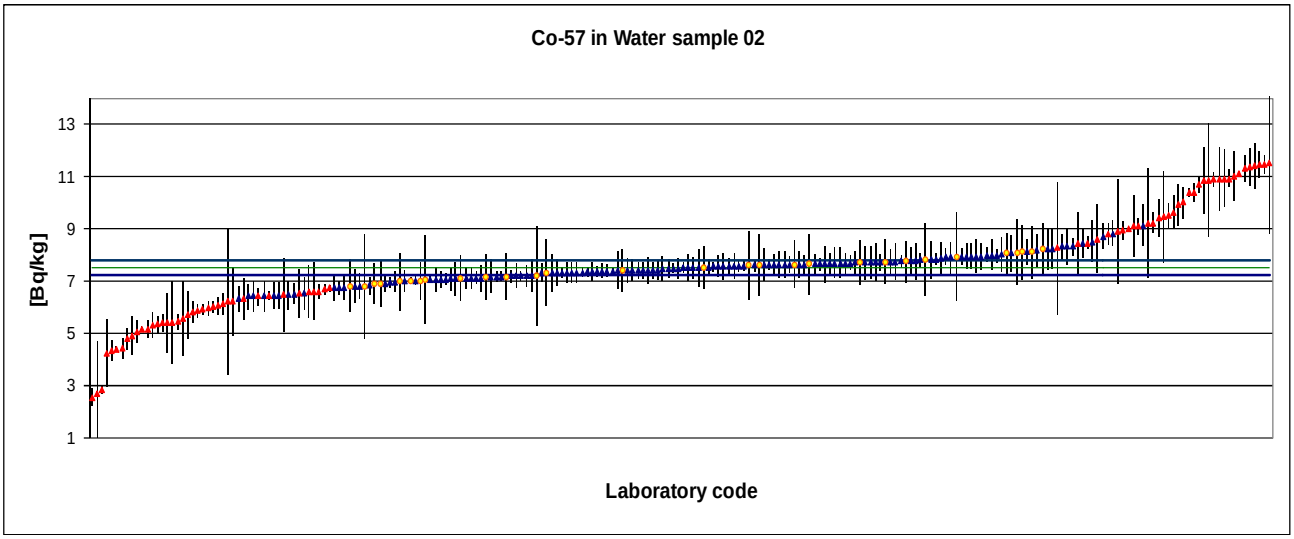
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True	P	Prec	Final Score
177	21.6	0.6	2.78	-2.70	0.6	2.6	A	4.5	A	A
181	16.61	1.1	6.62	-25.18	5.6	3.5	N	7.5	A	N
190	20.57	1.84	8.95	-7.34	1.6	5.2	A	9.6	A	A
191	17.83	0.9	5.05	-19.68	4.4	3.1	N	6.2	A	W
193	25.7	9	35.02	15.77	3.5	23.3	A	35.2	N	W
199	24.2	3.17	13.10	9.01	2.0	8.4	A	13.6	A	A
200	20.6	1	4.85	-7.21	1.6	3.3	A	6.0	A	A
203	17.55	1.4765	8.41	-20.92	4.6	4.3	N	9.1	A	N
207	24.7	2.6	10.53	11.26	2.5	7.0	A	11.1	A	A
213	14.73	1.26	8.55	-33.65	7.5	3.9	N	9.3	A	N
216	21.2	0.6	2.83	-4.50	1.0	2.6	A	4.6	A	A
225	74.5	25	33.56	235.59	52.3	64.5	A	33.7	N	N
232	18.75	0.25	1.33	-15.54	3.5	2.2	N	3.8	A	W
236	25	2	8.00	12.61	2.8	5.6	A	8.8	A	A
246	14.1	0.3	2.13	-36.49	8.1	2.2	N	4.2	A	N
251	16.9	1.5	8.88	-23.87	5.3	4.4	N	9.6	A	N
252	16.9	2.4	14.20	-23.87	5.3	6.5	A	14.7	A	A
257	10	0.59	5.90	-54.95	12.2	2.6	N	6.9	A	N
259	20.72	2.92	14.10	-6.65	1.5	7.8	A	14.6	A	A
260	19.7	2.76	14.01	-11.26	2.5	7.4	A	14.5	A	A
261	13.8	1	7.25	-37.84	8.4	3.3	N	8.1	A	N
263	9.66	1.5	15.53	-56.49	12.5	4.4	N	15.9	A	N
264	22.1	2.64	11.95	-0.45	0.1	7.1	A	12.5	A	A
265	21.4	0.98	4.58	-3.60	0.8	3.3	A	5.8	A	A
267	33.6	4	11.90	51.35	11.4	10.5	N	12.4	A	N
272	21.4	1.08	5.05	-3.60	0.8	3.5	A	6.2	A	A
274	19	0.8	4.21	-14.41	3.2	2.9	N	5.5	A	W
276	23	4	17.39	3.60	0.8	10.5	A	17.8	A	A
299	23.7	1.8	7.59	6.76	1.5	5.1	A	8.4	A	A

Performance evaluation of Co-57 measurement results

Spiked water sample 02

Target Value: 7.5 ± 0.15 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	8.21	0.77	9.38	9.47	0.7	2.0	A	9.6	A	A
3	7.4	0.7	9.46	-1.33	0.1	1.8	A	9.7	A	A
4	6.8	1	14.71	-9.33	0.7	2.6	A	14.8	N	W
5	6.8	0.65	9.56	-9.33	0.7	1.7	A	9.8	A	A
6	6.8	0.5	7.35	-9.33	0.7	1.3	A	7.6	A	A
7	7.31	0.38	5.20	-2.53	0.2	1.1	A	5.6	A	A
9	6.6	1	15.15	-12.00	0.9	2.6	A	15.3	N	N
11	8.3	0.5	6.02	10.67	0.8	1.3	A	6.3	A	A
12	8.6	1.3	15.12	14.67	1.1	3.4	A	15.2	N	N
13	5.99	0.25	4.17	-20.13	1.5	0.8	N	4.6	A	N
14	4.78	0.41	8.58	-36.27	2.7	1.1	N	8.8	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
15	4.23	1.29	30.50	-43.60	3.3	3.4	A	30.6	N	N
16	6.95	0.21	3.02	-7.33	0.6	0.7	A	3.6	A	A
17	7.45	0.45	6.04	-0.67	0.0	1.2	A	6.4	A	A
18	7.01	0.17	2.43	-6.53	0.5	0.6	A	3.1	A	A
19	6.707	0.109	1.63	-10.57	0.8	0.5	N	2.6	A	N
20	7.16	0.21	2.93	-4.53	0.3	0.7	A	3.5	A	A
21	7.72	0.84	10.88	2.93	0.2	2.2	A	11.1	N	W
22	7.47	0.16	2.14	-0.40	0.0	0.6	A	2.9	A	A
23	7.32	0.4	5.46	-2.40	0.2	1.1	A	5.8	A	A
24	7.19	0.18	2.50	-4.13	0.3	0.6	A	3.2	A	A
25	7.07	0.42	5.94	-5.73	0.4	1.2	A	6.3	A	A
26	7.03	1.7	24.18	-6.27	0.5	4.4	A	24.3	N	W
27	7.743	0.7978	10.30	3.24	0.2	2.1	A	10.5	N	W
29	11.5	2.7	23.48	53.33	4.0	7.0	A	23.6	N	N
30	6.1	0.4	6.56	-18.67	1.4	1.1	N	6.9	A	N
31	7.6	1.2	15.79	1.33	0.1	3.1	A	15.9	N	W
32	7.08	0.86	12.15	-5.60	0.4	2.3	A	12.3	N	W
34	6.8	2	29.41	-9.33	0.7	5.2	A	29.5	N	W
36	7.8	0.28	3.59	4.00	0.3	0.8	A	4.1	A	A
37	5.15	0.33	6.41	-31.33	2.4	0.9	N	6.7	A	N
38	9	0.0118	0.13	20.00	1.5	0.4	N	2.0	A	N
39	7.7	0.6	7.79	2.67	0.2	1.6	A	8.0	A	A
40	7.5	0.42	5.60	0.00	0.0	1.2	A	5.9	A	A
41	6.4	0.6	9.38	-14.67	1.1	1.6	A	9.6	A	A
42	7.3	0.7	9.59	-2.67	0.2	1.8	A	9.8	A	A
43	4.38	0.078	1.78	-41.60	3.1	0.4	N	2.7	A	N
44	8.08	1.27	15.72	7.73	0.6	3.3	A	15.8	N	W
45	7.62	0.51	6.69	1.60	0.1	1.4	A	7.0	A	A
46	7.2	0.41	5.69	-4.00	0.3	1.1	A	6.0	A	A
47	7.68	0.46	5.99	2.40	0.2	1.2	A	6.3	A	A
50	7.45	0.38	5.10	-0.67	0.0	1.1	A	5.5	A	A
51	8.93	0.35	3.92	19.07	1.4	1.0	N	4.4	A	N
52	10.9	1.2	11.01	45.33	3.4	3.1	N	11.2	N	N
53	7.6	0.6	7.89	1.33	0.1	1.6	A	8.1	A	A
54	7.81	0.7	8.96	4.13	0.3	1.8	A	9.2	A	A
55	6.51	0.92	14.13	-13.20	1.0	2.4	A	14.3	N	N
56	7.4	0.8	10.81	-1.33	0.1	2.1	A	11.0	N	W
57	7.72	0.5	6.48	2.93	0.2	1.3	A	6.8	A	A
58	8.7	0.5	5.75	16.00	1.2	1.3	A	6.1	A	A
59	7.9	0.3	3.80	5.33	0.4	0.9	A	4.3	A	A
60	6.67	0.19	2.85	-11.07	0.8	0.6	N	3.5	A	N
61	7.4	0.44	5.95	-1.33	0.1	1.2	A	6.3	A	A
62	7.98	0.28	3.51	6.40	0.5	0.8	A	4.0	A	A
63	7.61	0.32	4.20	1.47	0.1	0.9	A	4.7	A	A
64	7.69	0.636	8.27	2.53	0.2	1.7	A	8.5	A	A
65	7.64	0.24	3.14	1.87	0.1	0.7	A	3.7	A	A
68	7.4	0.4	5.41	-1.33	0.1	1.1	A	5.8	A	A
70	8.9	2	22.47	18.67	1.4	5.2	A	22.6	N	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
71	7.33	0.19	2.59	-2.27	0.2	0.6	A	3.3	A	A
72	7.04	0.13	1.85	-6.13	0.5	0.5	A	2.7	A	A
73	5.8	0.4	6.90	-22.67	1.7	1.1	N	7.2	A	N
74	6.2	2.8	45.16	-17.33	1.3	7.2	A	45.2	N	N
75	12	0.4	3.33	60.00	4.5	1.1	N	3.9	A	N
76	7.93	0.5	6.31	5.73	0.4	1.3	A	6.6	A	A
77	7.503	0.291	3.88	0.04	0.0	0.8	A	4.4	A	A
78	5.9	0.219	3.71	-21.33	1.6	0.7	N	4.2	A	N
79	13.9	1.2	8.63	85.33	6.4	3.1	N	8.9	A	N
80	7.8	1.4	17.95	4.00	0.3	3.6	A	18.1	N	W
81	6.98	1.1	15.76	-6.93	0.5	2.9	A	15.9	N	W
82	10.37	0.17	1.64	38.27	2.9	0.6	N	2.6	A	N
83	10.85	1.29	11.89	44.67	3.4	3.4	A	12.1	N	N
84	9.4	0.7	7.45	25.33	1.9	1.8	N	7.7	A	N
86	6.2	1.3	20.97	-17.33	1.3	3.4	A	21.1	N	N
87	8.5	0.8	9.41	13.33	1.0	2.1	A	9.6	A	A
88	7.3	0.5	6.85	-2.67	0.2	1.3	A	7.1	A	A
89	5.05	0.45	8.91	-32.67	2.5	1.2	N	9.1	A	N
91	8.4	1.2	14.29	12.00	0.9	3.1	A	14.4	N	N
92	5.37	0.33	6.15	-28.40	2.1	0.9	N	6.5	A	N
93	10.87	0.29	2.67	44.93	3.4	0.8	N	3.3	A	N
94	6.3	0.5	7.94	-16.00	1.2	1.3	A	8.2	A	A
95	7.75	0.53	6.84	3.33	0.3	1.4	A	7.1	A	A
96	7.1	0.4	5.63	-5.33	0.4	1.1	A	6.0	A	A
97	7.18	0.47	6.55	-4.27	0.3	1.3	A	6.8	A	A
98	8.1	1.06	13.09	8.00	0.6	2.8	A	13.2	N	W
99	7.6	0.21	2.76	1.33	0.1	0.7	A	3.4	A	A
100	5.38	1.12	20.82	-28.27	2.1	2.9	A	20.9	N	N
101	8.8	0.5	5.68	17.33	1.3	1.3	A	6.0	A	A
103	5.951	0.283	4.76	-20.65	1.5	0.8	N	5.2	A	N
105	11.46	0.53	4.62	52.80	4.0	1.4	N	5.0	A	N
106	7.93	0.65	8.20	5.73	0.4	1.7	A	8.4	A	A
107	5.55	1.42	25.59	-26.00	2.0	3.7	A	25.7	N	N
109	9.1	1.2	13.19	21.33	1.6	3.1	A	13.3	N	N
110	6.72	0.506	7.53	-10.40	0.8	1.4	A	7.8	A	A
111	7.01	0.72	10.27	-6.53	0.5	1.9	A	10.5	N	W
112	7.67	0.6	7.82	2.27	0.2	1.6	A	8.1	A	A
113	9.44	1.74	18.43	25.87	1.9	4.5	A	18.5	N	N
114	7.6	0.4	5.26	1.33	0.1	1.1	A	5.6	A	A
118	7	0.41	5.86	-6.67	0.5	1.1	A	6.2	A	A
119	7.93	0.51	6.43	5.73	0.4	1.4	A	6.7	A	A
120	7.67	0.6	7.82	2.27	0.2	1.6	A	8.1	A	A
122	7.4	0.3	4.05	-1.33	0.1	0.9	A	4.5	A	A
123	5.31	0.48	9.04	-29.20	2.2	1.3	N	9.3	A	N
124	6.399	0.479	7.49	-14.68	1.1	1.3	A	7.7	A	A
125	8.1	0.5	6.17	8.00	0.6	1.3	A	6.5	A	A
126	5.7	0.9	15.79	-24.00	1.8	2.4	A	15.9	N	N
127	6.75	0.46	6.81	-10.00	0.8	1.2	A	7.1	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
128	7.4	0.3	4.05	-1.33	0.1	0.9	A	4.5	A	A
130	7.87	0.63	8.01	4.93	0.4	1.7	A	8.3	A	A
131	7.98	0.6	7.52	6.40	0.5	1.6	A	7.8	A	A
132	7.368	0.251	3.41	-1.76	0.1	0.8	A	4.0	A	A
133	7.2	0.6	8.33	-4.00	0.3	1.6	A	8.6	A	A
134	7.32	0.17	2.32	-2.40	0.2	0.6	A	3.1	A	A
136	9.519	0.465	4.88	26.92	2.0	1.3	N	5.3	A	N
138	7.68	0.84	10.94	2.40	0.2	2.2	A	11.1	N	W
139	7.62	0.357	4.69	1.60	0.1	1.0	A	5.1	A	A
140	6.4	0.35	5.47	-14.67	1.1	1.0	N	5.8	A	N
141	11.01	0.96	8.72	46.80	3.5	2.5	N	8.9	A	N
144	2.68	1.98	73.88	-64.27	4.8	5.1	A	73.9	N	N
146	5.32	0.33	6.20	-29.07	2.2	0.9	N	6.5	A	N
150	2.84	0.15	5.28	-62.13	4.7	0.5	N	5.6	A	N
151	4.33	0.38	8.78	-42.27	3.2	1.1	N	9.0	A	N
152	4.4	0.4	9.09	-41.33	3.1	1.1	N	9.3	A	N
153	7.164	0.901	12.58	-4.48	0.3	2.4	A	12.7	N	W
154	7.9	0.6	7.59	5.33	0.4	1.6	A	7.9	A	A
157	7.4	0.5	6.76	-1.33	0.1	1.3	A	7.0	A	A
158	7.66	0.4	5.22	2.13	0.2	1.1	A	5.6	A	A
159	7.3	0.2	2.74	-2.67	0.2	0.6	A	3.4	A	A
160	10.86	2.2	20.26	44.80	3.4	5.7	A	20.4	N	N
161	7.64	0.69	9.03	1.87	0.1	1.8	A	9.3	A	A
162	7.57	0.47	6.21	0.93	0.1	1.3	A	6.5	A	A
163	7.07	0.66	9.34	-5.73	0.4	1.7	A	9.5	A	A
164	7.73	0.68	8.80	3.07	0.2	1.8	A	9.0	A	A
165	7.67	0.41	5.35	2.27	0.2	1.1	A	5.7	A	A
166	7.56	0.52	6.88	0.80	0.1	1.4	A	7.2	A	A
167	5.42	0.29	5.35	-27.73	2.1	0.8	N	5.7	A	N
168	7.37	0.15	2.04	-1.73	0.1	0.5	A	2.9	A	A
169	7.57	0.23	3.04	0.93	0.1	0.7	A	3.6	A	A
170	7.1	0.4	5.63	-5.33	0.4	1.1	A	6.0	A	A
171	7.28	0.37	5.08	-2.93	0.2	1.0	A	5.5	A	A
173	7.1	0.24	3.38	-5.33	0.4	0.7	A	3.9	A	A
174	7.36	0.29	3.94	-1.87	0.1	0.8	A	4.4	A	A
175	7.04	0.45	6.39	-6.13	0.5	1.2	A	6.7	A	A
176	8.44	0.22	2.61	12.53	0.9	0.7	N	3.3	A	N
177	7.49	0.21	2.80	-0.13	0.0	0.7	A	3.4	A	A
178	6.96	0.405	5.82	-7.20	0.5	1.1	A	6.2	A	A
179	7.49	0.5	6.68	-0.13	0.0	1.3	A	7.0	A	A
181	7.83	0.21	2.68	4.40	0.3	0.7	A	3.3	A	A
183	8.18	0.62	7.58	9.07	0.7	1.6	A	7.8	A	A
184	11.36	0.7	6.16	51.47	3.9	1.8	N	6.5	A	N
185	6.43	0.51	7.93	-14.27	1.1	1.4	A	8.2	A	A
186	7.56	0.32	4.23	0.80	0.1	0.9	A	4.7	A	A
187	6.3	0.8	12.70	-16.00	1.2	2.1	A	12.9	N	N
188	8.04	0.8	9.95	7.20	0.5	2.1	A	10.1	N	W
190	7.58	1.31	17.28	1.07	0.1	3.4	A	17.4	N	W

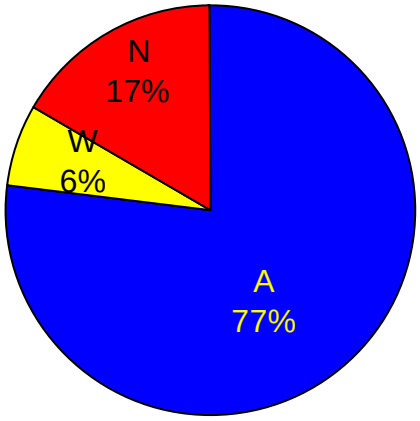
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
191	6.49	0.37	5.70	-13.47	1.0	1.0	A	6.0	A	A
192	10.9	1.1	10.09	45.33	3.4	2.9	N	10.3	N	N
193	11.3	0.5	4.42	50.67	3.8	1.3	N	4.9	A	N
194	10	0.6	6.00	33.33	2.5	1.6	N	6.3	A	N
195	7.14	0.87	12.18	-4.80	0.4	2.3	A	12.3	N	W
197	14.5	0.28	1.93	93.33	7.0	0.8	N	2.8	A	N
199	7.5	0.7	9.33	0.00	0.0	1.8	A	9.5	A	A
200	7.05	0.32	4.54	-6.00	0.5	0.9	A	5.0	A	A
201	7.35	0.204	2.78	-2.00	0.2	0.7	A	3.4	A	A
202	12.97	0.741	5.71	72.93	5.5	2.0	N	6.1	A	N
206	5.14	0.1	1.95	-31.47	2.4	0.5	N	2.8	A	N
207	6.6	1.1	16.67	-12.00	0.9	2.9	A	16.8	N	N
208	8.2	1	12.20	9.33	0.7	2.6	A	12.4	N	W
209	6.42	0.16	2.49	-14.40	1.1	0.6	N	3.2	A	N
210	7	0.12	1.71	-6.67	0.5	0.5	N	2.6	A	W
211	7.47	0.37	4.95	-0.40	0.0	1.0	A	5.3	A	A
212	8.31	0.34	4.09	10.80	0.8	1.0	A	4.6	A	A
213	6.87	0.78	11.35	-8.40	0.6	2.0	A	11.5	N	W
214	7.98	0.25	3.13	6.40	0.5	0.8	A	3.7	A	A
215	7.41	0.36	4.86	-1.20	0.1	1.0	A	5.3	A	A
216	7.9	1.7	21.52	5.33	0.4	4.4	A	21.6	N	W
217	8.77	0.4	4.56	16.93	1.3	1.1	N	5.0	A	N
218	7.574	0.175	2.31	0.99	0.1	0.6	A	3.1	A	A
219	7.16	0.19	2.65	-4.53	0.3	0.6	A	3.3	A	A
220	7.75	0.69	8.90	3.33	0.3	1.8	A	9.1	A	A
221	8.2	0.8	9.76	9.33	0.7	2.1	A	10.0	A	A
223	4.9	0.76	15.51	-34.67	2.6	2.0	N	15.6	N	N
224	6.82	0.34	4.99	-9.07	0.7	1.0	A	5.4	A	A
225	80.5	24	29.81	973.33	73.0	61.9	N	29.9	N	N
226	13	3	23.08	73.33	5.5	7.7	A	23.2	N	N
227	7.55	0.4	5.30	0.67	0.0	1.1	A	5.7	A	A
232	10.7	0.3	2.80	42.67	3.2	0.9	N	3.4	A	N
233	7.15	0.64	8.95	-4.67	0.4	1.7	A	9.2	A	A
234	6.45	1.43	22.17	-14.00	1.1	3.7	A	22.3	N	N
235	9.62	0.65	6.76	28.27	2.1	1.7	N	7.0	A	N
236	7.63	1.16	15.20	1.73	0.1	3.0	A	15.3	N	W
237	7.7	0.7	9.09	2.67	0.2	1.8	A	9.3	A	A
238	7.54	0.17	2.25	0.53	0.0	0.6	A	3.0	A	A
239	7.67	0.29	3.78	2.27	0.2	0.8	A	4.3	A	A
240	6.9	0.9	13.04	-8.00	0.6	2.4	A	13.2	N	W
241	5.4	1.6	29.63	-28.00	2.1	4.1	A	29.7	N	N
242	7.05	0.22	3.12	-6.00	0.5	0.7	A	3.7	A	A
243	7.315	0.4056	5.54	-2.47	0.2	1.1	A	5.9	A	A
244	5.86	0.241	4.11	-21.87	1.6	0.7	N	4.6	A	N
245	7.17	0.21	2.93	-4.40	0.3	0.7	A	3.5	A	A
246	12.8	0.22	1.72	70.67	5.3	0.7	N	2.6	A	N
249	9.22	0.38	4.12	22.93	1.7	1.1	N	4.6	A	N
250	9.1	0.32	3.52	21.33	1.6	0.9	N	4.0	A	N

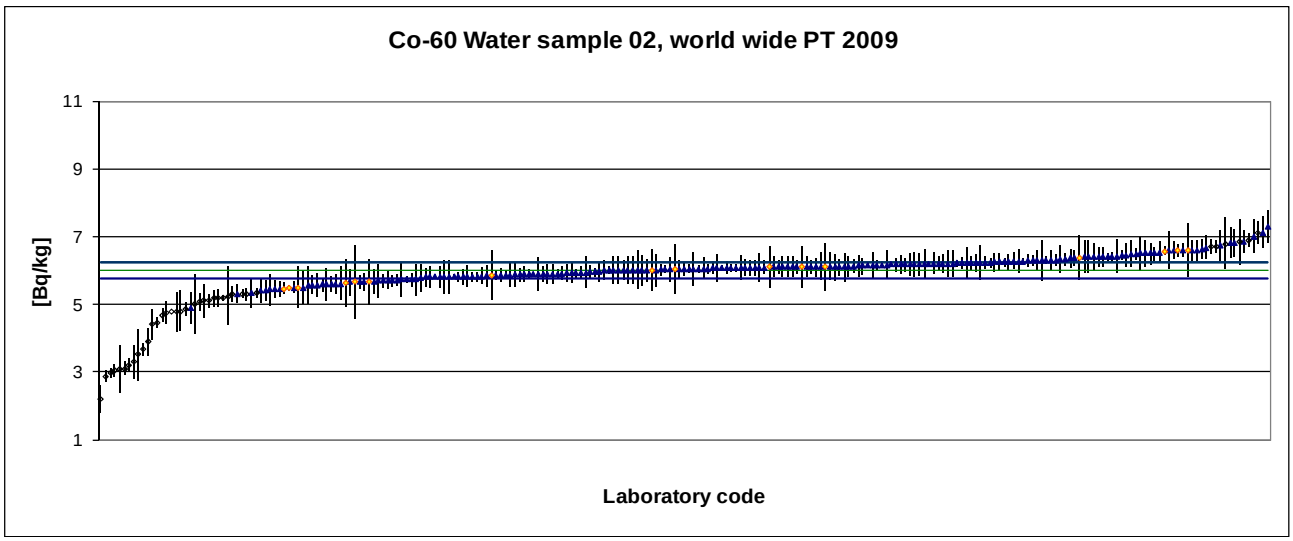
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
251	6.52	0.62	9.51	-13.07	1.0	1.6	A	9.7	A	A
252	7.7	0.3	3.90	2.67	0.2	0.9	A	4.4	A	A
253	6.9	0.3	4.35	-8.00	0.6	0.9	A	4.8	A	A
254	7.34	0.37	5.04	-2.13	0.2	1.0	A	5.4	A	A
255	12.8	0.4	3.13	70.67	5.3	1.1	N	3.7	A	N
256	8.02	0.67	8.35	6.93	0.5	1.8	A	8.6	A	A
257	7.63	0.37	4.85	1.73	0.1	1.0	A	5.2	A	A
258	7.92	0.49	6.19	5.60	0.4	1.3	A	6.5	A	A
259	2.52	0.33	13.10	-66.40	5.0	0.9	N	13.2	N	N
261	9.1	0.8	8.79	21.33	1.6	2.1	A	9.0	A	A
263	9.2	2.1	22.83	22.67	1.7	5.4	A	22.9	N	N
264	10.4	0.362	3.48	38.67	2.9	1.0	N	4.0	A	N
265	11.1	0.108	0.97	48.00	3.6	0.5	N	2.2	A	N
267	6.4	0.61	9.53	-14.67	1.1	1.6	A	9.7	A	A
268	7.61	0.9	11.83	1.47	0.1	2.4	A	12.0	N	W
269	8.1	1	12.35	8.00	0.6	2.6	A	12.5	N	W
270	6.04	0.34	5.63	-19.47	1.5	1.0	N	6.0	A	N
271	6.72	0.27	4.02	-10.40	0.8	0.8	A	4.5	A	A
272	10.9	0.34	3.12	45.33	3.4	1.0	N	3.7	A	N
273	6.6	0.3	4.55	-12.00	0.9	0.9	N	5.0	A	N
274	8.3	0.69	8.31	10.67	0.8	1.8	A	8.6	A	A
275	11.46	0.37	3.23	52.80	4.0	1.0	N	3.8	A	N
276	7.2	1.9	26.39	-4.00	0.3	4.9	A	26.5	N	W
278	11.4	0.87	7.63	52.00	3.9	2.3	N	7.9	A	N
279	7.58	0.21	2.77	1.07	0.1	0.7	A	3.4	A	A
284	8.05	0.68	8.45	7.33	0.6	1.8	A	8.7	A	A
285	9.00	0.76	8.44	20.00	1.5	2.0	A	8.7	A	A
288	7.4	0.3	4.05	-1.33	0.1	0.9	A	4.5	A	A
289	7.5	0.8	10.67	0.00	0.0	2.1	A	10.9	N	W
290	7.1	0.5	7.04	-5.33	0.4	1.3	A	7.3	A	A
292	7.6	0.5	6.58	1.33	0.1	1.3	A	6.9	A	A
293	7.6	0.5	6.58	1.33	0.1	1.3	A	6.9	A	A
294	7.91	0.32	4.05	5.47	0.4	0.9	A	4.5	A	A
295	8.41	0.57	6.78	12.13	0.9	1.5	A	7.1	A	A
296	9.9	0.8	8.08	32.00	2.4	2.1	N	8.3	A	N
297	8.26	2.54	30.75	10.13	0.8	6.6	A	30.8	N	N
298	7.74	0.23	2.97	3.20	0.2	0.7	A	3.6	A	A
299	7.29	1.3	17.83	-2.80	0.2	3.4	A	17.9	N	W
300	6.44	0.52	8.07	-14.13	1.1	1.4	A	8.3	A	A

Performance evaluation of Co-60 measurement results

Spiked water sample 02

Target Value: 6.0 ± 0.12 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	6.85	0.68	9.93	14.17	0.9	1.8	A	10.1	N	N
2	5.99	0.29	4.84	-0.17	0.0	0.8	A	5.2	A	A
3	6.1	0.6	9.84	1.67	0.1	1.6	A	10.0	N	W
4	6	0.1	1.67	0.00	0.0	0.4	A	2.6	A	A
5	5.92	0.3	5.07	-1.33	0.1	0.8	A	5.4	A	A
6	5.3	0.22	4.15	-11.67	0.7	0.6	N	4.6	A	N
7	5.83	0.15	2.57	-2.83	0.2	0.5	A	3.3	A	A
9	5.83	0.23	3.95	-2.83	0.2	0.7	A	4.4	A	A
11	6.1	0.3	4.92	1.67	0.1	0.8	A	5.3	A	A
12	6.9	0.2	2.90	15.00	0.9	0.6	N	3.5	A	N
13	5.35	0.15	2.80	-10.83	0.7	0.5	N	3.4	A	N
14	3.51	0.76	21.65	-41.50	2.5	2.0	N	21.7	N	N
15	3.09	0.71	22.98	-48.50	2.9	1.9	N	23.1	N	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
16	6.08	0.12	1.97	1.33	0.1	0.4	A	2.8	A	A
17	6.36	0.28	4.40	6.00	0.4	0.8	A	4.8	A	A
18	6.03	0.1	1.66	0.50	0.0	0.4	A	2.6	A	A
19	6.17	0.055	0.89	2.83	0.2	0.3	A	2.2	A	A
20	6.16	0.08	1.30	2.67	0.2	0.4	A	2.4	A	A
21	6.37	0.66	10.36	6.17	0.4	1.7	A	10.6	N	W
22	6.07	0.06	0.99	1.17	0.1	0.3	A	2.2	A	A
23	6.14	0.08	1.30	2.33	0.1	0.4	A	2.4	A	A
24	6.21	0.1	1.61	3.50	0.2	0.4	A	2.6	A	A
25	14.27	1.57	11.00	137.83	8.3	4.1	N	11.2	N	N
26	5.97	0.29	4.86	-0.50	0.0	0.8	A	5.3	A	A
27	5.591	0.4853	8.68	-6.82	0.4	1.3	A	8.9	A	A
30	6	0.4	6.67	0.00	0.0	1.1	A	7.0	A	A
31	4.8	0.6	12.50	-20.00	1.2	1.6	A	12.7	N	N
32	6.11	0.29	4.75	1.83	0.1	0.8	A	5.2	A	A
33	6.01	0.57	9.48	0.17	0.0	1.5	A	9.7	A	A
34	6.15	0.16	2.60	2.50	0.2	0.5	A	3.3	A	A
35	6.6	0.2	3.03	10.00	0.6	0.6	A	3.6	A	A
36	6.21	0.16	2.58	3.50	0.2	0.5	A	3.3	A	A
37	6.33	0.42	6.64	5.50	0.3	1.1	A	6.9	A	A
38	6.2	0.0011	0.02	3.33	0.2	0.3	A	2.0	A	A
39	6.1	0.2	3.28	1.67	0.1	0.6	A	3.8	A	A
40	6.18	0.33	5.34	3.00	0.2	0.9	A	5.7	A	A
41	6	0.4	6.67	0.00	0.0	1.1	A	7.0	A	A
42	6.2	0.3	4.84	3.33	0.2	0.8	A	5.2	A	A
43	3.68	0.19	5.16	-38.67	2.3	0.6	N	5.5	A	N
44	5.67	0.27	4.76	-5.50	0.3	0.8	A	5.2	A	A
45	6.27	0.25	3.99	4.50	0.3	0.7	A	4.5	A	A
46	5.2	0.26	5.00	-13.33	0.8	0.7	N	5.4	A	N
47	6.51	0.2	3.07	8.50	0.5	0.6	A	3.7	A	A
50	5.8	0.29	5.00	-3.33	0.2	0.8	A	5.4	A	A
51	5.87	0.19	3.24	-2.17	0.1	0.6	A	3.8	A	A
52	5.17	0.24	4.64	-13.83	0.8	0.7	N	5.1	A	N
53	6.1	0.3	4.92	1.67	0.1	0.8	A	5.3	A	A
54	6.42	0.51	7.94	7.00	0.4	1.4	A	8.2	A	A
55	6.49	0.39	6.01	8.17	0.5	1.1	A	6.3	A	A
56	6.1	0.3	4.92	1.67	0.1	0.8	A	5.3	A	A
57	6.03	0.36	5.97	0.50	0.0	1.0	A	6.3	A	A
58	6.24	0.28	4.49	4.00	0.2	0.8	A	4.9	A	A
59	6.41	0.12	1.87	6.83	0.4	0.4	A	2.7	A	A
60	6.33	0.19	3.00	5.50	0.3	0.6	A	3.6	A	A
61	5.87	0.12	2.04	-2.17	0.1	0.4	A	2.9	A	A
62	6.59	0.18	2.73	9.83	0.6	0.6	N	3.4	A	W
63	6.02	0.17	2.82	0.33	0.0	0.5	A	3.5	A	A
64	6.4	0.49	7.66	6.67	0.4	1.3	A	7.9	A	A
65	6.41	0.15	2.34	6.83	0.4	0.5	A	3.1	A	A
68	6.25	0.25	4.00	4.17	0.3	0.7	A	4.5	A	A
70	6.6	0.8	12.12	10.00	0.6	2.1	A	12.3	N	W

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
71	5.88	0.35	5.95	-2.00	0.1	1.0	A	6.3	A	A
72	5.81	0.08	1.38	-3.17	0.2	0.4	A	2.4	A	A
73	6.1	0.3	4.92	1.67	0.1	0.8	A	5.3	A	A
74	3.9	0.4	10.26	-35.00	2.1	1.1	N	10.4	N	N
75	6.2	0.2	3.23	3.33	0.2	0.6	A	3.8	A	A
76	6.05	0.12	1.98	0.83	0.0	0.4	A	2.8	A	A
77	6.366	0.218	3.42	6.10	0.4	0.6	A	4.0	A	A
78	5.47	0.0748	1.37	-8.83	0.5	0.4	N	2.4	A	W
79	7.8	0.7	8.97	30.00	1.8	1.8	A	9.2	A	A
80	6.5	0.5	7.69	8.33	0.5	1.3	A	7.9	A	A
81	5.82	0.21	3.61	-3.00	0.2	0.6	A	4.1	A	A
82	5.57	0.28	5.03	-7.17	0.4	0.8	A	5.4	A	A
83	6.07	0.18	2.97	1.17	0.1	0.6	A	3.6	A	A
84	6.6	0.3	4.55	10.00	0.6	0.8	A	5.0	A	A
85	3.3	0.5	15.15	-45.00	2.7	1.3	N	15.3	N	N
86	5.5	0.6	10.91	-8.33	0.5	1.6	A	11.1	N	W
87	6.06	0.18	2.97	1.00	0.1	0.6	A	3.6	A	A
88	6.1	0.2	3.28	1.67	0.1	0.6	A	3.8	A	A
89	6.29	0.16	2.54	4.83	0.3	0.5	A	3.2	A	A
90	5.95	0.21	3.53	-0.83	0.0	0.6	A	4.1	A	A
91	5.7	0.5	8.77	-5.00	0.3	1.3	A	9.0	A	A
92	5.84	0.32	5.48	-2.67	0.2	0.9	A	5.8	A	A
93	5.72	0.16	2.80	-4.67	0.3	0.5	A	3.4	A	A
94	6.1	0.6	9.84	1.67	0.1	1.6	A	10.0	N	W
95	6.01	0.44	7.32	0.17	0.0	1.2	A	7.6	A	A
96	6	0.3	5.00	0.00	0.0	0.8	A	5.4	A	A
97	5.6	0.23	4.11	-6.67	0.4	0.7	A	4.6	A	A
98	5.43	0.46	8.47	-9.50	0.6	1.2	A	8.7	A	A
99	6.44	0.14	2.17	7.33	0.4	0.5	A	3.0	A	A
100	5.24	0.88	16.79	-12.67	0.8	2.3	A	16.9	N	N
101	6.13	0.32	5.22	2.17	0.1	0.9	A	5.6	A	A
103	4.411	0.456	10.34	-26.48	1.6	1.2	N	10.5	N	N
105	6.21	0.44	7.09	3.50	0.2	1.2	A	7.4	A	A
106	5.73	0.49	8.55	-4.50	0.3	1.3	A	8.8	A	A
107	6.03	0.74	12.27	0.50	0.0	1.9	A	12.4	N	W
109	6.05	0.5	8.26	0.83	0.0	1.3	A	8.5	A	A
110	6.39	0.481	7.53	6.50	0.4	1.3	A	7.8	A	A
111	6.14	0.37	6.03	2.33	0.1	1.0	A	6.3	A	A
112	6.09	0.22	3.61	1.50	0.1	0.6	A	4.1	A	A
113	7.29	0.49	6.72	21.50	1.3	1.3	A	7.0	A	A
114	3.2	0.2	6.25	-46.67	2.8	0.6	N	6.6	A	N
115	5.9	0.5	8.47	-1.67	0.1	1.3	A	8.7	A	A
118	6.58	0.56	8.51	9.67	0.6	1.5	A	8.7	A	A
119	6.73	0.44	6.54	12.17	0.7	1.2	A	6.8	A	A
120	6.09	0.22	3.61	1.50	0.1	0.6	A	4.1	A	A
121	7.12	0.46	6.46	18.67	1.1	1.2	A	6.8	A	A
122	6.17	0.2	3.24	2.83	0.2	0.6	A	3.8	A	A
123	5.08	0.27	5.31	-15.33	0.9	0.8	N	5.7	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
124	6.406	0.288	4.50	6.77	0.4	0.8	A	4.9	A	A
125	6	0.4	6.67	0.00	0.0	1.1	A	7.0	A	A
126	5.1	0.5	9.80	-15.00	0.9	1.3	A	10.0	N	N
127	6.08	0.37	6.09	1.33	0.1	1.0	A	6.4	A	A
128	6.1	0.3	4.92	1.67	0.1	0.8	A	5.3	A	A
130	5.58	0.21	3.76	-7.00	0.4	0.6	A	4.3	A	A
131	5.45	0.22	4.04	-9.17	0.6	0.6	A	4.5	A	A
132	6.284	0.181	2.88	4.73	0.3	0.6	A	3.5	A	A
133	6.1	0.2	3.28	1.67	0.1	0.6	A	3.8	A	A
134	5.73	0.1	1.75	-4.50	0.3	0.4	A	2.7	A	A
136	7.118	0.336	4.72	18.63	1.1	0.9	N	5.1	A	N
137	11.93	0.8	6.71	98.83	5.9	2.1	N	7.0	A	N
138	5.57	0.34	6.10	-7.17	0.4	0.9	A	6.4	A	A
139	5.73	0.192	3.35	-4.50	0.3	0.6	A	3.9	A	A
140	6.7	0.22	3.28	11.67	0.7	0.6	N	3.8	A	N
141	7.71	0.58	7.52	28.50	1.7	1.5	N	7.8	A	N
142	4.78	0.0029	0.06	-20.33	1.2	0.3	N	2.0	A	N
143	5.56	0.54	9.71	-7.33	0.4	1.4	A	9.9	A	A
144	4.78	0.6	12.55	-20.33	1.2	1.6	A	12.7	N	N
145	4.75	0.32	6.74	-20.83	1.3	0.9	N	7.0	A	N
146	5.44	0.27	4.96	-9.33	0.6	0.8	A	5.4	A	A
150	2.97	0.15	5.05	-50.50	3.0	0.5	N	5.4	A	N
151	3.05	0.18	5.90	-49.17	3.0	0.6	N	6.2	A	N
152	3.1	0.2	6.45	-48.33	2.9	0.6	N	6.8	A	N
153	6.13	0.241	3.93	2.17	0.1	0.7	A	4.4	A	A
154	6.4	0.4	6.25	6.67	0.4	1.1	A	6.6	A	A
157	5.6	0.3	5.36	-6.67	0.4	0.8	A	5.7	A	A
158	6.86	0.33	4.81	14.33	0.9	0.9	A	5.2	A	A
159	5.9	0.22	3.73	-1.67	0.1	0.6	A	4.2	A	A
160	8.41	0.67	7.97	40.17	2.4	1.8	N	8.2	A	N
161	6.09	0.43	7.06	1.50	0.1	1.2	A	7.3	A	A
162	6.17	0.28	4.54	2.83	0.2	0.8	A	5.0	A	A
163	5.9	0.3	5.08	-1.67	0.1	0.8	A	5.5	A	A
164	5.82	0.31	5.33	-3.00	0.2	0.9	A	5.7	A	A
165	6.1	0.27	4.43	1.67	0.1	0.8	A	4.9	A	A
166	6.27	0.34	5.42	4.50	0.3	0.9	A	5.8	A	A
167	6.8	0.44	6.47	13.33	0.8	1.2	A	6.8	A	A
168	5.92	0.13	2.20	-1.33	0.1	0.5	A	3.0	A	A
169	5.81	0.16	2.75	-3.17	0.2	0.5	A	3.4	A	A
170	6.3	0.3	4.76	5.00	0.3	0.8	A	5.2	A	A
171	6.63	0.3	4.52	10.50	0.6	0.8	A	4.9	A	A
172	5.9	0.3	5.08	-1.67	0.1	0.8	A	5.5	A	A
173	6.05	0.11	1.82	0.83	0.0	0.4	A	2.7	A	A
174	6.53	0.31	4.75	8.83	0.5	0.9	A	5.2	A	A
175	5.8	0.3	5.17	-3.33	0.2	0.8	A	5.5	A	A
176	6.49	0.17	2.62	8.17	0.5	0.5	A	3.3	A	A
177	6.31	0.16	2.54	5.17	0.3	0.5	A	3.2	A	A
178	6.58	0.254	3.86	9.67	0.6	0.7	A	4.3	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
179	5.7	0.2	3.51	-5.00	0.3	0.6	A	4.0	A	A
181	6.27	0.1	1.59	4.50	0.3	0.4	A	2.6	A	A
182	6.45	0.35	5.43	7.50	0.5	1.0	A	5.8	A	A
183	5.1	0.19	3.73	-15.00	0.9	0.6	N	4.2	A	N
184	5.89	0.13	2.21	-1.83	0.1	0.5	A	3.0	A	A
185	5.87	0.35	5.96	-2.17	0.1	1.0	A	6.3	A	A
186	6.2	0.28	4.52	3.33	0.2	0.8	A	4.9	A	A
187	5.5	0.5	9.09	-8.33	0.5	1.3	A	9.3	A	A
188	5.31	0.27	5.08	-11.50	0.7	0.8	A	5.5	A	A
190	5.85	0.75	12.82	-2.50	0.2	2.0	A	13.0	N	W
191	5.88	0.2	3.40	-2.00	0.1	0.6	A	3.9	A	A
192	6.4	0.3	4.69	6.67	0.4	0.8	A	5.1	A	A
193	6.6	0.3	4.55	10.00	0.6	0.8	A	5.0	A	A
194	6.5	0.4	6.15	8.33	0.5	1.1	A	6.5	A	A
195	6.21	0.2	3.22	3.50	0.2	0.6	A	3.8	A	A
197	11.5	0.42	3.65	91.67	5.5	1.1	N	4.2	A	N
199	6.1	0.4	6.56	1.67	0.1	1.1	A	6.9	A	A
200	5.7	0.26	4.56	-5.00	0.3	0.7	A	5.0	A	A
201	6.57	0.14	2.13	9.50	0.6	0.5	N	2.9	A	W
202	5.679	0.664	11.69	-5.35	0.3	1.7	A	11.9	N	W
204	5	0.9	18.00	-16.67	1.0	2.3	A	18.1	N	N
205	5.79	0.4	6.91	-3.50	0.2	1.1	A	7.2	A	A
206	2.87	0.17	5.92	-52.17	3.1	0.5	N	6.3	A	N
207	6.19	0.44	7.11	3.17	0.2	1.2	A	7.4	A	A
208	6.1	0.7	11.48	1.67	0.1	1.8	A	11.6	N	W
209	6.67	0.35	5.25	11.17	0.7	1.0	A	5.6	A	A
210	5.8	0.07	1.21	-3.33	0.2	0.4	A	2.3	A	A
211	6.17	0.19	3.08	2.83	0.2	0.6	A	3.7	A	A
212	6.26	0.21	3.35	4.33	0.3	0.6	A	3.9	A	A
213	6.09	0.19	3.12	1.50	0.1	0.6	A	3.7	A	A
214	6.12	0.2	3.27	2.00	0.1	0.6	A	3.8	A	A
215	6.08	0.24	3.95	1.33	0.1	0.7	A	4.4	A	A
216	6.21	0.26	4.19	3.50	0.2	0.7	A	4.6	A	A
217	5.46	0.17	3.11	-9.00	0.5	0.5	N	3.7	A	W
218	5.497	0.154	2.80	-8.38	0.5	0.5	A	3.4	A	A
219	5.31	0.14	2.64	-11.50	0.7	0.5	N	3.3	A	N
220	6.01	0.34	5.66	0.17	0.0	0.9	A	6.0	A	A
221	5.8	0.3	5.17	-3.33	0.2	0.8	A	5.5	A	A
223	5.62	0.7	12.46	-6.33	0.4	1.8	A	12.6	N	W
224	7.43	0.72	9.69	23.83	1.4	1.9	A	9.9	A	A
225	172	53	30.81	2766.67	166.0	136.7	N	30.9	N	N
226	6.8	0.4	5.88	13.33	0.8	1.1	A	6.2	A	A
227	5.82	0.15	2.58	-3.00	0.2	0.5	A	3.3	A	A
232	5.42	0.29	5.35	-9.67	0.6	0.8	A	5.7	A	A
233	5.34	0.45	8.43	-11.00	0.7	1.2	A	8.7	A	A
234	5.94	0.475	8.00	-1.00	0.1	1.3	A	8.2	A	A
235	6.79	0.77	11.34	13.17	0.8	2.0	A	11.5	N	N
236	6.22	0.5	8.04	3.67	0.2	1.3	A	8.3	A	A

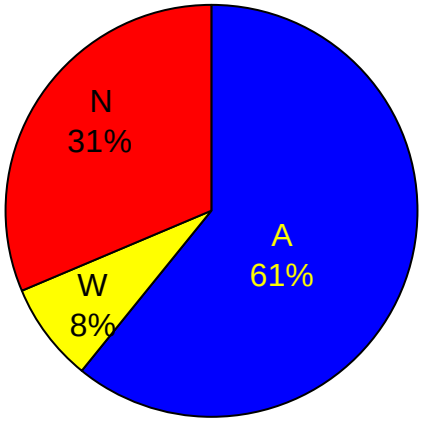
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
237	6.1	0.4	6.56	1.67	0.1	1.1	A	6.9	A	A
238	5.9	0.13	2.20	-1.67	0.1	0.5	A	3.0	A	A
239	5.88	0.22	3.74	-2.00	0.1	0.6	A	4.2	A	A
240	5.8	0.5	8.62	-3.33	0.2	1.3	A	8.8	A	A
241	5.6	0.5	8.93	-6.67	0.4	1.3	A	9.1	A	A
242	6.23	0.14	2.25	3.83	0.2	0.5	A	3.0	A	A
243	6.188	0.3283	5.31	3.13	0.2	0.9	A	5.7	A	A
244	5.66	0.202	3.57	-5.67	0.3	0.6	A	4.1	A	A
245	6.07	0.11	1.81	1.17	0.1	0.4	A	2.7	A	A
246	6.1	0.38	6.23	1.67	0.1	1.0	A	6.5	A	A
249	4.87	0.19	3.90	-18.83	1.1	0.6	N	4.4	A	N
250	5.31	0.19	3.58	-11.50	0.7	0.6	N	4.1	A	N
251	6.16	0.43	6.98	2.67	0.2	1.2	A	7.3	A	A
252	5.9	0.2	3.39	-1.67	0.1	0.6	A	3.9	A	A
253	6.5	0.3	4.62	8.33	0.5	0.8	A	5.0	A	A
254	4.45	0.16	3.60	-25.83	1.6	0.5	N	4.1	A	N
255	5.93	0.17	2.87	-1.17	0.1	0.5	A	3.5	A	A
256	5.73	0.46	8.03	-4.50	0.3	1.2	A	8.3	A	A
257	5.68	0.37	6.51	-5.33	0.3	1.0	A	6.8	A	A
258	6.18	0.35	5.66	3.00	0.2	1.0	A	6.0	A	A
259	5.2	0.07	1.35	-13.33	0.8	0.4	N	2.4	A	N
261	7	0.5	7.14	16.67	1.0	1.3	A	7.4	A	A
263	5.4	0.37	6.85	-10.00	0.6	1.0	A	7.1	A	A
264	5.91	0.258	4.37	-1.50	0.1	0.7	A	4.8	A	A
265	5.895	0.056	0.95	-1.75	0.1	0.3	A	2.2	A	A
267	6.06	0.41	6.77	1.00	0.1	1.1	A	7.1	A	A
268	5.7	0.17	2.98	-5.00	0.3	0.5	A	3.6	A	A
269	6.3	0.6	9.52	5.00	0.3	1.6	A	9.7	A	A
270	6.04	0.27	4.47	0.67	0.0	0.8	A	4.9	A	A
271	5.86	0.14	2.39	-2.33	0.1	0.5	A	3.1	A	A
272	6.05	0.32	5.29	0.83	0.0	0.9	A	5.7	A	A
273	2.2	0.4	18.18	-63.33	3.8	1.1	N	18.3	N	N
274	6.1	0.24	3.93	1.67	0.1	0.7	A	4.4	A	A
275	6.04	0.19	3.15	0.67	0.0	0.6	A	3.7	A	A
276	5.8	0.5	8.62	-3.33	0.2	1.3	A	8.8	A	A
278	6.01	0.61	10.15	0.17	0.0	1.6	A	10.3	N	W
279	5.96	0.13	2.18	-0.67	0.0	0.5	A	3.0	A	A
283	4.68	0.21	4.49	-22.00	1.3	0.6	N	4.9	A	N
284	6.1	0.43	7.05	1.67	0.1	1.2	A	7.3	A	A
285	5.92	0.42	7.08	-5.83	0.4	1.1	A	7.4	A	A
288	6.3	0.1	1.59	5.00	0.3	0.4	A	2.6	A	A
289	6.3	0.3	4.76	5.00	0.3	0.8	A	5.2	A	A
290	6	0.4	6.67	0.00	0.0	1.1	A	7.0	A	A
292	6.2	0.4	6.45	3.33	0.2	1.1	A	6.8	A	A
293	6.2	0.4	6.45	3.33	0.2	1.1	A	6.8	A	A
294	6.22	0.2	3.22	3.67	0.2	0.6	A	3.8	A	A
295	6.05	0.15	2.48	0.83	0.0	0.5	A	3.2	A	A
296	6.7	0.2	2.99	11.67	0.7	0.6	N	3.6	A	N

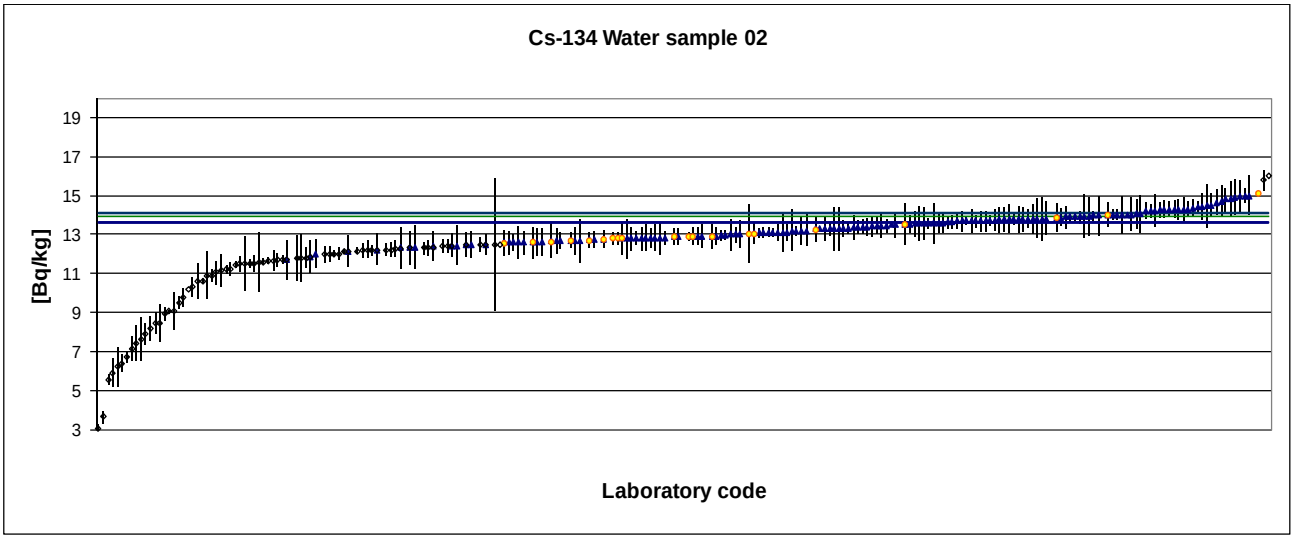
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
297	4.88	0.47	9.63	-18.67	1.1	1.3	A	9.8	A	A
298	6.25	0.123	1.97	4.17	0.3	0.4	A	2.8	A	A
299	5.65	1.1	19.47	-5.83	0.4	2.9	A	19.6	N	W
300	6.01	0.48	7.99	0.17	0.0	1.3	A	8.2	A	A

Performance evaluation of Cs-134 measurement results

Spiked water sample 02

Target Value: 13.9 ± 0.28 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	12.32	1.1	8.93	-11.37	1.6	2.9	A	9.1	A	A
2	14.29	0.46	3.22	2.81	0.4	1.4	A	3.8	A	A
3	14	2	14.29	0.72	0.1	5.2	A	14.4	N	W
4	15	0.4	2.67	7.91	1.1	1.3	A	3.3	A	A
5	13.43	0.52	3.87	-3.38	0.5	1.5	A	4.4	A	A
6	11.7	0.5	4.27	-15.83	2.2	1.5	N	4.7	A	N
7	14.35	0.45	3.14	3.24	0.4	1.4	A	3.7	A	A
9	12.2	0.4	3.28	-12.23	1.7	1.3	N	3.8	A	N
11	12.5	0.7	5.60	-10.07	1.4	1.9	A	5.9	A	A
12	14.8	0.6	4.05	6.47	0.9	1.7	A	4.5	A	A
13	9.76	0.31	3.18	-29.78	4.1	1.1	N	3.8	A	N
14	8.46	0.56	6.62	-39.14	5.4	1.6	N	6.9	A	N
15	6.21	0.74	11.92	-55.32	7.7	2.0	N	12.1	N	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
16	14.2	0.4	2.82	2.16	0.3	1.3	A	3.5	A	A
17	13.8	0.6	4.35	-0.72	0.1	1.7	A	4.8	A	A
18	13.74	0.27	1.97	-1.15	0.2	1.0	A	2.8	A	A
19	12.139	0.072	0.59	-12.67	1.8	0.7	N	2.1	A	N
20	13.63	0.34	2.49	-1.94	0.3	1.1	A	3.2	A	A
21	13.25	1.5	11.32	-4.68	0.7	3.9	A	11.5	N	W
22	13.5	0.1	0.74	-2.88	0.4	0.8	A	2.1	A	A
23	13.2	0.7	5.30	-5.04	0.7	1.9	A	5.7	A	A
24	12.8	0.24	1.88	-7.91	1.1	0.9	N	2.7	A	W
25	11.86	0.83	7.00	-14.68	2.0	2.3	A	7.3	A	A
26	12.15	0.8	6.58	-12.59	1.8	2.2	A	6.9	A	A
27	13.88	0.7466	5.38	-0.14	0.0	2.1	A	5.7	A	A
29	12.8	0.3	2.34	-7.91	1.1	1.1	N	3.1	A	W
30	12.6	0.6	4.76	-9.35	1.3	1.7	A	5.2	A	A
31	15	1	6.67	7.91	1.1	2.7	A	7.0	A	A
32	12.5	0.4	3.20	-10.07	1.4	1.3	N	3.8	A	N
33	14.21	0.86	6.05	2.23	0.3	2.3	A	6.4	A	A
34	11.7	0.33	2.82	-15.83	2.2	1.1	N	3.5	A	N
35	13.3	0.66	4.96	-4.32	0.6	1.8	A	5.4	A	A
36	12.55	0.28	2.23	-9.71	1.4	1.0	N	3.0	A	W
37	13.82	0.84	6.08	-0.58	0.1	2.3	A	6.4	A	A
38	13.3	0.0011	0.01	-4.32	0.6	0.7	A	2.0	A	A
39	12.9	0.4	3.10	-7.19	1.0	1.3	A	3.7	A	A
40	14.03	0.89	6.34	0.94	0.1	2.4	A	6.7	A	A
41	13.7	0.4	2.92	-1.44	0.2	1.3	A	3.5	A	A
42	13.3	0.6	4.51	-4.32	0.6	1.7	A	4.9	A	A
43	7.13	0.28	3.93	-48.71	6.8	1.0	N	4.4	A	N
44	12.6	0.44	3.49	-9.35	1.3	1.3	A	4.0	A	A
45	13.07	0.51	3.90	-5.97	0.8	1.5	A	4.4	A	A
46	11.5	0.36	3.13	-17.27	2.4	1.2	N	3.7	A	N
47	12.98	0.25	1.93	-6.62	0.9	1.0	A	2.8	A	A
50	13.56	0.68	5.01	-2.45	0.3	1.9	A	5.4	A	A
51	12.8	0.3	2.34	-7.91	1.1	1.1	N	3.1	A	W
52	10.6	0.5	4.72	-23.74	3.3	1.5	N	5.1	A	N
53	13.7	0.5	3.65	-1.44	0.2	1.5	A	4.2	A	A
54	13.53	1.08	7.98	-2.66	0.4	2.9	A	8.2	A	A
55	14.09	0.77	5.46	1.37	0.2	2.1	A	5.8	A	A
56	14	0.6	4.29	0.72	0.1	1.7	A	4.7	A	A
57	13.8	0.72	5.22	-0.72	0.1	2.0	A	5.6	A	A
58	13.9	0.6	4.32	0.00	0.0	1.7	A	4.8	A	A
59	14	0.3	2.14	0.72	0.1	1.1	A	2.9	A	A
60	13.8	0.3	2.17	-0.72	0.1	1.1	A	3.0	A	A
61	13.07	0.24	1.84	-5.97	0.8	0.9	A	2.7	A	A
62	13.4	0.35	2.61	-3.60	0.5	1.2	A	3.3	A	A
63	13.62	0.33	2.42	-2.01	0.3	1.1	A	3.1	A	A
64	13.6	1.04	7.65	-2.16	0.3	2.8	A	7.9	A	A
65	14.25	0.4	2.81	2.52	0.4	1.3	A	3.4	A	A
68	12.9	0.4	3.10	-7.19	1.0	1.3	A	3.7	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
70	12.9	1.4	10.85	-7.19	1.0	3.7	A	11.0	N	W
71	12.72	0.41	3.22	-8.49	1.2	1.3	A	3.8	A	A
72	11.57	0.42	3.63	-16.76	2.3	1.3	N	4.1	A	N
74	6.4	1	15.63	-53.96	7.5	2.7	N	15.8	N	N
75	12.7	0.4	3.15	-8.63	1.2	1.3	A	3.7	A	A
76	12.62	0.18	1.43	-9.21	1.3	0.9	N	2.5	A	W
77	12.15	0.36	2.96	-12.59	1.8	1.2	N	3.6	A	N
78	10.9	0.166	1.52	-21.58	3.0	0.8	N	2.5	A	N
79	12.8	0.8	6.25	-7.91	1.1	2.2	A	6.6	A	A
80	12.5	0.4	3.20	-10.07	1.4	1.3	N	3.8	A	N
81	11.85	0.54	4.56	-14.75	2.1	1.6	N	5.0	A	N
82	12.01	0.37	3.08	-13.60	1.9	1.2	N	3.7	A	N
83	12.42	0.32	2.58	-10.65	1.5	1.1	N	3.3	A	N
84	13.6	0.5	3.68	-2.16	0.3	1.5	A	4.2	A	A
85	7.9	1.1	13.92	-43.17	6.0	2.9	N	14.1	N	N
86	11.5	1.4	12.17	-17.27	2.4	3.7	A	12.3	N	N
87	13.1	0.3	2.29	-5.76	0.8	1.1	A	3.0	A	A
88	14.8	0.9	6.08	6.47	0.9	2.4	A	6.4	A	A
89	12.9	0.23	1.78	-7.19	1.0	0.9	N	2.7	A	W
90	11.8	1.17	9.92	-15.11	2.1	3.1	A	10.1	N	N
91	12.8	1	7.81	-7.91	1.1	2.7	A	8.1	A	A
92	12.67	0.65	5.13	-8.85	1.2	1.8	A	5.5	A	A
93	11.7	0.21	1.79	-15.83	2.2	0.9	N	2.7	A	N
94	13.2	0.8	6.06	-5.04	0.7	2.2	A	6.4	A	A
95	14.1	0.97	6.88	1.44	0.2	2.6	A	7.2	A	A
96	12.7	0.7	5.51	-8.63	1.2	1.9	A	5.9	A	A
97	12.78	0.48	3.76	-8.06	1.1	1.4	A	4.3	A	A
98	9.52	0.97	10.19	-31.51	4.4	2.6	N	10.4	N	N
99	14.01	0.14	1.00	0.79	0.1	0.8	A	2.2	A	A
100	10.9	1.2	11.01	-21.58	3.0	3.2	A	11.2	N	N
101	12.8	0.6	4.69	-7.91	1.1	1.7	A	5.1	A	A
103	13.4	0.393	2.93	-3.60	0.5	1.2	A	3.5	A	A
105	12.42	0.58	4.67	-10.65	1.5	1.7	A	5.1	A	A
106	11.78	0.74	6.28	-15.25	2.1	2.0	N	6.6	A	N
107	14.48	1.08	7.46	4.17	0.6	2.9	A	7.7	A	A
109	12.6	0.81	6.43	-9.35	1.3	2.2	A	6.7	A	A
110	17	1.28	7.53	22.30	3.1	3.4	A	7.8	A	A
111	13.58	0.82	6.04	-2.30	0.3	2.2	A	6.4	A	A
112	12.9	0.45	3.49	-7.19	1.0	1.4	A	4.0	A	A
113	14.99	0.83	5.54	7.84	1.1	2.3	A	5.9	A	A
114	14.7	0.8	5.44	5.76	0.8	2.2	A	5.8	A	A
115	13.8	0.7	5.07	-0.72	0.1	1.9	A	5.5	A	A
118	13.9	0.25	1.80	0.00	0.0	1.0	A	2.7	A	A
119	14.9	0.91	6.11	7.19	1.0	2.5	A	6.4	A	A
120	12.9	0.45	3.49	-7.19	1.0	1.4	A	4.0	A	A
121	16.92	0.63	3.72	21.73	3.0	1.8	N	4.2	A	N
122	12.8	0.35	2.73	-7.91	1.1	1.2	A	3.4	A	A
123	12.22	0.31	2.54	-12.09	1.7	1.1	N	3.2	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
124	12.25	0.42	3.43	-11.87	1.7	1.3	N	4.0	A	N
125	12.5	0.5	4.00	-10.07	1.4	1.5	A	4.5	A	A
126	10.6	0.9	8.49	-23.74	3.3	2.4	N	8.7	A	N
127	12.2	0.45	3.69	-12.23	1.7	1.4	N	4.2	A	N
128	13.8	0.6	4.35	-0.72	0.1	1.7	A	4.8	A	A
130	12.5	0.4	3.20	-10.07	1.4	1.3	N	3.8	A	N
131	11.44	0.35	3.06	-17.70	2.5	1.2	N	3.7	A	N
132	13.92	0.32	2.30	0.14	0.0	1.1	A	3.0	A	A
133	14.3	0.4	2.80	2.88	0.4	1.3	A	3.4	A	A
134	13.7	0.22	1.61	-1.44	0.2	0.9	A	2.6	A	A
136	13.1	0.24	1.83	-5.76	0.8	0.9	A	2.7	A	A
137	22.17	2.03	9.16	59.50	8.3	5.3	N	9.4	A	N
138	12.49	0.64	5.12	-10.14	1.4	1.8	A	5.5	A	A
139	12.2	0.276	2.26	-12.23	1.7	1.0	N	3.0	A	N
140	14.3	0.45	3.15	2.88	0.4	1.4	A	3.7	A	A
141	17.74	0.74	4.17	27.63	3.8	2.0	N	4.6	A	N
142	10.32	0.0045	0.04	-25.76	3.6	0.7	N	2.0	A	N
143	8.45	0.6	7.10	-39.21	5.5	1.7	N	7.4	A	N
144	8.16	0.54	6.62	-41.29	5.7	1.6	N	6.9	A	N
145	13.43	0.42	3.13	-3.38	0.5	1.3	A	3.7	A	A
146	11.05	0.33	2.99	-20.50	2.9	1.1	N	3.6	A	N
150	6.69	0.43	6.43	-51.87	7.2	1.3	N	6.7	A	N
151	5.54	0.31	5.60	-60.14	8.4	1.1	N	5.9	A	N
152	5.9	0.3	5.08	-57.55	8.0	1.1	N	5.5	A	N
153	13.568	0.914	6.74	-2.39	0.3	2.5	A	7.0	A	A
154	13	0.8	6.15	-6.47	0.9	2.2	A	6.5	A	A
157	12.8	0.6	4.69	-7.91	1.1	1.7	A	5.1	A	A
158	13.39	0.63	4.71	-3.67	0.5	1.8	A	5.1	A	A
159	13.1	0.2	1.53	-5.76	0.8	0.9	A	2.5	A	A
160	13.86	1.36	9.81	-0.29	0.0	3.6	A	10.0	N	W
161	12.43	1	8.05	-10.58	1.5	2.7	A	8.3	A	A
162	13	0.4	3.08	-6.47	0.9	1.3	A	3.7	A	A
163	14.63	0.66	4.51	5.25	0.7	1.8	A	4.9	A	A
164	12.6	0.59	4.68	-9.35	1.3	1.7	A	5.1	A	A
165	13.7	0.6	4.38	-1.44	0.2	1.7	A	4.8	A	A
166	12.8	0.68	5.31	-7.91	1.1	1.9	A	5.7	A	A
167	10.16	0.47	4.63	-26.91	3.7	1.4	N	5.0	A	N
168	12.02	0.15	1.25	-13.53	1.9	0.8	N	2.4	A	N
169	13.98	0.25	1.79	0.58	0.1	1.0	A	2.7	A	A
170	13.1	0.4	3.05	-5.76	0.8	1.3	A	3.7	A	A
171	14.2	0.35	2.46	2.16	0.3	1.2	A	3.2	A	A
172	14	0.3	2.14	0.72	0.1	1.1	A	2.9	A	A
173	11.51	0.18	1.56	-17.19	2.4	0.9	N	2.5	A	N
174	13.88	0.46	3.31	-0.14	0.0	1.4	A	3.9	A	A
175	13.5	0.67	4.96	-2.88	0.4	1.9	A	5.4	A	A
177	14.4	0.3	2.08	3.60	0.5	1.1	A	2.9	A	A
178	15.78	0.581	3.68	13.53	1.9	1.7	N	4.2	A	N
179	11.24	0.2	1.78	-19.14	2.7	0.9	N	2.7	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
181	12.88	0.14	1.09	-7.34	1.0	0.8	N	2.3	A	W
182	13.58	0.3	2.21	-2.30	0.3	1.1	A	3.0	A	A
183	11.15	0.62	5.56	-19.78	2.8	1.8	N	5.9	A	N
184	11.67	0.17	1.46	-16.04	2.2	0.8	N	2.5	A	N
185	13.19	1.06	8.04	-5.11	0.7	2.8	A	8.3	A	A
186	13.8	0.48	3.48	-0.72	0.1	1.4	A	4.0	A	A
187	11.6	1.5	12.93	-16.55	2.3	3.9	A	13.1	N	N
188	12	0.72	6.00	-13.67	1.9	2.0	A	6.3	A	A
190	13.06	1.5	11.49	-6.04	0.8	3.9	A	11.7	N	W
191	12.24	0.38	3.10	-11.94	1.7	1.2	N	3.7	A	N
192	14.3	0.5	3.50	2.88	0.4	1.5	A	4.0	A	A
193	14.4	0.7	4.86	3.60	0.5	1.9	A	5.3	A	A
194	14.5	0.6	4.14	4.32	0.6	1.7	A	4.6	A	A
195	13.3	0.36	2.71	-4.32	0.6	1.2	A	3.4	A	A
197	22.7	0.21	0.93	63.31	8.8	0.9	N	2.2	A	N
199	12.9	0.6	4.65	-7.19	1.0	1.7	A	5.1	A	A
200	12.73	0.43	3.38	-8.42	1.2	1.3	A	3.9	A	A
201	15.09	0.21	1.39	8.56	1.2	0.9	N	2.4	A	W
202	13.983	1.01	7.22	0.60	0.1	2.7	A	7.5	A	A
204	7.4	0.6	8.11	-46.76	6.5	1.7	N	8.4	A	N
206	3.64	0.2	5.49	-73.81	10.3	0.9	N	5.8	A	N
207	12.5	3.4	27.20	-10.07	1.4	8.8	A	27.3	N	N
208	13.5	1.5	11.11	-2.88	0.4	3.9	A	11.3	N	W
209	12.67	0.44	3.47	-8.85	1.2	1.3	A	4.0	A	A
210	12.4	0.13	1.05	-10.79	1.5	0.8	N	2.3	A	N
211	13.47	0.67	4.97	-3.09	0.4	1.9	A	5.4	A	A
212	12.6	0.39	3.10	-9.35	1.3	1.2	N	3.7	A	W
213	13.19	0.24	1.82	-5.11	0.7	0.9	A	2.7	A	A
214	12.85	0.35	2.72	-7.55	1.1	1.2	A	3.4	A	A
215	12.32	0.36	2.92	-11.37	1.6	1.2	N	3.5	A	N
216	13.4	0.43	3.21	-3.60	0.5	1.3	A	3.8	A	A
217	12.34	0.37	3.00	-11.22	1.6	1.2	N	3.6	A	N
218	12.172	0.149	1.22	-12.43	1.7	0.8	N	2.3	A	N
219	12.1	0.3	2.48	-12.95	1.8	1.1	N	3.2	A	N
220	13.47	0.34	2.52	-3.09	0.4	1.1	A	3.2	A	A
221	13.1	1	7.63	-5.76	0.8	2.7	A	7.9	A	A
223	8.93	0.96	10.75	-35.76	5.0	2.6	N	10.9	N	N
224	13.75	0.56	4.07	-1.08	0.2	1.6	A	4.5	A	A
225	24	4	16.67	72.66	10.1	10.3	A	16.8	N	N
226	16	0.5	3.13	15.11	2.1	1.5	N	3.7	A	N
227	12.95	0.28	2.16	-6.83	1.0	1.0	A	2.9	A	A
230	16.91	2.48	14.67	21.65	3.0	6.4	A	14.8	N	N
232	12.45	0.41	3.29	-10.43	1.5	1.3	N	3.9	A	N
233	12.7	1.1	8.66	-8.63	1.2	2.9	A	8.9	A	A
234	13.8	0.77	5.58	-0.72	0.1	2.1	A	5.9	A	A
235	23.77	7.13	30.00	71.01	9.9	18.4	A	30.1	N	N
236	13.8	1	7.25	-0.72	0.1	2.7	A	7.5	A	A
237	13.6	0.5	3.68	-2.16	0.3	1.5	A	4.2	A	A

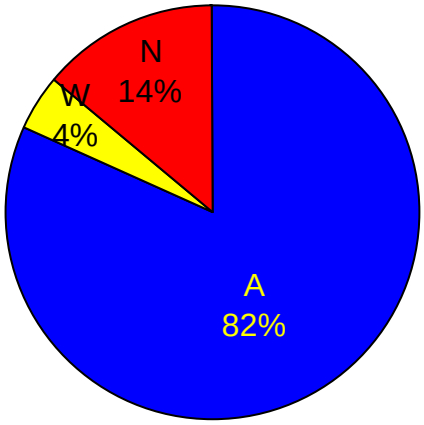
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
238	13.33	0.27	2.03	-4.10	0.6	1.0	A	2.8	A	A
239	13.54	0.46	3.40	-2.59	0.4	1.4	A	3.9	A	A
240	12.6	0.8	6.35	-9.35	1.3	2.2	A	6.7	A	A
241	12.3	1.1	8.94	-11.51	1.6	2.9	A	9.2	A	A
242	13.04	0.16	1.23	-6.19	0.9	0.8	N	2.3	A	W
243	12.58	0.6528	5.19	-9.50	1.3	1.8	A	5.6	A	A
244	13.1	0.426	3.25	-5.76	0.8	1.3	A	3.8	A	A
245	12	0.2	1.67	-13.67	1.9	0.9	N	2.6	A	N
246	12.3	0.29	2.36	-11.51	1.6	1.0	N	3.1	A	N
249	12.21	0.36	2.95	-12.16	1.7	1.2	N	3.6	A	N
250	12.4	0.35	2.82	-10.79	1.5	1.2	N	3.5	A	N
251	13.94	1.12	8.03	0.29	0.0	3.0	A	8.3	A	A
252	13.7	0.3	2.19	-1.44	0.2	1.1	A	3.0	A	A
253	12.8	0.5	3.91	-7.91	1.1	1.5	A	4.4	A	A
254	12.91	0.43	3.33	-7.12	1.0	1.3	A	3.9	A	A
255	14.3	0.6	4.20	2.88	0.4	1.7	A	4.6	A	A
256	13.3	1.1	8.27	-4.32	0.6	2.9	A	8.5	A	A
257	13.76	0.64	4.65	-1.01	0.1	1.8	A	5.1	A	A
258	13.03	0.67	5.14	-6.26	0.9	1.9	A	5.5	A	A
259	9.09	0.08	0.88	-34.60	4.8	0.7	N	2.2	A	N
261	14	1	7.14	0.72	0.1	2.7	A	7.4	A	A
263	12.3	0.84	6.83	-11.51	1.6	2.3	A	7.1	A	A
264	13.7	0.512	3.74	-1.44	0.2	1.5	A	4.2	A	A
265	13.9	0.154	1.11	0.00	0.0	0.8	A	2.3	A	A
267	12.39	0.78	6.30	-10.86	1.5	2.1	A	6.6	A	A
268	13.94	0.97	6.96	0.29	0.0	2.6	A	7.2	A	A
269	12.2	0.8	6.56	-12.23	1.7	2.2	A	6.9	A	A
270	12	0.4	3.33	-13.67	1.9	1.3	N	3.9	A	N
271	11.47	0.17	1.48	-17.48	2.4	0.8	N	2.5	A	N
272	12.9	0.23	1.78	-7.19	1.0	0.9	N	2.7	A	W
273	7.6	0.9	11.84	-45.32	6.3	2.4	N	12.0	N	N
274	13.7	0.5	3.65	-1.44	0.2	1.5	A	4.2	A	A
275	12.32	0.3	2.44	-11.37	1.6	1.1	N	3.2	A	N
276	11.7	1	8.55	-15.83	2.2	2.7	A	8.8	A	A
278	13.3	1.1	8.27	-4.32	0.6	2.9	A	8.5	A	A
279	11.65	0.19	1.63	-16.19	2.3	0.9	N	2.6	A	N
283	9.04	0.34	3.76	-34.96	4.9	1.1	N	4.3	A	N
284	12.66	0.91	7.19	-8.92	1.2	2.5	A	7.5	A	A
285	12.64	0.91	7.20	-9.06	1.3	2.5	A	7.5	A	A
286	3.04	0.13	4.28	-78.13	10.9	0.8	N	4.7	A	N
288	12.8	0.7	5.47	-7.91	1.1	1.9	A	5.8	A	A
289	14.3	0.4	2.80	2.88	0.4	1.3	A	3.4	A	A
290	12.8	0.8	6.25	-7.91	1.1	2.2	A	6.6	A	A
292	12.6	0.7	5.56	-9.35	1.3	1.9	A	5.9	A	A
293	12.6	0.7	5.56	-9.35	1.3	1.9	A	5.9	A	A
294	13.3	0.4	3.01	-4.32	0.6	1.3	A	3.6	A	A
295	12.67	0.31	2.45	-8.85	1.2	1.1	N	3.2	A	W
296	12.7	0.3	2.36	-8.63	1.2	1.1	N	3.1	A	W

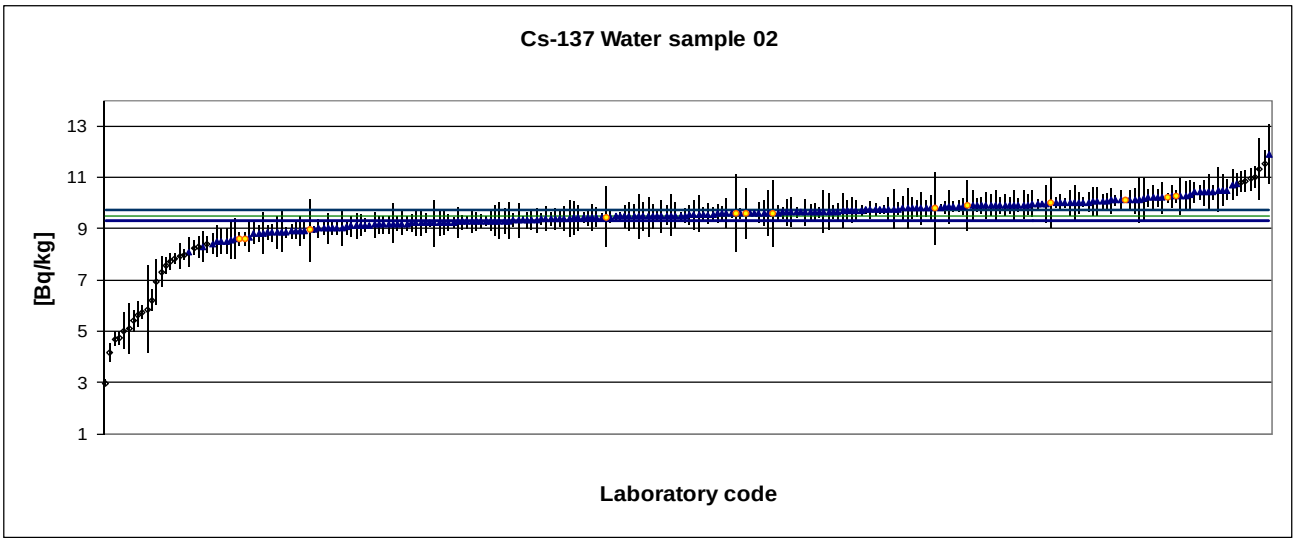
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
297	12.9	0.62	4.81	-7.19	1.0	1.8	A	5.2	A	A
298	12.77	0.22	1.72	-8.13	1.1	0.9	N	2.6	A	W
299	11.8	1.2	10.17	-15.11	2.1	3.2	A	10.4	N	N
300	13.8	1.1	7.97	-0.72	0.1	2.9	A	8.2	A	A

Performance evaluation of Cs-137 measurement results

Spiked water sample 02

Target Value: 9.5 ± 0.19 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	8.59	0.77	8.96	-9.58	0.9	2.0	A	9.2	A	A
2	9.2	0.35	3.80	-3.16	0.3	1.0	A	4.3	A	A
3	9.6	1.0	10.42	1.05	0.1	2.6	A	10.6	N	W
4	10.1	0.2	1.98	6.32	0.6	0.7	A	2.8	A	A
5	9.8	0.4	4.08	3.16	0.3	1.1	A	4.5	A	A
6	9.1	0.4	4.40	-4.21	0.4	1.1	A	4.8	A	A
7	9.4	0.32	3.40	-1.05	0.1	1.0	A	3.9	A	A
9	9.5	0.4	4.21	0.00	0.0	1.1	A	4.7	A	A
11	9.9	0.5	5.05	4.21	0.4	1.4	A	5.4	A	A
12	11	0.4	3.64	15.79	1.5	1.1	N	4.2	A	N
13	8.39	0.29	3.46	-11.68	1.1	0.9	N	4.0	A	N
14	7.55	0.33	4.37	-20.53	2.0	1.0	N	4.8	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
15	5.1	0.97	19.02	-46.32	4.4	2.6	N	19.1	N	N
16	9.73	0.15	1.54	2.42	0.2	0.6	A	2.5	A	A
17	10.25	0.46	4.49	7.89	0.8	1.3	A	4.9	A	A
18	9.46	0.12	1.27	-0.42	0.0	0.6	A	2.4	A	A
19	9.952	0.109	1.10	4.76	0.5	0.6	A	2.3	A	A
20	9.6	0.14	1.46	1.05	0.1	0.6	A	2.5	A	A
21	9.88	0.99	10.02	4.00	0.4	2.6	A	10.2	N	W
22	9.6	0.08	0.83	1.05	0.1	0.5	A	2.2	A	A
23	9.72	0.15	1.54	2.32	0.2	0.6	A	2.5	A	A
24	10.01	0.18	1.80	5.37	0.5	0.7	A	2.7	A	A
25	4.17	0.38	9.11	-56.11	5.3	1.1	N	9.3	A	N
26	9.15	0.48	5.25	-3.68	0.4	1.3	A	5.6	A	A
27	9.766	0.7561	7.74	2.80	0.3	2.0	A	8.0	A	A
29	10.4	0.4	3.85	9.47	0.9	1.1	A	4.3	A	A
30	9.3	0.6	6.45	-2.11	0.2	1.6	A	6.8	A	A
31	10	1	10.00	5.26	0.5	2.6	A	10.2	N	W
32	9.62	0.52	5.41	1.26	0.1	1.4	A	5.8	A	A
33	9.4	0.47	5.00	-1.05	0.1	1.3	A	5.4	A	A
34	9.52	0.38	3.99	0.21	0.0	1.1	A	4.5	A	A
35	10.1	0.37	3.66	6.32	0.6	1.1	A	4.2	A	A
36	9.87	0.25	2.53	3.89	0.4	0.8	A	3.2	A	A
37	9.88	0.61	6.17	4.00	0.4	1.6	A	6.5	A	A
38	10.1	0.001	0.01	6.32	0.6	0.5	N	2.0	A	W
39	9.2	0.5	5.43	-3.16	0.3	1.4	A	5.8	A	A
40	9.94	0.53	5.33	4.63	0.4	1.5	A	5.7	A	A
41	9.3	0.7	7.53	-2.11	0.2	1.9	A	7.8	A	A
42	8.8	0.4	4.55	-7.37	0.7	1.1	A	5.0	A	A
43	5.72	0.24	4.20	-39.79	3.8	0.8	N	4.6	A	N
44	9.64	0.5	5.19	1.47	0.1	1.4	A	5.6	A	A
45	9.34	0.31	3.32	-1.68	0.2	0.9	A	3.9	A	A
46	9.2	0.5	5.43	-3.16	0.3	1.4	A	5.8	A	A
47	9.87	0.31	3.14	3.89	0.4	0.9	A	3.7	A	A
50	9.33	0.7	7.50	-1.79	0.2	1.9	A	7.8	A	A
51	9.15	0.35	3.83	-3.68	0.4	1.0	A	4.3	A	A
52	8.87	0.63	7.10	-6.63	0.6	1.7	A	7.4	A	A
53	9.2	0.4	4.35	-3.16	0.3	1.1	A	4.8	A	A
54	10.5	0.84	8.00	10.53	1.0	2.2	A	8.2	A	A
55	9.84	0.65	6.61	3.58	0.3	1.7	A	6.9	A	A
56	9.7	0.4	4.12	2.11	0.2	1.1	A	4.6	A	A
57	9.59	0.56	5.84	0.95	0.1	1.5	A	6.2	A	A
58	10.1	0.4	3.96	6.32	0.6	1.1	A	4.4	A	A
59	10	0.2	2.00	5.26	0.5	0.7	A	2.8	A	A
60	9.46	0.19	2.01	-0.42	0.0	0.7	A	2.8	A	A
61	9.66	0.26	2.69	1.68	0.2	0.8	A	3.4	A	A
62	9.38	0.27	2.88	-1.26	0.1	0.9	A	3.5	A	A
63	9.59	0.16	1.67	0.95	0.1	0.6	A	2.6	A	A
64	9.64	0.29	3.09	1.47	0.1	0.9	A	3.7	A	A
65	9.86	0.22	2.23	3.79	0.4	0.7	A	3.0	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
68	10	0.3	3.00	5.26	0.5	0.9	A	3.6	A	A
70	11.3	1.2	10.62	18.95	1.8	3.1	A	10.8	N	N
71	9	0.37	4.11	-5.26	0.5	1.1	A	4.6	A	A
72	8.95	0.13	1.45	-5.79	0.6	0.6	A	2.5	A	A
73	9.7	0.5	5.15	2.11	0.2	1.4	A	5.5	A	A
74	8.4	0.4	4.76	-11.58	1.1	1.1	A	5.2	A	A
75	9.8	0.3	3.06	3.16	0.3	0.9	A	3.7	A	A
76	9.95	0.23	2.31	4.74	0.4	0.8	A	3.1	A	A
77	9.894	0.308	3.11	4.15	0.4	0.9	A	3.7	A	A
78	7.81	0.206	2.64	-17.79	1.7	0.7	N	3.3	A	N
79	10.5	0.6	5.71	10.53	1.0	1.6	A	6.1	A	A
80	9.9	0.4	4.04	4.21	0.4	1.1	A	4.5	A	A
81	9.19	0.44	4.79	-3.26	0.3	1.2	A	5.2	A	A
82	8.89	0.28	3.15	-6.42	0.6	0.9	A	3.7	A	A
83	9.28	0.27	2.91	-2.32	0.2	0.9	A	3.5	A	A
84	10.5	0.4	3.81	10.53	1.0	1.1	A	4.3	A	A
85	7.7	0.3	3.90	-18.95	1.8	0.9	N	4.4	A	N
86	8.3	0.6	7.23	-12.63	1.2	1.6	A	7.5	A	A
87	10.1	0.5	4.95	6.32	0.6	1.4	A	5.3	A	A
88	10.4	0.3	2.88	9.47	0.9	0.9	A	3.5	A	A
89	10	0.18	1.80	5.26	0.5	0.7	A	2.7	A	A
90	9.46	0.45	4.76	-0.42	0.0	1.3	A	5.2	A	A
91	9.5	0.8	8.42	0.00	0.0	2.1	A	8.7	A	A
92	9.21	0.47	5.10	-3.05	0.3	1.3	A	5.5	A	A
93	9.03	0.27	2.99	-4.95	0.5	0.9	A	3.6	A	A
94	9.9	0.6	6.06	4.21	0.4	1.6	A	6.4	A	A
95	9.41	0.66	7.01	-0.95	0.1	1.8	A	7.3	A	A
96	10	0.5	5.00	5.26	0.5	1.4	A	5.4	A	A
97	9.15	0.34	3.72	-3.68	0.4	1.0	A	4.2	A	A
98	8.83	0.8	9.06	-7.05	0.7	2.1	A	9.3	A	A
99	9.63	0.21	2.18	1.37	0.1	0.7	A	3.0	A	A
100	9.59	1.5	15.64	0.95	0.1	3.9	A	15.8	N	W
101	10.2	0.5	4.90	7.37	0.7	1.4	A	5.3	A	A
103	8.051	0.576	7.15	-15.25	1.4	1.6	A	7.4	A	A
105	9.92	0.56	5.65	4.42	0.4	1.5	A	6.0	A	A
106	9.79	0.78	7.97	3.05	0.3	2.1	A	8.2	A	A
107	9.45	1.17	12.38	-0.53	0.1	3.1	A	12.5	N	W
109	9.18	0.76	8.28	-3.37	0.3	2.0	A	8.5	A	A
110	9.55	0.718	7.52	0.53	0.1	1.9	A	7.8	A	A
111	9.46	0.56	5.92	-0.42	0.0	1.5	A	6.2	A	A
112	10.2	0.34	3.33	7.37	0.7	1.0	A	3.9	A	A
113	9.27	0.44	4.75	-2.42	0.2	1.2	A	5.2	A	A
114	10.2	0.6	5.88	7.37	0.7	1.6	A	6.2	A	A
115	10.1	0.9	8.91	6.32	0.6	2.4	A	9.1	A	A
118	9.55	0.29	3.04	0.53	0.1	0.9	A	3.6	A	A
119	9.8	0.63	6.43	3.16	0.3	1.7	A	6.7	A	A
120	10.19	0.34	3.34	7.26	0.7	1.0	A	3.9	A	A
121	22.9	0.65	2.84	141.05	13.4	1.7	N	3.5	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
122	9.72	0.32	3.29	2.32	0.2	1.0	A	3.9	A	A
123	7.96	0.21	2.64	-16.21	1.5	0.7	N	3.3	A	N
124	9.754	0.465	4.77	2.67	0.3	1.3	A	5.2	A	A
125	10.7	0.6	5.61	12.63	1.2	1.6	A	6.0	A	A
126	8.5	0.6	7.06	-10.53	1.0	1.6	A	7.3	A	A
127	9.41	0.5	5.31	-0.95	0.1	1.4	A	5.7	A	A
128	9.6	0.4	4.17	1.05	0.1	1.1	A	4.6	A	A
130	9.59	0.19	1.98	0.95	0.1	0.7	A	2.8	A	A
131	9	0.23	2.56	-5.26	0.5	0.8	A	3.2	A	A
132	9.584	0.248	2.59	0.88	0.1	0.8	A	3.3	A	A
133	9.9	0.3	3.03	4.21	0.4	0.9	A	3.6	A	A
134	9.65	0.21	2.18	1.58	0.2	0.7	A	3.0	A	A
136	10.05	0.29	2.89	5.79	0.6	0.9	A	3.5	A	A
137	18.14	1.31	7.22	90.95	8.6	3.4	N	7.5	A	N
138	9.91	0.56	5.65	4.32	0.4	1.5	A	6.0	A	A
139	9.55	0.38	3.98	0.53	0.1	1.1	A	4.5	A	A
140	11.5	0.52	4.52	21.05	2.0	1.4	N	4.9	A	N
141	13.07	0.85	6.50	37.58	3.6	2.2	N	6.8	A	N
142	9.14	0.004	0.05	-3.79	0.4	0.5	A	2.0	A	A
143	5.42	0.42	7.75	-42.95	4.1	1.2	N	8.0	A	N
144	5.64	0.5	8.87	-40.63	3.9	1.4	N	9.1	A	N
145	10.8	0.39	3.61	13.68	1.3	1.1	N	4.1	A	N
146	8.27	0.42	5.08	-12.95	1.2	1.2	N	5.5	A	N
150	6.19	0.4	6.46	-34.84	3.3	1.1	N	6.8	A	N
151	4.73	0.27	5.71	-50.21	4.8	0.9	N	6.0	A	N
152	4.7	0.3	6.38	-50.53	4.8	0.9	N	6.7	A	N
153	10.259	0.701	6.83	7.99	0.8	1.9	A	7.1	A	A
154	10.3	0.6	5.83	8.42	0.8	1.6	A	6.2	A	A
157	8.9	0.3	3.37	-6.32	0.6	0.9	A	3.9	A	A
158	9.47	0.54	5.70	-0.32	0.0	1.5	A	6.0	A	A
159	9.29	0.18	1.94	-2.21	0.2	0.7	A	2.8	A	A
160	12.19	0.74	6.07	28.32	2.7	2.0	N	6.4	A	N
161	9.25	0.62	6.70	-2.63	0.3	1.7	A	7.0	A	A
162	10.09	0.51	5.05	6.21	0.6	1.4	A	5.4	A	A
163	9.38	0.43	4.58	-1.26	0.1	1.2	A	5.0	A	A
164	9.11	0.42	4.61	-4.11	0.4	1.2	A	5.0	A	A
165	9.46	0.47	4.97	-0.42	0.0	1.3	A	5.4	A	A
166	10.29	0.55	5.34	8.32	0.8	1.5	A	5.7	A	A
167	7.94	0.48	6.05	-16.42	1.6	1.3	N	6.4	A	N
168	9.43	0.19	2.01	-0.74	0.1	0.7	A	2.8	A	A
169	9.72	0.25	2.57	2.32	0.2	0.8	A	3.3	A	A
170	9.7	0.4	4.12	2.11	0.2	1.1	A	4.6	A	A
171	10.04	0.53	5.28	5.68	0.5	1.5	A	5.6	A	A
172	9.5	0.5	5.26	0.00	0.0	1.4	A	5.6	A	A
173	9.12	0.24	2.63	-4.00	0.4	0.8	A	3.3	A	A
174	9.64	0.36	3.73	1.47	0.1	1.1	A	4.2	A	A
175	9.49	0.47	4.95	-0.11	0.0	1.3	A	5.3	A	A
176	9.45	0.23	2.43	-0.53	0.1	0.8	A	3.2	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
177	9.37	0.23	2.45	-1.37	0.1	0.8	A	3.2	A	A
178	9.92	0.382	3.85	4.42	0.4	1.1	A	4.3	A	A
179	8.57	0.75	8.75	-9.79	0.9	2.0	A	9.0	A	A
181	9.82	0.12	1.22	3.37	0.3	0.6	A	2.3	A	A
182	10.92	0.45	4.12	14.95	1.4	1.3	N	4.6	A	N
183	8.85	0.34	3.84	-6.84	0.7	1.0	A	4.3	A	A
184	9.2	0.13	1.41	-3.16	0.3	0.6	A	2.4	A	A
185	9.54	0.57	5.97	0.42	0.0	1.6	A	6.3	A	A
186	9.66	0.36	3.73	1.68	0.2	1.1	A	4.2	A	A
187	9	0.6	6.67	-5.26	0.5	1.6	A	7.0	A	A
188	9.35	0.47	5.03	-1.58	0.2	1.3	A	5.4	A	A
190	8.94	1.23	13.76	-5.89	0.6	3.2	A	13.9	N	W
191	9.18	0.29	3.16	-3.37	0.3	0.9	A	3.7	A	A
192	9.8	0.3	3.06	3.16	0.3	0.9	A	3.7	A	A
193	9.3	0.5	5.38	-2.11	0.2	1.4	A	5.7	A	A
194	9.9	0.4	4.04	4.21	0.4	1.1	A	4.5	A	A
195	10.03	0.4	3.99	5.58	0.5	1.1	A	4.5	A	A
197	18.9	0.07	0.37	98.95	9.4	0.5	N	2.0	A	N
199	9.1	0.5	5.49	-4.21	0.4	1.4	A	5.8	A	A
200	9.29	0.38	4.09	-2.21	0.2	1.1	A	4.6	A	A
201	10.25	0.22	2.15	7.89	0.8	0.7	N	2.9	A	W
202	5.848	1.7	29.07	-38.44	3.7	4.4	A	29.1	N	N
203	48.12	1.42	2.95	406.53	38.6	3.7	N	3.6	A	N
204	7.3	0.6	8.22	-23.16	2.2	1.6	N	8.5	A	N
205	8.64	0.57	6.60	-9.05	0.9	1.6	A	6.9	A	A
206	2.97	0.12	4.04	-68.74	6.5	0.6	N	4.5	A	N
207	10.85	0.43	3.96	14.21	1.4	1.2	N	4.4	A	N
208	9.2	0.9	9.78	-3.16	0.3	2.4	A	10.0	A	A
209	10.72	0.45	4.20	12.84	1.2	1.3	A	4.6	A	A
210	9.5	0.16	1.68	0.00	0.0	0.6	A	2.6	A	A
211	9.61	0.3	3.12	1.16	0.1	0.9	A	3.7	A	A
212	10.07	0.32	3.18	6.00	0.6	1.0	A	3.8	A	A
213	9.19	0.29	3.16	-3.26	0.3	0.9	A	3.7	A	A
214	9.43	0.3	3.18	-0.74	0.1	0.9	A	3.8	A	A
215	9.27	0.36	3.88	-2.42	0.2	1.1	A	4.4	A	A
216	9.44	0.39	4.13	-0.63	0.1	1.1	A	4.6	A	A
217	9.34	0.39	4.18	-1.68	0.2	1.1	A	4.6	A	A
218	9.616	0.245	2.55	1.22	0.1	0.8	A	3.2	A	A
219	8.25	0.28	3.39	-13.16	1.3	0.9	N	3.9	A	N
220	9.58	0.37	3.86	0.84	0.1	1.1	A	4.3	A	A
221	9.8	0.5	5.10	3.16	0.3	1.4	A	5.5	A	A
223	6.94	0.88	12.68	-26.95	2.6	2.3	N	12.8	N	N
224	10.14	0.8	7.89	6.74	0.6	2.1	A	8.1	A	A
225	156	40	25.64	1542.11	146.5	103.2	N	25.7	N	N
226	10.4	0.5	4.81	9.47	0.9	1.4	A	5.2	A	A
227	9.01	0.28	3.11	-5.16	0.5	0.9	A	3.7	A	A
230	15.12	1.65	10.91	59.16	5.6	4.3	N	11.1	N	N
232	8.6	0.26	3.02	-9.47	0.9	0.8	N	3.6	A	W

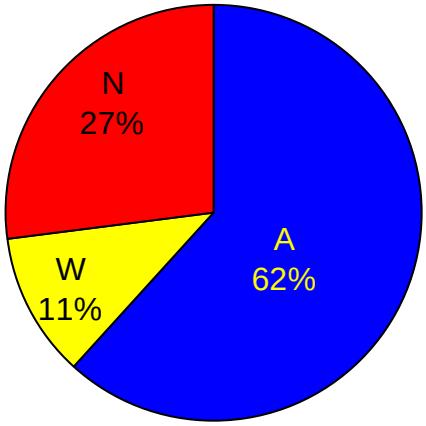
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
233	9.65	0.83	8.60	1.58	0.2	2.2	A	8.8	A	A
234	9.62	0.576	5.99	1.26	0.1	1.6	A	6.3	A	A
235	11.87	1.14	9.60	24.95	2.4	3.0	A	9.8	A	A
236	9.46	0.88	9.30	-0.42	0.0	2.3	A	9.5	A	A
237	9.6	0.5	5.21	1.05	0.1	1.4	A	5.6	A	A
238	9.23	0.2	2.17	-2.84	0.3	0.7	A	2.9	A	A
239	9.21	0.32	3.47	-3.05	0.3	1.0	A	4.0	A	A
240	10	0.7	7.00	5.26	0.5	1.9	A	7.3	A	A
241	9.6	0.9	9.38	1.05	0.1	2.4	A	9.6	A	A
242	9.49	0.2	2.11	-0.11	0.0	0.7	A	2.9	A	A
243	10.04	0.5358	5.34	5.68	0.5	1.5	A	5.7	A	A
244	8.93	0.323	3.62	-6.00	0.6	1.0	A	4.1	A	A
245	9.44	0.17	1.80	-0.63	0.1	0.7	A	2.7	A	A
246	8.59	0.25	2.91	-9.58	0.9	0.8	N	3.5	A	W
249	8.82	0.32	3.63	-7.16	0.7	1.0	A	4.1	A	A
250	9.06	0.29	3.20	-4.63	0.4	0.9	A	3.8	A	A
251	9.65	0.71	7.36	1.58	0.2	1.9	A	7.6	A	A
252	9.9	0.3	3.03	4.21	0.4	0.9	A	3.6	A	A
253	10	0.4	4.00	5.26	0.5	1.1	A	4.5	A	A
254	9.25	0.3	3.24	-2.63	0.3	0.9	A	3.8	A	A
255	9.63	0.1	1.04	1.37	0.1	0.6	A	2.3	A	A
256	9.03	0.68	7.53	-4.95	0.5	1.8	A	7.8	A	A
257	9.43	0.52	5.51	-0.74	0.1	1.4	A	5.9	A	A
258	9.78	0.5	5.11	2.95	0.3	1.4	A	5.5	A	A
259	9.33	0.13	1.39	-1.79	0.2	0.6	A	2.4	A	A
261	10.4	0.7	6.73	9.47	0.9	1.9	A	7.0	A	A
263	9.3	0.72	7.74	-2.11	0.2	1.9	A	8.0	A	A
264	8.84	0.278	3.14	-6.95	0.7	0.9	A	3.7	A	A
265	9.72	0.113	1.16	2.32	0.2	0.6	A	2.3	A	A
267	8.9	0.59	6.63	-6.32	0.6	1.6	A	6.9	A	A
268	9.49	0.61	6.43	-0.11	0.0	1.6	A	6.7	A	A
269	9.4	0.7	7.45	-1.05	0.1	1.9	A	7.7	A	A
270	9.16	0.35	3.82	-3.58	0.3	1.0	A	4.3	A	A
271	9.26	0.25	2.70	-2.53	0.2	0.8	A	3.4	A	A
272	9.91	0.27	2.72	4.32	0.4	0.9	A	3.4	A	A
273	5	0.7	14.00	-47.37	4.5	1.9	N	14.1	N	N
274	9.32	0.26	2.79	-1.89	0.2	0.8	A	3.4	A	A
275	9.56	0.27	2.82	0.63	0.1	0.9	A	3.5	A	A
276	9.6	1.3	13.54	1.05	0.1	3.4	A	13.7	N	W
278	8.88	0.82	9.23	-6.53	0.6	2.2	A	9.4	A	A
279	9.83	0.23	2.34	3.47	0.3	0.8	A	3.1	A	A
283	8.88	0.21	2.36	-6.53	0.6	0.7	A	3.1	A	A
284	9.96	0.73	7.33	4.84	0.5	1.9	A	7.6	A	A
285	9.75	0.68	7.02	1.89	0.2	1.8	A	7.3	A	A
288	9.7	0.2	2.06	2.11	0.2	0.7	A	2.9	A	A
289	9.88	0.26	2.63	4.00	0.4	0.8	A	3.3	A	A
290	9.2	0.5	5.43	-3.16	0.3	1.4	A	5.8	A	A
292	8.5	0.5	5.88	-10.53	1.0	1.4	A	6.2	A	A

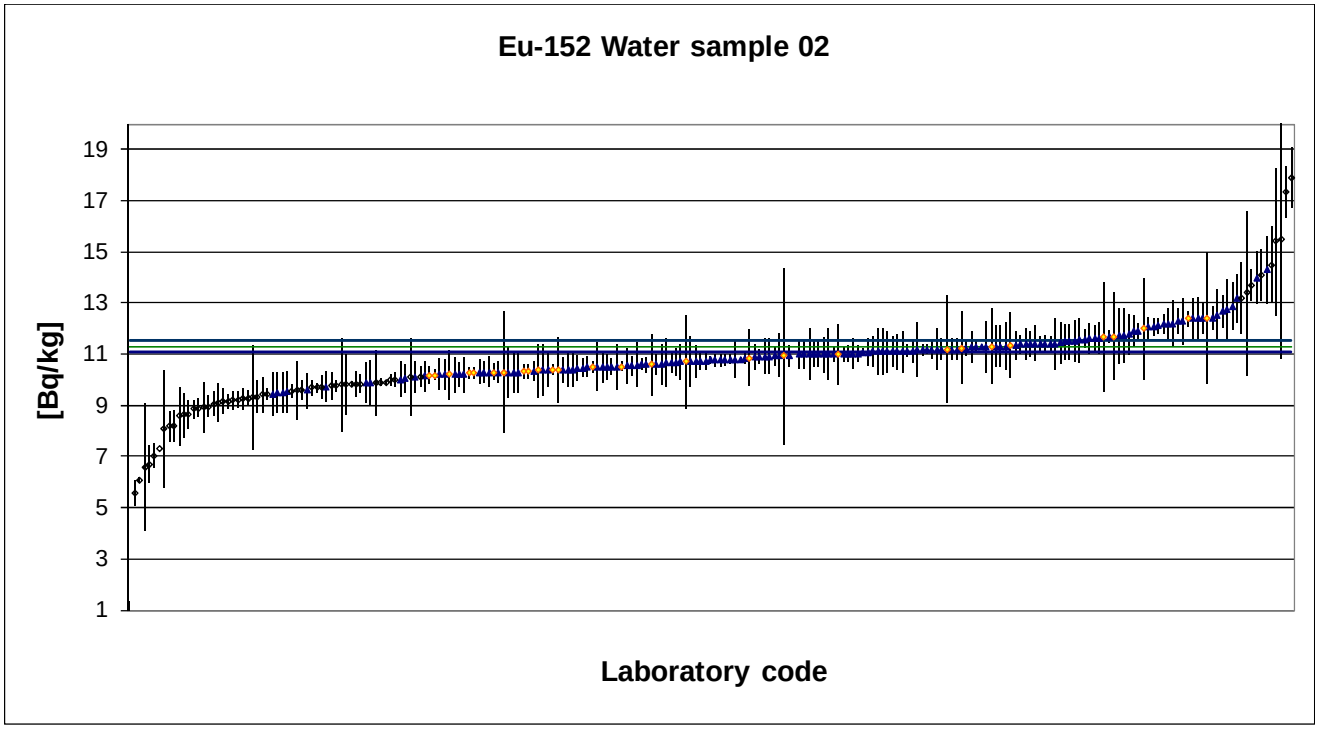
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
293	8.5	0.5	5.88	-10.53	1.0	1.4	A	6.2	A	A
294	10.4	0.3	2.88	9.47	0.9	0.9	A	3.5	A	A
295	9.77	0.23	2.35	2.84	0.3	0.8	A	3.1	A	A
296	9.5	0.3	3.16	0.00	0.0	0.9	A	3.7	A	A
297	9.37	0.48	5.12	-1.37	0.1	1.3	A	5.5	A	A
298	10.213	0.1813	1.78	7.51	0.7	0.7	N	2.7	A	W
299	9.8	1.4	14.29	3.16	0.3	3.6	A	14.4	N	W
300	9.48	0.76	8.02	-0.21	0.0	2.0	A	8.3	A	A

Performance evaluation of Eu-152 measurement results

Spiked water sample 02

Target Value: 11.3 ± 0.23 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	10.86	1.07	9.85	-3.89	0.4	2.8	A	10.1	N	W
3	11	1	9.09	-2.65	0.3	2.6	A	9.3	A	A
4	11.5	0.7	6.09	1.77	0.2	1.9	A	6.4	A	A
5	9.71	0.44	4.53	-14.07	1.6	1.3	N	5.0	A	N
6	9.6	0.38	3.96	-15.04	1.7	1.1	N	4.4	A	N
7	10.73	0.33	3.08	-5.04	0.6	1.0	A	3.7	A	A
9	11.4	0.6	5.26	0.88	0.1	1.7	A	5.6	A	A
11	11.1	0.6	5.41	-1.77	0.2	1.7	A	5.8	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
12	13.7	0.6	4.38	21.24	2.4	1.7	N	4.8	A	N
13	9.21	0.36	3.91	-18.50	2.1	1.1	N	4.4	A	N
14	14.3	1.32	9.23	26.55	3.0	3.5	A	9.4	A	A
15	10.94	3.45	31.54	-3.19	0.4	8.9	A	31.6	N	W
16	11.2	0.2	1.79	-0.88	0.1	0.8	A	2.7	A	A
17	11.4	0.5	4.39	0.88	0.1	1.4	A	4.8	A	A
18	11.19	0.22	1.97	-0.97	0.1	0.8	A	2.8	A	A
19	11.067	0.143	1.29	-2.06	0.2	0.7	A	2.4	A	A
20	11.25	0.3	2.67	-0.44	0.1	1.0	A	3.3	A	A
21	11.33	1.3	11.47	0.27	0.0	3.4	A	11.6	N	W
22	10.76	0.13	1.21	-4.78	0.5	0.7	A	2.3	A	A
23	11.2	0.39	3.48	-0.88	0.1	1.2	A	4.0	A	A
24	11.3	0.2	1.77	0.00	0.0	0.8	A	2.7	A	A
25	0.97	0.42	43.30	-91.42	10.3	1.2	N	43.3	N	N
26	10.55	0.7	6.64	-6.64	0.8	1.9	A	6.9	A	A
27	11.16	1.079	9.67	-1.24	0.1	2.8	A	9.9	A	A
29	9.9	0.9	9.09	-12.39	1.4	2.4	A	9.3	A	A
30	10.7	0.7	6.54	-5.31	0.6	1.9	A	6.8	A	A
31	8.1	2.3	28.40	-28.32	3.2	6.0	A	28.5	N	N
32	10.3	0.5	4.85	-8.85	1.0	1.4	A	5.3	A	A
34	9.99	0.27	2.70	-11.59	1.3	0.9	N	3.4	A	N
35	11.2	0.81	7.23	-0.88	0.1	2.2	A	7.5	A	A
36	10.8	0.2	1.85	-4.42	0.5	0.8	A	2.7	A	A
37	8.64	0.56	6.48	-23.54	2.7	1.6	N	6.8	A	N
38	11.3	0.0024	0.02	0.00	0.0	0.6	A	2.0	A	A
39	10.3	0.4	3.88	-8.85	1.0	1.2	A	4.4	A	A
40	11.52	0.81	7.03	1.95	0.2	2.2	A	7.3	A	A
41	11.1	0.9	8.11	-1.77	0.2	2.4	A	8.4	A	A
42	11.1	0.9	8.11	-1.77	0.2	2.4	A	8.4	A	A
43	6.09	0.11	1.81	-46.11	5.2	0.6	N	2.7	A	N
44	9.47	0.78	8.24	-16.19	1.8	2.1	A	8.5	A	A
45	11.62	0.6	5.16	2.83	0.3	1.7	A	5.5	A	A
46	8.9	0.36	4.04	-21.24	2.4	1.1	N	4.5	A	N
47	11.37	0.38	3.34	0.62	0.1	1.1	A	3.9	A	A
50	10.36	1.04	10.04	-8.32	0.9	2.7	A	10.2	N	W
51	14.1	1	7.09	24.78	2.8	2.6	N	7.4	A	N
52	8.91	0.97	10.89	-21.15	2.4	2.6	A	11.1	N	N
53	10.3	0.6	5.83	-8.85	1.0	1.7	A	6.2	A	A
54	11.74	1.06	9.03	3.89	0.4	2.8	A	9.2	A	A
55	11.28	0.62	5.50	-0.18	0.0	1.7	A	5.8	A	A
56	11.4	0.7	6.14	0.88	0.1	1.9	A	6.5	A	A
57	11.5	0.7	6.09	1.77	0.2	1.9	A	6.4	A	A
58	11.6	0.6	5.17	2.65	0.3	1.7	A	5.5	A	A
59	10.3	0.3	2.91	-8.85	1.0	1.0	N	3.5	A	W
60	10.5	0.2	1.90	-7.08	0.8	0.8	N	2.8	A	W
61	10.78	0.22	2.04	-4.60	0.5	0.8	A	2.9	A	A
62	11.4	0.28	2.46	0.88	0.1	0.9	A	3.2	A	A
63	11.59	0.34	2.93	2.57	0.3	1.1	A	3.6	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
64	11.7	2.13	18.21	3.54	0.4	5.5	A	18.3	N	W
65	11.92	0.31	2.60	5.49	0.6	1.0	A	3.3	A	A
68	11.2	0.4	3.57	-0.88	0.1	1.2	A	4.1	A	A
70	11.2	2.1	18.75	-0.88	0.1	5.4	A	18.9	N	W
71	9.41	0.69	7.33	-16.73	1.9	1.9	N	7.6	A	N
72	9.82	0.11	1.12	-13.10	1.5	0.6	N	2.3	A	N
73	12.4	0.8	6.45	9.73	1.1	2.1	A	6.8	A	A
75	26.8	0.8	2.99	137.17	15.5	2.1	N	3.6	A	N
76	10.69	0.55	5.14	-5.40	0.6	1.5	A	5.5	A	A
77	12.74	1.18	9.26	12.74	1.4	3.1	A	9.5	A	A
78	9.56	0.242	2.53	-15.40	1.7	0.9	N	3.2	A	N
79	6.6	2.5	37.88	-41.59	4.7	6.5	A	37.9	N	N
80	10	0.7	7.00	-11.50	1.3	1.9	A	7.3	A	A
81	9.72	0.59	6.07	-13.98	1.6	1.6	A	6.4	A	A
82	9.06	0.47	5.19	-19.82	2.2	1.3	N	5.6	A	N
84	12.3	0.5	4.07	8.85	1.0	1.4	A	4.5	A	A
86	10.7	1.8	16.82	-5.31	0.6	4.7	A	16.9	N	W
87	11.3	1	8.85	0.00	0.0	2.6	A	9.1	A	A
88	14.5	1.5	10.34	28.32	3.2	3.9	A	10.5	N	N
89	10.6	0.23	2.17	-6.19	0.7	0.8	A	3.0	A	A
90	9.45	0.83	8.78	-16.37	1.9	2.2	A	9.0	A	A
91	10.4	1	9.62	-7.96	0.9	2.6	A	9.8	A	A
92	11.02	0.6	5.44	-2.48	0.3	1.7	A	5.8	A	A
93	9.7	0.3	3.09	-14.16	1.6	1.0	N	3.7	A	N
94	12	2	16.67	6.19	0.7	5.2	A	16.8	N	W
95	10.8	0.77	7.13	-4.42	0.5	2.1	A	7.4	A	A
96	11.1	0.8	7.21	-1.77	0.2	2.1	A	7.5	A	A
97	10.85	0.25	2.30	-3.98	0.5	0.9	A	3.1	A	A
98	9.47	0.78	8.24	-16.19	1.8	2.1	A	8.5	A	A
99	10.93	0.37	3.39	-3.27	0.4	1.1	A	3.9	A	A
100	9.8	1.81	18.47	-13.27	1.5	4.7	A	18.6	N	N
101	11.1	0.6	5.41	-1.77	0.2	1.7	A	5.8	A	A
103	10.94	0.416	3.80	-3.19	0.4	1.2	A	4.3	A	A
105	27.88	1.45	5.20	146.73	16.6	3.8	N	5.6	A	N
106	9.11	0.76	8.34	-19.38	2.2	2.0	N	8.6	A	N
107	15.42	2.89	18.74	36.46	4.1	7.5	A	18.8	N	N
109	10.5	0.95	9.05	-7.08	0.8	2.5	A	9.3	A	A
110	14	1.05	7.50	23.89	2.7	2.8	A	7.8	A	A
111	10.93	0.84	7.69	-3.27	0.4	2.2	A	7.9	A	A
112	11	0.5	4.55	-2.65	0.3	1.4	A	5.0	A	A
113	17.34	1	5.77	53.45	6.0	2.6	N	6.1	A	N
114	12.3	0.9	7.32	8.85	1.0	2.4	A	7.6	A	A
115	26	1.7	6.54	130.09	14.7	4.4	N	6.8	A	N
118	11.2	0.41	3.66	-0.88	0.1	1.2	A	4.2	A	A
119	12.4	0.82	6.61	9.73	1.1	2.2	A	6.9	A	A
120	11	0.5	4.55	-2.65	0.3	1.4	A	5.0	A	A
121	13.39	3.21	23.97	18.50	2.1	8.3	A	24.1	N	N
122	10.75	0.35	3.26	-4.87	0.6	1.1	A	3.8	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
123	9.75	0.55	5.64	-13.72	1.6	1.5	N	6.0	A	N
124	11.08	0.54	4.87	-1.95	0.2	1.5	A	5.3	A	A
125	10.4	0.7	6.73	-7.96	0.9	1.9	A	7.0	A	A
126	9.9	1.3	13.13	-12.39	1.4	3.4	A	13.3	N	N
127	10.2	0.61	5.98	-9.73	1.1	1.7	A	6.3	A	A
128	10.5	0.6	5.71	-7.08	0.8	1.7	A	6.1	A	A
130	10.2	0.6	5.88	-9.73	1.1	1.7	A	6.2	A	A
131	10.17	0.33	3.24	-10.00	1.1	1.0	N	3.8	A	W
132	10.32	0.292	2.83	-8.67	1.0	1.0	N	3.5	A	W
133	11.6	0.5	4.31	2.65	0.3	1.4	A	4.8	A	A
134	11.4	0.33	2.89	0.88	0.1	1.0	A	3.5	A	A
136	79.87	1.98	2.48	606.81	68.6	5.1	N	3.2	A	N
138	9.81	1.17	11.93	-13.19	1.5	3.1	A	12.1	N	N
139	9.78	0.23	2.35	-13.45	1.5	0.8	N	3.1	A	N
140	12.2	0.39	3.20	7.96	0.9	1.2	A	3.8	A	A
141	13.19	0.93	7.05	16.73	1.9	2.5	A	7.3	A	A
142	7.31	0.0016	0.02	-35.31	4.0	0.6	N	2.0	A	N
143	9.58	1.17	12.21	-15.22	1.7	3.1	A	12.4	N	N
144	9.31	2.04	21.91	-17.61	2.0	5.3	A	22.0	N	N
145	8.59	1.15	13.39	-23.98	2.7	3.0	A	13.5	N	N
146	8.95	0.43	4.80	-20.80	2.4	1.3	N	5.2	A	N
150	5.58	0.49	8.78	-50.62	5.7	1.4	N	9.0	A	N
151	8.18	0.61	7.46	-27.61	3.1	1.7	N	7.7	A	N
152	8.2	0.6	7.32	-27.43	3.1	1.7	N	7.6	A	N
153	9.899	0.785	7.93	-12.40	1.4	2.1	A	8.2	A	A
154	11	0.7	6.36	-2.65	0.3	1.9	A	6.7	A	A
157	10.5	0.5	4.76	-7.08	0.8	1.4	A	5.2	A	A
158	10.05	0.58	5.77	-11.06	1.3	1.6	A	6.1	A	A
159	10.4	0.2	1.92	-7.96	0.9	0.8	N	2.8	A	W
160	13.2	1.4	10.61	16.81	1.9	3.7	A	10.8	N	N
161	10.66	0.96	9.01	-5.66	0.6	2.5	A	9.2	A	A
162	10.48	0.4	3.82	-7.26	0.8	1.2	A	4.3	A	A
163	12.4	0.62	5.00	9.73	1.1	1.7	A	5.4	A	A
164	10.98	0.55	5.01	-2.83	0.3	1.5	A	5.4	A	A
165	10.9	0.3	2.75	-3.54	0.4	1.0	A	3.4	A	A
166	10.71	0.64	5.98	-5.22	0.6	1.8	A	6.3	A	A
167	7.05	0.46	6.52	-37.61	4.3	1.3	N	6.8	A	N
168	10.18	0.18	1.77	-9.91	1.1	0.7	N	2.7	A	W
169	10.76	0.25	2.32	-4.78	0.5	0.9	A	3.1	A	A
170	11	1	9.09	-2.65	0.3	2.6	A	9.3	A	A
171	12.38	0.32	2.58	9.56	1.1	1.0	N	3.3	A	W
172	11.1	0.7	6.31	-1.77	0.2	1.9	A	6.6	A	A
173	10.51	0.19	1.81	-6.99	0.8	0.8	N	2.7	A	W
174	12.05	0.43	3.57	6.64	0.8	1.3	A	4.1	A	A
175	11.9	0.61	5.13	5.31	0.6	1.7	A	5.5	A	A
177	12.2	0.6	4.92	7.96	0.9	1.7	A	5.3	A	A
178	12.42	0.445	3.58	9.91	1.1	1.3	A	4.1	A	A
179	9.29	0.3	3.23	-17.79	2.0	1.0	N	3.8	A	N

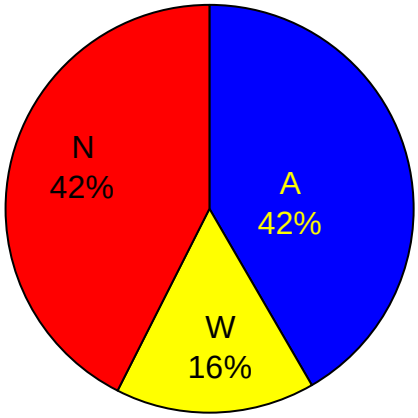
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
181	12.06	0.33	2.74	6.73	0.8	1.0	A	3.4	A	A
182	12.66	0.62	4.90	12.04	1.4	1.7	A	5.3	A	A
183	9.83	0.5	5.09	-13.01	1.5	1.4	N	5.5	A	N
184	11.45	0.81	7.07	1.33	0.1	2.2	A	7.4	A	A
185	10.58	0.85	8.03	-6.37	0.7	2.3	A	8.3	A	A
186	11.2	0.41	3.66	-0.88	0.1	1.2	A	4.2	A	A
187	10.1	1.5	14.85	-10.62	1.2	3.9	A	15.0	N	N
188	10.2	1	9.80	-9.73	1.1	2.6	A	10.0	N	W
190	11.23	1.43	12.73	-0.62	0.1	3.7	A	12.9	N	W
191	10.98	0.53	4.83	-2.83	0.3	1.5	A	5.2	A	A
192	11.1	0.8	7.21	-1.77	0.2	2.1	A	7.5	A	A
193	12.1	0.3	2.48	7.08	0.8	1.0	A	3.2	A	A
194	10.6	0.3	2.83	-6.19	0.7	1.0	A	3.5	A	A
195	10.3	0.4	3.88	-8.85	1.0	1.2	A	4.4	A	A
197	25.1	1.84	7.33	122.12	13.8	4.8	N	7.6	A	N
199	10.4	1.3	12.50	-7.96	0.9	3.4	A	12.7	N	W
200	10.56	0.41	3.88	-6.55	0.7	1.2	A	4.4	A	A
201	10.32	0.27	2.62	-8.67	1.0	0.9	N	3.3	A	W
202	8.624	0.883	10.24	-23.68	2.7	2.4	N	10.4	N	N
207	12.4	2.6	20.97	9.73	1.1	6.7	A	21.1	N	W
208	11.3	1.5	13.27	0.00	0.0	3.9	A	13.4	N	W
209	17.91	1.19	6.64	58.50	6.6	3.1	N	6.9	A	N
210	9.9	0.15	1.52	-12.39	1.4	0.7	N	2.5	A	N
211	11.34	0.57	5.03	0.35	0.0	1.6	A	5.4	A	A
212	10.5	0.35	3.33	-7.08	0.8	1.1	A	3.9	A	A
213	11.54	0.88	7.63	2.12	0.2	2.3	A	7.9	A	A
214	10.47	0.36	3.44	-7.35	0.8	1.1	A	4.0	A	A
215	10.68	0.42	3.93	-5.49	0.6	1.2	A	4.4	A	A
216	10.3	2.4	23.30	-8.85	1.0	6.2	A	23.4	N	W
217	9.18	0.28	3.05	-18.76	2.1	0.9	N	3.6	A	N
218	9.412	0.226	2.40	-16.71	1.9	0.8	N	3.1	A	N
219	10.4	0.5	4.81	-7.96	0.9	1.4	A	5.2	A	A
220	9.26	0.42	4.54	-18.05	2.0	1.2	N	5.0	A	N
221	9.14	0.5	5.47	-19.12	2.2	1.4	N	5.8	A	N
223	6.69	0.71	10.61	-40.80	4.6	1.9	N	10.8	N	N
224	12.86	0.93	7.23	13.81	1.6	2.5	A	7.5	A	A
225	1764	210	11.90	15510.6	1752.7	541.8	N	12.1	N	N
226	24	1	4.17	112.39	12.7	2.6	N	4.6	A	N
227	10.33	0.39	3.78	-8.58	1.0	1.2	A	4.3	A	A
230	36.8	3.45	9.38	225.66	25.5	8.9	N	9.6	A	N
232	10.3	1	9.71	-8.85	1.0	2.6	A	9.9	A	A
233	9.52	0.8	8.40	-15.75	1.8	2.1	A	8.6	A	A
235	15.47	4.64	29.99	36.90	4.2	12.0	A	30.1	N	N
236	10.6	1.2	11.32	-6.19	0.7	3.2	A	11.5	N	W
237	10.1	0.6	5.94	-10.62	1.2	1.7	A	6.3	A	A
238	10.77	0.25	2.32	-4.69	0.5	0.9	A	3.1	A	A
239	8.86	0.37	4.18	-21.59	2.4	1.1	N	4.6	A	N
240	10.9	0.7	6.42	-3.54	0.4	1.9	A	6.7	A	A

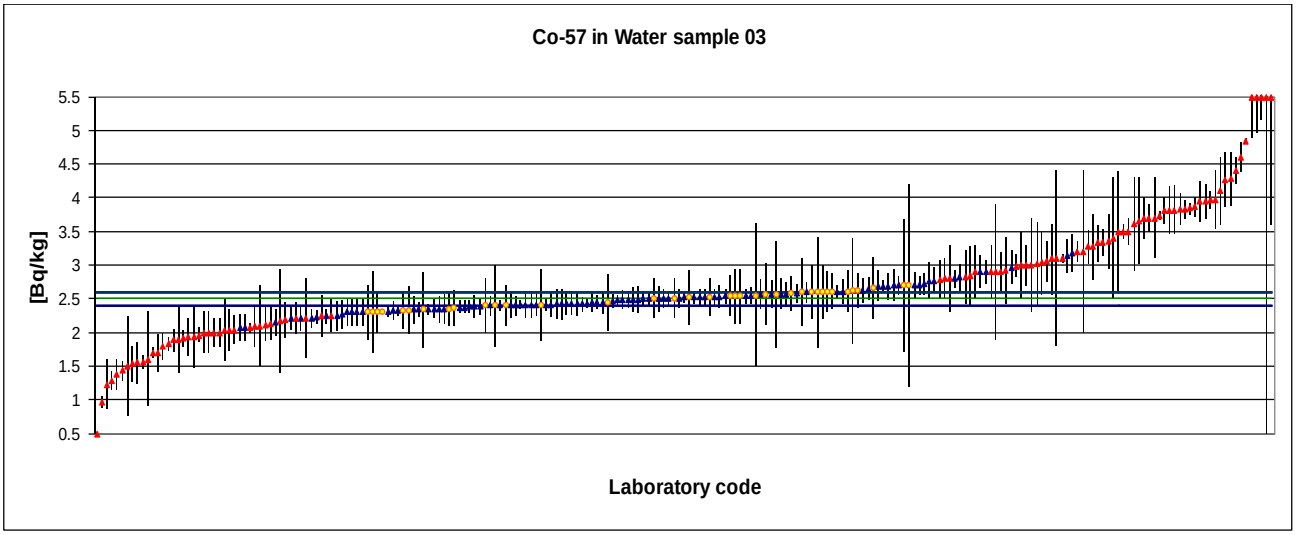
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
241	10.5	0.9	8.57	-7.08	0.8	2.4	A	8.8	A	A
242	11.13	0.25	2.25	-1.50	0.2	0.9	A	3.0	A	A
243	10.94	0.595	5.44	-3.19	0.4	1.6	A	5.8	A	A
244	10.1	0.38	3.76	-10.62	1.2	1.1	N	4.3	A	N
245	9.7	0.2	2.06	-14.16	1.6	0.8	N	2.9	A	N
246	9.2	0.36	3.91	-18.58	2.1	1.1	N	4.4	A	N
249	9.84	0.37	3.76	-12.92	1.5	1.1	N	4.3	A	N
250	11.01	0.31	2.82	-2.57	0.3	1.0	A	3.5	A	A
251	11.31	0.91	8.05	0.09	0.0	2.4	A	8.3	A	A
252	10.6	0.4	3.77	-6.19	0.7	1.2	A	4.3	A	A
253	11.3	0.8	7.08	0.00	0.0	2.1	A	7.4	A	A
254	10.89	0.49	4.50	-3.63	0.4	1.4	A	4.9	A	A
255	10.9	0.7	6.42	-3.54	0.4	1.9	A	6.7	A	A
256	12.2	0.9	7.38	7.96	0.9	2.4	A	7.6	A	A
258	10.2	0.69	6.76	-9.73	1.1	1.9	A	7.1	A	A
259	10.28	0.21	2.04	-9.03	1.0	0.8	N	2.9	A	W
261	12.5	1	8.00	10.62	1.2	2.6	A	8.2	A	A
264	10.2	0.46	4.51	-9.73	1.1	1.3	A	4.9	A	A
265	11.7	0.25	2.14	3.54	0.4	0.9	A	2.9	A	A
267	11.72	1.1	9.39	3.72	0.4	2.9	A	9.6	A	A
268	10.44	0.52	4.98	-7.61	0.9	1.5	A	5.4	A	A
269	11.7	1.7	14.53	3.54	0.4	4.4	A	14.7	N	W
270	9.35	0.65	6.95	-17.26	2.0	1.8	N	7.2	A	N
271	10.28	0.21	2.04	-9.03	1.0	0.8	N	2.9	A	W
272	11	0.26	2.36	-2.65	0.3	0.9	A	3.1	A	A
273	9.9	0.1	1.01	-12.39	1.4	0.6	N	2.2	A	N
274	10.6	0.8	7.55	-6.19	0.7	2.1	A	7.8	A	A
275	10.15	0.58	5.71	-10.18	1.2	1.6	A	6.1	A	A
276	10.7	1	9.35	-5.31	0.6	2.6	A	9.6	A	A
278	11	1.2	10.91	-2.65	0.3	3.2	A	11.1	N	W
279	9.98	0.22	2.20	-11.68	1.3	0.8	N	3.0	A	N
284	11.3	0.81	7.17	0.00	0.0	2.2	A	7.4	A	A
285	10.4	0.8	7.77	-8.85	1.0	2.1	A	8.0	A	A
288	11	0.3	2.73	-2.65	0.3	1.0	A	3.4	A	A
289	11.8	0.8	6.78	4.42	0.5	2.1	A	7.1	A	A
290	9.6	0.7	7.29	-15.04	1.7	1.9	A	7.6	A	A
292	10.4	0.7	6.73	-7.96	0.9	1.9	A	7.0	A	A
293	10.4	0.7	6.73	-7.96	0.9	1.9	A	7.0	A	A
294	11.4	0.3	2.63	0.88	0.1	1.0	A	3.3	A	A
295	11.14	0.45	4.04	-1.42	0.2	1.3	A	4.5	A	A
296	10.2	0.7	6.86	-9.73	1.1	1.9	A	7.1	A	A
297	11.4	1	8.77	0.88	0.1	2.6	A	9.0	A	A
298	11.03	0.283	2.57	-2.39	0.3	0.9	A	3.3	A	A
299	10.8	-	0.00	-4.42	0.5	0.6	A	2.0	A	A
300	10.3	0.8	7.77	-8.85	1.0	2.1	A	8.0	A	A

Performance evaluation of Co-57 measurement results

Spiked water sample 03

Target Value: 2.5 ± 0.05 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	2.97	0.24	8.08	18.80	0.5	0.6	A	8.3	A	A
3	2.4	0.4	16.67	-4.00	0.1	1.0	A	16.8	N	W
4	2.04	0.31	15.20	-18.40	0.5	0.8	A	15.3	N	N
5	7.21	0.54	7.49	188.40	4.7	1.4	N	7.8	A	N
6	2.36	0.26	11.02	-5.60	0.1	0.7	A	11.2	N	W
7	2.07	0.2	9.66	-17.20	0.4	0.5	A	9.9	A	A
9	2.21	0.23	10.41	-11.60	0.3	0.6	A	10.6	N	N
11	2.9	0.4	13.79	16.00	0.4	1.0	A	13.9	N	N
12	3.5	0.9	25.71	40.00	1.0	2.3	A	25.8	N	N
13	1.69	0.08	4.73	-32.40	0.8	0.2	N	5.1	A	N
14	2.32	0.14	6.03	-7.20	0.2	0.4	A	6.4	A	A
16	2.32	0.07	3.02	-7.20	0.2	0.2	A	3.6	A	A
17	2.4	0.15	6.25	-4.00	0.1	0.4	A	6.6	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
18	2.37	0.09	3.80	-5.20	0.1	0.3	A	4.3	A	A
19	2.347	0.074	3.15	-6.12	0.2	0.2	A	3.7	A	A
20	2.52	0.08	3.17	0.80	0.0	0.2	A	3.8	A	A
21	2.61	0.27	10.34	4.40	0.1	0.7	A	10.5	N	W
22	2.44	0.14	5.74	-2.40	0.1	0.4	A	6.1	A	A
23	2.43	0.06	2.47	-2.80	0.1	0.2	A	3.2	A	A
24	2.37	0.09	3.80	-5.20	0.1	0.3	A	4.3	A	A
25	3.18	0.28	8.81	27.20	0.7	0.7	A	9.0	A	A
27	3.012	0.6121	20.32	20.48	0.5	1.6	A	20.4	N	N
29	3.1	1.3	41.94	24.00	0.6	3.4	A	42.0	N	N
30	2	0.3	15.00	-20.00	0.5	0.8	A	15.1	N	N
31	2.4	0.6	25.00	-4.00	0.1	1.6	A	25.1	N	W
32	2.18	0.26	11.93	-12.80	0.3	0.7	A	12.1	N	N
34	2.4	0.08	3.33	-4.00	0.1	0.2	A	3.9	A	A
35	2.9	0.23	7.93	16.00	0.4	0.6	A	8.2	A	A
36	2.59	0.26	10.04	3.60	0.1	0.7	A	10.2	N	W
37	2.33	0.35	15.02	-6.80	0.2	0.9	A	15.2	N	W
38	3.1	0.0617	1.99	24.00	0.6	0.2	N	2.8	A	N
39	2.6	0.5	19.23	4.00	0.1	1.3	A	19.3	N	W
40	2.35	0.14	5.96	-6.00	0.2	0.4	A	6.3	A	A
41	2.3	0.2	8.70	-8.00	0.2	0.5	A	8.9	A	A
42	2.4	0.3	12.50	-4.00	0.1	0.8	A	12.7	N	W
44	2.17	0.77	35.48	-13.20	0.3	2.0	A	35.5	N	N
45	2.77	0.27	9.75	10.80	0.3	0.7	A	10.0	A	A
46	2.1	0.3	14.29	-16.00	0.4	0.8	A	14.4	N	N
47	2.49	0.18	7.23	-0.40	0.0	0.5	A	7.5	A	A
50	2.71	0.14	5.17	8.40	0.2	0.4	A	5.5	A	A
51	3.2	0.15	4.69	28.00	0.7	0.4	N	5.1	A	N
52	3.82	0.36	9.42	52.80	1.3	0.9	N	9.6	A	N
53	2.7	0.24	8.89	8.00	0.2	0.6	A	9.1	A	A
54	2.63	0.26	9.89	5.20	0.1	0.7	A	10.1	N	W
55	2.03	0.45	22.17	-18.80	0.5	1.2	A	22.3	N	N
56	2.4	0.2	8.33	-4.00	0.1	0.5	A	8.6	A	A
57	2.69	0.23	8.55	7.60	0.2	0.6	A	8.8	A	A
58	2.9	0.18	6.21	16.00	0.4	0.5	A	6.5	A	A
59	2.5	0.1	4.00	0.00	0.0	0.3	A	4.5	A	A
60	2.44	0.1	4.10	-2.40	0.1	0.3	A	4.6	A	A
61	2.54	0.3	11.81	1.60	0.0	0.8	A	12.0	N	W
62	2.61	0.1	3.83	4.40	0.1	0.3	A	4.3	A	A
63	2.57	0.21	8.17	2.80	0.1	0.6	A	8.4	A	A
64	2.32	0.264	11.38	-7.20	0.2	0.7	A	11.6	N	W
65	2.5	0.11	4.40	0.00	0.0	0.3	A	4.8	A	A
68	2.3	0.2	8.70	-8.00	0.2	0.5	A	8.9	A	A
70	3.2	1.2	37.50	28.00	0.7	3.1	A	37.6	N	N
71	2.53	0.12	4.74	1.20	0.0	0.3	A	5.1	A	A
72	2.47	0.1	4.05	-1.20	0.0	0.3	A	4.5	A	A
73	2.07	0.2	9.66	-17.20	0.4	0.5	A	9.9	A	A
75	4.4	0.2	4.55	76.00	1.9	0.5	N	5.0	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
76	3.09	0.53	17.15	23.60	0.6	1.4	A	17.3	N	N
77	2.572	0.179	6.96	2.88	0.1	0.5	A	7.2	A	A
78	1.96	0.104	5.31	-21.60	0.5	0.3	N	5.7	A	N
79	4.1	0.5	12.20	64.00	1.6	1.3	N	12.4	N	N
80	2.8	0.3	10.71	12.00	0.3	0.8	A	10.9	N	N
81	2.57	0.79	30.74	2.80	0.1	2.0	A	30.8	N	W
82	3.5	0.11	3.14	40.00	1.0	0.3	N	3.7	A	N
83	3.35	0.41	12.24	34.00	0.9	1.1	A	12.4	N	N
84	2.9	0.4	13.79	16.00	0.4	1.0	A	13.9	N	N
86	1.6	0.7	43.75	-36.00	0.9	1.8	A	43.8	N	N
87	3	0.5	16.67	20.00	0.5	1.3	A	16.8	N	N
88	2.8	0.5	17.86	12.00	0.3	1.3	A	18.0	N	N
89	1.37	0.23	16.79	-45.20	1.1	0.6	N	16.9	N	N
91	3.4	0.9	26.47	36.00	0.9	2.3	A	26.5	N	N
92	1.56	0.1	6.41	-37.60	0.9	0.3	N	6.7	A	N
93	3.86	0.14	3.63	54.40	1.4	0.4	N	4.1	A	N
94	1.89	0.17	8.99	-24.40	0.6	0.5	N	9.2	A	N
95	2.41	0.17	7.05	-3.60	0.1	0.5	A	7.3	A	A
96	2.5	0.3	12.00	0.00	0.0	0.8	A	12.2	N	W
97	2.34	0.21	8.97	-6.40	0.2	0.6	A	9.2	A	A
98	2.52	0.4	15.87	0.80	0.0	1.0	A	16.0	N	W
99	2.48	0.07	2.82	-0.80	0.0	0.2	A	3.5	A	A
100	1.5	0.74	49.33	-40.00	1.0	1.9	A	49.4	N	N
101	2.79	0.28	10.04	11.60	0.3	0.7	A	10.2	N	N
105	4.28	0.4	9.35	71.20	1.8	1.0	N	9.6	A	N
107	2.55	1.06	41.57	2.00	0.0	2.7	A	41.6	N	W
109	2.92	0.49	16.78	16.80	0.4	1.3	A	16.9	N	N
110	3.94	0.296	7.51	57.60	1.4	0.8	N	7.8	A	N
111	2.24	0.31	13.84	-10.40	0.3	0.8	A	14.0	N	N
112	2.54	0.41	16.14	1.60	0.0	1.1	A	16.3	N	W
114	2.3	0.2	8.70	-8.00	0.2	0.5	A	8.9	A	A
118	2.42	0.22	9.09	-3.20	0.1	0.6	A	9.3	A	A
119	3.95	0.25	6.33	58.00	1.5	0.7	N	6.6	A	N
120	2.54	0.41	16.14	1.60	0.0	1.1	A	16.3	N	W
122	2.6	0.15	5.77	4.00	0.1	0.4	A	6.1	A	A
123	1.43	0.14	9.79	-42.80	1.1	0.4	N	10.0	A	N
124	2.249	0.24	10.67	-10.04	0.3	0.6	A	10.9	N	N
125	2.6	0.4	15.38	4.00	0.1	1.0	A	15.5	N	W
126	2.6	0.82	31.54	4.00	0.1	2.1	A	31.6	N	W
127	3.83	0.24	6.27	53.20	1.3	0.6	N	6.6	A	N
128	2.49	0.2	8.03	-0.40	0.0	0.5	A	8.3	A	A
130	2.73	0.16	5.86	9.20	0.2	0.4	A	6.2	A	A
131	2.77	0.19	6.86	10.80	0.3	0.5	A	7.1	A	A
132	2.539	0.11	4.33	1.56	0.0	0.3	A	4.8	A	A
133	2.35	0.2	8.51	-6.00	0.2	0.5	A	8.7	A	A
134	2.38	0.09	3.78	-4.80	0.1	0.3	A	4.3	A	A
136	3.333	0.197	5.91	33.32	0.8	0.5	N	6.2	A	N
138	2.62	0.78	29.77	4.80	0.1	2.0	A	29.8	N	W

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
139	2.38	0.175	7.35	-4.80	0.1	0.5	A	7.6	A	A
140	2.5	0.19	7.60	0.00	0.0	0.5	A	7.9	A	A
141	3.97	0.44	11.08	58.80	1.5	1.1	N	11.3	N	N
142	2.31	0.0036	0.16	-7.60	0.2	0.1	N	2.0	A	W
146	1.55	0.3	19.35	-38.00	1.0	0.8	N	19.5	N	N
150	0.97	0.09	9.28	-61.20	1.5	0.3	N	9.5	A	N
151	1.93	0.28	14.51	-22.80	0.6	0.7	A	14.6	N	N
152	2	0.3	15.00	-20.00	0.5	0.8	A	15.1	N	N
153	2.822	0.399	14.14	12.88	0.3	1.0	A	14.3	N	N
154	1.8	0.2	11.11	-28.00	0.7	0.5	N	11.3	N	N
157	2.6	0.4	15.38	4.00	0.1	1.0	A	15.5	N	W
158	2.65	0.17	6.42	6.00	0.2	0.5	A	6.7	A	A
159	2.52	0.09	3.57	0.80	0.0	0.3	A	4.1	A	A
160	3.33	0.27	8.11	33.20	0.8	0.7	N	8.4	A	N
161	3.13	0.24	7.67	25.20	0.6	0.6	A	7.9	A	A
162	2.42	0.23	9.50	-3.20	0.1	0.6	A	9.7	A	A
163	2.84	0.44	15.49	13.60	0.3	1.1	A	15.6	N	N
164	2.45	0.42	17.14	-2.00	0.0	1.1	A	17.3	N	W
165	2.59	0.14	5.41	3.60	0.1	0.4	A	5.8	A	A
166	2.41	0.53	21.99	-3.60	0.1	1.4	A	22.1	N	W
167	1.28	0.14	10.94	-48.80	1.2	0.4	N	11.1	N	N
168	2.41	0.09	3.73	-3.60	0.1	0.3	A	4.2	A	A
169	2.54	0.11	4.33	1.60	0.0	0.3	A	4.8	A	A
170	2.3	0.2	8.70	-8.00	0.2	0.5	A	8.9	A	A
171	2.42	0.16	6.61	-3.20	0.1	0.4	A	6.9	A	A
173	2.34	0.11	4.70	-6.40	0.2	0.3	A	5.1	A	A
174	2.52	0.13	5.16	0.80	0.0	0.4	A	5.5	A	A
175	2.42	0.16	6.61	-3.20	0.1	0.4	A	6.9	A	A
176	2.07	0.07	3.38	-17.20	0.4	0.2	N	3.9	A	N
177	2.26	0.2	8.85	-9.60	0.2	0.5	A	9.1	A	A
178	2.4	0.142	5.92	-4.00	0.1	0.4	A	6.2	A	A
179	2.56	0.22	8.59	2.40	0.1	0.6	A	8.8	A	A
181	2.48	0.14	5.65	-0.80	0.0	0.4	A	6.0	A	A
183	3.27	0.25	7.65	30.80	0.8	0.7	N	7.9	A	N
184	1.83	0.1	5.46	-26.80	0.7	0.3	N	5.8	A	N
185	2.21	0.18	8.14	-11.60	0.3	0.5	A	8.4	A	A
186	2.54	0.12	4.72	1.60	0.0	0.3	A	5.1	A	A
187	1.9	0.5	26.32	-24.00	0.6	1.3	A	26.4	N	N
188	3	0.3	10.00	20.00	0.5	0.8	A	10.2	N	N
190	2.21	0.6	27.15	-11.60	0.3	1.6	A	27.2	N	N
191	2.12	0.24	11.32	-15.20	0.4	0.6	A	11.5	N	N
192	3.7	0.3	8.11	48.00	1.2	0.8	N	8.4	A	N
193	3.7	0.2	5.41	48.00	1.2	0.5	N	5.8	A	N
194	3.5	0.2	5.71	40.00	1.0	0.5	N	6.1	A	N
195	2.56	0.45	17.58	2.40	0.1	1.2	A	17.7	N	W
197	4.83	0.04	0.83	93.20	2.3	0.2	N	2.2	A	N
199	2.3	0.4	17.39	-8.00	0.2	1.0	A	17.5	N	W
200	2.5	0.14	5.60	0.00	0.0	0.4	A	5.9	A	A

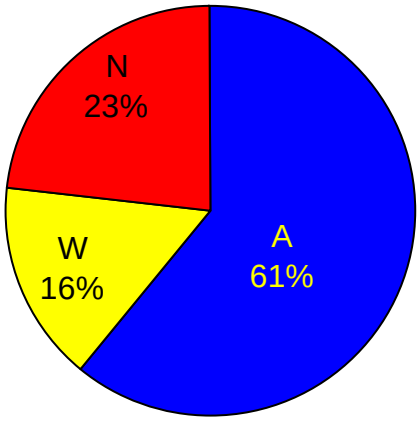
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
201	2.24	0.11	4.91	-10.40	0.3	0.3	A	5.3	A	A
202	4.597	0.213	4.63	83.88	2.1	0.6	N	5.0	A	N
207	3.62	0.69	19.06	44.80	1.1	1.8	A	19.2	N	N
208	2.9	1	34.48	16.00	0.4	2.6	A	34.5	N	N
209	2.51	0.14	5.58	0.40	0.0	0.4	A	5.9	A	A
210	2.4	0.06	2.50	-4.00	0.1	0.2	A	3.2	A	A
211	2.7	0.14	5.19	8.00	0.2	0.4	A	5.6	A	A
212	2.53	0.17	6.72	1.20	0.0	0.5	A	7.0	A	A
213	2.14	0.25	11.68	-14.40	0.4	0.7	A	11.9	N	N
214	2.69	0.09	3.35	7.60	0.2	0.3	A	3.9	A	A
215	2.44	0.17	6.97	-2.40	0.1	0.5	A	7.2	A	A
217	2.8	0.13	4.64	12.00	0.3	0.4	A	5.1	A	A
218	2.384	0.123	5.16	-4.64	0.1	0.3	A	5.5	A	A
219	2.48	0.11	4.44	-0.80	0.0	0.3	A	4.9	A	A
220	2.15	0.2	9.30	-14.00	0.4	0.5	A	9.5	A	A
221	2.9	0.3	10.34	16.00	0.4	0.8	A	10.5	N	N
223	1.53	0.27	17.65	-38.80	1.0	0.7	N	17.8	N	N
224	1.7	0.28	16.47	-32.00	0.8	0.7	N	16.6	N	N
226	60.8	6.6	10.86	2332.00	58.3	17.0	N	11.0	N	N
227	2.2	0.17	7.73	-12.00	0.3	0.5	A	8.0	A	A
232	3.84	0.08	2.08	53.60	1.3	0.2	N	2.9	A	N
233	2.35	0.22	9.36	-6.00	0.2	0.6	A	9.6	A	A
235	3.27	0.49	14.98	30.80	0.8	1.3	A	15.1	N	N
236	2.34	0.56	23.93	-6.40	0.2	1.5	A	24.0	N	W
237	2.1	0.6	28.57	-16.00	0.4	1.6	A	28.6	N	N
238	2.5	0.1	4.00	0.00	0.0	0.3	A	4.5	A	A
239	2.31	0.09	3.90	-7.60	0.2	0.3	A	4.4	A	A
240	2.3	0.6	26.09	-8.00	0.2	1.6	A	26.2	N	W
242	2.52	0.12	4.76	0.80	0.0	0.3	A	5.2	A	A
243	2.61	0.1813	6.95	4.40	0.1	0.5	A	7.2	A	A
244	1.91	0.118	6.18	-23.60	0.6	0.3	N	6.5	A	N
245	2.23	0.1	4.48	-10.80	0.3	0.3	A	4.9	A	A
246	3.96	0.13	3.28	58.40	1.5	0.4	N	3.8	A	N
249	2.82	0.2	7.09	12.80	0.3	0.5	A	7.4	A	A
250	3.06	0.3	9.80	22.40	0.6	0.8	A	10.0	N	N
251	2.35	0.25	10.64	-6.00	0.2	0.7	A	10.8	N	W
252	2	0.2	10.00	-20.00	0.5	0.5	A	10.2	N	N
253	2	0.2	10.00	-20.00	0.5	0.5	A	10.2	N	N
254	2.57	0.23	8.95	2.80	0.1	0.6	A	9.2	A	A
255	4.27	0.4	9.37	70.80	1.8	1.0	N	9.6	A	N
256	2.25	0.22	9.78	-10.00	0.3	0.6	A	10.0	A	A
257	2.42	0.18	7.44	-3.20	0.1	0.5	A	7.7	A	A
258	2.52	0.28	11.11	0.80	0.0	0.7	A	11.3	N	W
259	1.94	0.46	23.71	-22.40	0.6	1.2	A	23.8	N	N
260	3.03	0.46	15.18	21.20	0.5	1.2	A	15.3	N	N
261	2.5	0.3	12.00	0.00	0.0	0.8	A	12.2	N	W
263	2.7	0.99	36.67	8.00	0.2	2.6	A	36.7	N	W
264	10.7	0.343	3.21	328.00	8.2	0.9	N	3.8	A	N

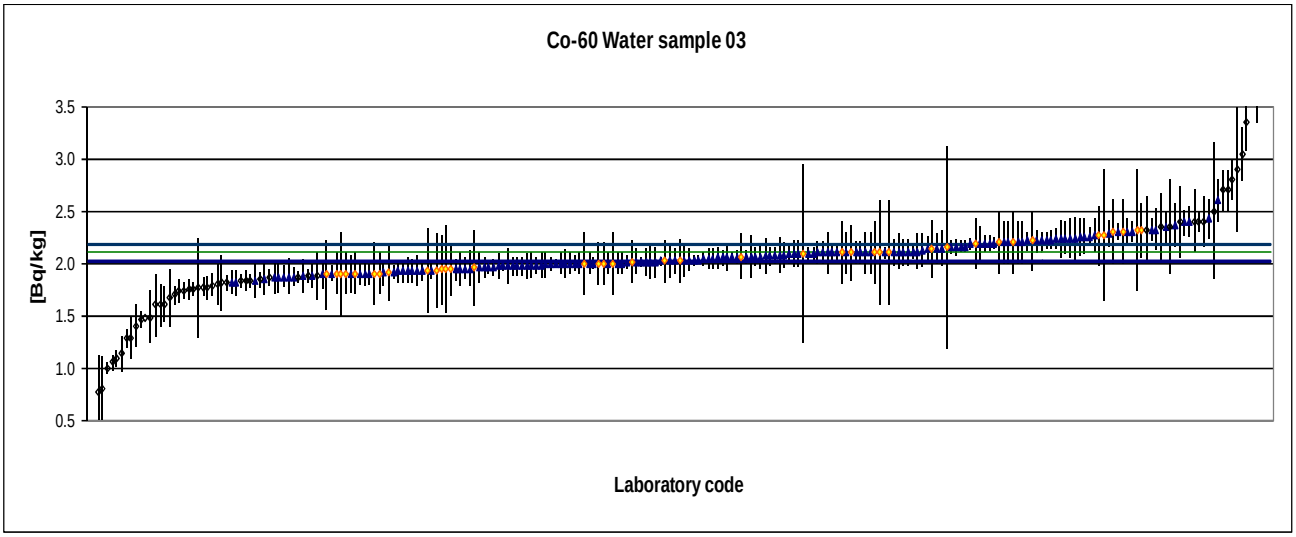
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
265	3.726	0.062	1.66	49.04	1.2	0.2	N	2.6	A	N
267	1.23	0.36	29.27	-50.80	1.3	0.9	N	29.3	N	N
268	2.66	0.46	17.29	6.40	0.2	1.2	A	17.4	N	W
269	3	0.7	23.33	20.00	0.5	1.8	A	23.4	N	N
270	3.81	0.2	5.25	52.40	1.3	0.5	N	5.6	A	N
271	2.21	0.13	5.88	-11.60	0.3	0.4	A	6.2	A	A
272	3.83	0.14	3.66	53.20	1.3	0.4	N	4.2	A	N
273	6.1	0.6	9.84	144.00	3.6	1.6	N	10.0	N	N
274	2.61	0.31	11.88	4.40	0.1	0.8	A	12.0	N	W
275	2.63	0.18	6.84	5.20	0.1	0.5	A	7.1	A	A
276	2.7	1.5	55.56	8.00	0.2	3.9	A	55.6	N	W
277	0.052	0.002	3.85	-97.92	2.4	0.1	N	4.3	A	N
278	3.81	0.36	9.45	52.40	1.3	0.9	N	9.7	A	N
279	2.42	0.11	4.55	-3.20	0.1	0.3	A	5.0	A	A
286	112.86	1.91	1.69	4414.40	110.4	4.9	N	2.6	A	N
288	2.7	0.2	7.41	8.00	0.2	0.5	A	7.7	A	A
289	2.04	0.2	9.80	-18.40	0.5	0.5	A	10.0	N	N
290	2.6	0.3	11.54	4.00	0.1	0.8	A	11.7	N	W
292	2.4	0.2	8.33	-4.00	0.1	0.5	A	8.6	A	A
293	2.4	0.2	8.33	-4.00	0.1	0.5	A	8.6	A	A
294	2.99	0.17	5.69	19.60	0.5	0.5	N	6.0	A	N
295	2.3	0.3	13.04	-8.00	0.2	0.8	A	13.2	N	W
296	3.7	0.6	16.22	48.00	1.2	1.6	A	16.3	N	N
298	2.69	0.2	7.43	7.60	0.2	0.5	A	7.7	A	A
299	3.66	0.65	17.76	46.40	1.2	1.7	A	17.9	N	N
300	2.41	0.19	7.88	-3.60	0.1	0.5	A	8.1	A	A

Performance evaluation of Co-60 measurement results

Spiked water sample 03

Target Value: 2.1 ± 0.04 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	1.81	0.27	14.92	-13.81	0.3	0.7	A	15.1	N	N
2	1.79	0.1	5.59	-14.76	0.3	0.3	N	5.9	A	N
3	2.2	0.3	13.64	4.76	0.1	0.8	A	13.8	N	W
4	2.18	0.06	2.75	3.81	0.1	0.2	A	3.4	A	A
5	5.82	0.31	5.33	177.14	3.7	0.8	N	5.7	A	N
6	1.99	0.12	6.03	-5.24	0.1	0.3	A	6.4	A	A
7	1.9	0.07	3.68	-9.52	0.2	0.2	A	4.2	A	A
9	1.96	0.15	7.65	-6.67	0.1	0.4	A	7.9	A	A
11	2.1	0.1	4.76	0.00	0.0	0.3	A	5.2	A	A
12	2.6	0.2	7.69	23.81	0.5	0.5	A	7.9	A	A
13	1.81	0.07	3.87	-13.81	0.3	0.2	N	4.4	A	N
14	2.03	0.16	7.88	-3.33	0.1	0.4	A	8.1	A	A
16	2.06	0.04	1.94	-1.90	0.0	0.1	A	2.8	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
17	2.13	0.12	5.63	1.43	0.0	0.3	A	6.0	A	A
18	2.04	0.06	2.94	-2.86	0.1	0.2	A	3.6	A	A
19	2	0.035	1.75	-4.76	0.1	0.1	A	2.7	A	A
20	2.06	0.06	2.91	-1.90	0.0	0.2	A	3.5	A	A
21	2.06	0.22	10.68	-1.90	0.0	0.6	A	10.9	N	W
22	2.02	0.04	1.98	-3.81	0.1	0.1	A	2.8	A	A
23	2.06	0.06	2.91	-1.90	0.0	0.2	A	3.5	A	A
24	2.08	0.08	3.85	-0.95	0.0	0.2	A	4.3	A	A
25	4.53	1.18	26.05	115.71	2.4	3.0	A	26.1	N	N
26	1.88	0.16	8.51	-10.48	0.2	0.4	A	8.7	A	A
27	1.954	0.3588	18.36	-6.95	0.1	0.9	A	18.5	N	W
30	1.4	0.2	14.29	-33.33	0.7	0.5	N	14.4	N	N
31	2.4	0.3	12.50	14.29	0.3	0.8	A	12.7	N	N
32	2.26	0.16	7.08	7.62	0.2	0.4	A	7.4	A	A
33	2.06	0.2	9.71	-1.90	0.0	0.5	A	9.9	A	A
34	2.14	0.27	12.62	1.90	0.0	0.7	A	12.8	N	W
35	2	0.1	5.00	-4.76	0.1	0.3	A	5.4	A	A
36	2.19	0.08	3.65	4.29	0.1	0.2	A	4.2	A	A
37	1.89	0.14	7.41	-10.00	0.2	0.4	A	7.7	A	A
39	2.1	0.1	4.76	0.00	0.0	0.3	A	5.2	A	A
40	1.98	0.12	6.06	-5.71	0.1	0.3	A	6.4	A	A
41	1.9	0.2	10.53	-9.52	0.2	0.5	A	10.7	N	W
42	2.1	0.2	9.52	0.00	0.0	0.5	A	9.7	A	A
43	1.28	0.09	7.03	-39.05	0.8	0.3	N	7.3	A	N
44	1.95	0.16	8.21	-7.14	0.2	0.4	A	8.4	A	A
45	2.1	0.09	4.29	0.00	0.0	0.3	A	4.7	A	A
46	2	0.14	7.00	-4.76	0.1	0.4	A	7.3	A	A
47	2.24	0.15	6.70	6.67	0.1	0.4	A	7.0	A	A
50	2.02	0.2	9.90	-3.81	0.1	0.5	A	10.1	N	W
51	1.96	0.09	4.59	-6.67	0.1	0.3	A	5.0	A	A
52	1.77	0.09	5.08	-15.71	0.3	0.3	N	5.5	A	N
53	2.03	0.11	5.42	-3.33	0.1	0.3	A	5.8	A	A
54	2.08	0.17	8.17	-0.95	0.0	0.5	A	8.4	A	A
55	2.15	0.97	45.12	2.38	0.0	2.5	A	45.2	N	W
56	2	0.1	5.00	-4.76	0.1	0.3	A	5.4	A	A
57	1.87	0.15	8.02	-10.95	0.2	0.4	A	8.3	A	A
58	2.05	0.1	4.88	-2.38	0.1	0.3	A	5.3	A	A
59	2.16	0.05	2.31	2.86	0.1	0.2	A	3.1	A	A
60	2.19	0.07	3.20	4.29	0.1	0.2	A	3.8	A	A
61	2.15	0.06	2.79	2.38	0.0	0.2	A	3.4	A	A
62	2	0.08	4.00	-4.76	0.1	0.2	A	4.5	A	A
63	2.05	0.07	3.41	-2.38	0.1	0.2	A	4.0	A	A
64	2.11	0.167	7.91	0.48	0.0	0.4	A	8.2	A	A
65	2.1	0.07	3.33	0.00	0.0	0.2	A	3.9	A	A
68	1.97	0.12	6.09	-6.19	0.1	0.3	A	6.4	A	A
70	2.26	0.28	12.39	7.62	0.2	0.7	A	12.5	N	W
71	2.35	0.45	19.15	11.90	0.3	1.2	A	19.3	N	N
72	1.97	0.05	2.54	-6.19	0.1	0.2	A	3.2	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
73	1.93	0.12	6.22	-8.10	0.2	0.3	A	6.5	A	A
74	0.8	0.3	37.50	-61.90	1.3	0.8	N	37.6	N	N
75	2.4	0.1	4.17	14.29	0.3	0.3	N	4.6	A	N
76	2.21	0.09	4.07	5.24	0.1	0.3	A	4.5	A	A
77	2.004	0.068	3.39	-4.57	0.1	0.2	A	3.9	A	A
78	1.86	0.0766	4.12	-11.43	0.2	0.2	N	4.6	A	N
79	2.9	0.6	20.69	38.10	0.8	1.6	A	20.8	N	N
80	1.9	0.4	21.05	-9.52	0.2	1.0	A	21.1	N	W
81	2.02	0.15	7.43	-3.81	0.1	0.4	A	7.7	A	A
82	2.01	0.2	9.95	-4.29	0.1	0.5	A	10.1	N	W
83	2.05	0.12	5.85	-2.38	0.1	0.3	A	6.2	A	A
84	2.2	0.2	9.09	4.76	0.1	0.5	A	9.3	A	A
86	1.6	0.3	18.75	-23.81	0.5	0.8	A	18.9	N	N
87	2.06	0.09	4.37	-1.90	0.0	0.3	A	4.8	A	A
88	2.1	0.3	14.29	0.00	0.0	0.8	A	14.4	N	W
89	2.22	0.08	3.60	5.71	0.1	0.2	A	4.1	A	A
90	1.95	0.1	5.13	-7.14	0.2	0.3	A	5.5	A	A
91	2.2	0.2	9.09	4.76	0.1	0.5	A	9.3	A	A
92	1.92	0.11	5.73	-8.57	0.2	0.3	A	6.1	A	A
93	1.87	0.1	5.35	-10.95	0.2	0.3	A	5.7	A	A
94	1.94	0.33	17.01	-7.62	0.2	0.9	A	17.1	N	W
95	2.07	0.17	8.21	-1.43	0.0	0.5	A	8.5	A	A
96	2.1	0.2	9.52	0.00	0.0	0.5	A	9.7	A	A
97	1.73	0.11	6.36	-17.62	0.4	0.3	N	6.7	A	N
98	1.86	0.16	8.60	-11.43	0.2	0.4	A	8.8	A	A
99	2.03	0.05	2.46	-3.33	0.1	0.2	A	3.2	A	A
100	2.31	0.58	25.11	10.00	0.2	1.5	A	25.2	N	W
101	2.08	0.12	5.77	-0.95	0.0	0.3	A	6.1	A	A
105	2.39	0.34	14.23	13.81	0.3	0.9	A	14.4	N	N
106	1.91	0.28	14.66	-9.05	0.2	0.7	A	14.8	N	W
107	1.76	0.47	26.70	-16.19	0.3	1.2	A	26.8	N	N
109	2.1	0.27	12.86	0.00	0.0	0.7	A	13.0	N	W
110	2.25	0.17	7.56	7.14	0.2	0.5	A	7.8	A	A
111	1.97	0.17	8.63	-6.19	0.1	0.5	A	8.9	A	A
112	2.11	0.13	6.16	0.48	0.0	0.4	A	6.5	A	A
114	1.9	0.2	10.53	-9.52	0.2	0.5	A	10.7	N	W
115	2.3	0.3	13.04	9.52	0.2	0.8	A	13.2	N	W
118	2.18	0.24	11.01	3.81	0.1	0.6	A	11.2	N	W
119	2.24	0.18	8.04	6.67	0.1	0.5	A	8.3	A	A
120	2.11	0.13	6.16	0.48	0.0	0.4	A	6.5	A	A
121	2.34	0.33	14.10	11.43	0.2	0.9	A	14.2	N	N
122	2.1	0.1	4.76	0.00	0.0	0.3	A	5.2	A	A
123	1.77	0.11	6.21	-15.71	0.3	0.3	N	6.5	A	N
124	1.904	0.128	6.72	-9.33	0.2	0.3	A	7.0	A	A
125	2.2	0.3	13.64	4.76	0.1	0.8	A	13.8	N	W
126	1.95	0.17	8.72	-7.14	0.2	0.5	A	8.9	A	A
127	2.4	0.24	10.00	14.29	0.3	0.6	A	10.2	N	N
128	2	0.1	5.00	-4.76	0.1	0.3	A	5.4	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
130	2.01	0.12	5.97	-4.29	0.1	0.3	A	6.3	A	A
131	1.81	0.11	6.08	-13.81	0.3	0.3	A	6.4	A	A
132	2.084	0.099	4.75	-0.76	0.0	0.3	A	5.2	A	A
133	2.04	0.1	4.90	-2.86	0.1	0.3	A	5.3	A	A
134	1.88	0.06	3.19	-10.48	0.2	0.2	N	3.8	A	N
136	2.393	0.145	6.06	13.95	0.3	0.4	A	6.4	A	A
137	3.04	0.26	8.55	44.76	0.9	0.7	N	8.8	A	N
138	1.9	0.18	9.47	-9.52	0.2	0.5	A	9.7	A	A
139	1.93	0.108	5.60	-8.10	0.2	0.3	A	5.9	A	A
140	2.3	0.08	3.48	9.52	0.2	0.2	A	4.0	A	A
141	2.3	0.3	13.04	9.52	0.2	0.8	A	13.2	N	W
142	1.47	0.0016	0.11	-30.00	0.6	0.1	N	2.0	A	N
143	1.67	0.28	16.77	-20.48	0.4	0.7	A	16.9	N	N
144	1.94	0.42	21.65	-7.62	0.2	1.1	A	21.7	N	W
145	1.48	0.25	16.89	-29.52	0.6	0.7	A	17.0	N	N
146	1.29	0.2	15.50	-38.57	0.8	0.5	N	15.6	N	N
150	1.09	0.08	7.34	-48.10	1.0	0.2	N	7.6	A	N
151	1.05	0.07	6.67	-50.00	1.1	0.2	N	7.0	A	N
152	1	0.05	5.00	-52.38	1.1	0.2	N	5.4	A	N
153	2.255	0.171	7.58	7.38	0.2	0.5	A	7.8	A	A
154	2.2	0.2	9.09	4.76	0.1	0.5	A	9.3	A	A
157	2.1	0.1	4.76	0.00	0.0	0.3	A	5.2	A	A
158	2.34	0.15	6.41	11.43	0.2	0.4	A	6.7	A	A
159	1.98	0.08	4.04	-5.71	0.1	0.2	A	4.5	A	A
160	2.27	0.63	27.75	8.10	0.2	1.6	A	27.8	N	W
161	2.12	0.16	7.55	0.95	0.0	0.4	A	7.8	A	A
162	1.93	0.14	7.25	-8.10	0.2	0.4	A	7.5	A	A
163	2.14	0.14	6.54	1.90	0.0	0.4	A	6.8	A	A
164	1.98	0.12	6.06	-5.71	0.1	0.3	A	6.4	A	A
165	1.97	0.09	4.57	-6.19	0.1	0.3	A	5.0	A	A
166	2.42	0.19	7.85	15.24	0.3	0.5	A	8.1	A	A
167	2.21	0.28	12.67	5.24	0.1	0.7	A	12.8	N	W
168	1.84	0.07	3.80	-12.38	0.3	0.2	N	4.3	A	N
169	1.97	0.09	4.57	-6.19	0.1	0.3	A	5.0	A	A
170	2.1	0.2	9.52	0.00	0.0	0.5	A	9.7	A	A
171	2.3	0.12	5.22	9.52	0.2	0.3	A	5.6	A	A
172	2	0.3	15.00	-4.76	0.1	0.8	A	15.1	N	W
173	1.96	0.06	3.06	-6.67	0.1	0.2	A	3.7	A	A
174	2.28	0.13	5.70	8.57	0.2	0.4	A	6.0	A	A
175	2.02	0.12	5.94	-3.81	0.1	0.3	A	6.3	A	A
176	2.19	0.06	2.74	4.29	0.1	0.2	A	3.4	A	A
177	2.16	0.05	2.31	2.86	0.1	0.2	A	3.1	A	A
178	2.23	0.1	4.48	6.19	0.1	0.3	A	4.9	A	A
179	1.83	0.06	3.28	-12.86	0.3	0.2	N	3.8	A	N
181	2.01	0.05	2.49	-4.29	0.1	0.2	A	3.2	A	A
182	2.31	0.26	11.26	10.00	0.2	0.7	A	11.4	N	W
183	1.93	0.1	5.18	-8.10	0.2	0.3	A	5.6	A	A
184	2.01	0.13	6.47	-4.29	0.1	0.4	A	6.8	A	A

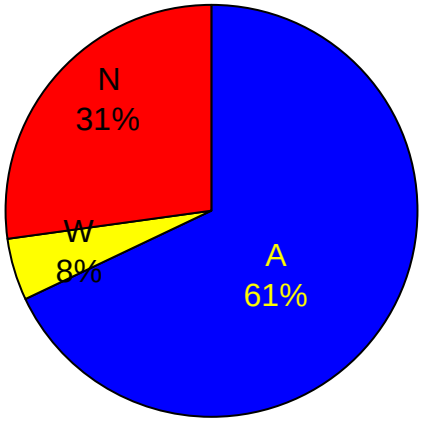
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
185	1.88	0.11	5.85	-10.48	0.2	0.3	A	6.2	A	A
186	2.04	0.1	4.90	-2.86	0.1	0.3	A	5.3	A	A
187	1.9	0.2	10.53	-9.52	0.2	0.5	A	10.7	N	W
188	1.75	0.09	5.14	-16.67	0.4	0.3	N	5.5	A	N
190	1.89	0.33	17.46	-10.00	0.2	0.9	A	17.6	N	W
191	1.83	0.09	4.92	-12.86	0.3	0.3	N	5.3	A	N
192	2	0.1	5.00	-4.76	0.1	0.3	A	5.4	A	A
193	1.9	0.1	5.26	-9.52	0.2	0.3	A	5.6	A	A
194	2.1	0.2	9.52	0.00	0.0	0.5	A	9.7	A	A
195	2.21	0.1	4.52	5.24	0.1	0.3	A	4.9	A	A
197	3.86	0.12	3.11	83.81	1.8	0.3	N	3.7	A	N
199	2.1	0.3	14.29	0.00	0.0	0.8	A	14.4	N	W
200	2.09	0.13	6.22	-0.48	0.0	0.4	A	6.5	A	A
201	2.09	0.86	41.15	-0.48	0.0	2.2	A	41.2	N	W
202	2.18	0.171	7.84	3.81	0.1	0.5	A	8.1	A	A
204	7	2	28.57	233.33	4.9	5.2	A	28.6	N	N
207	2.37	0.21	8.86	12.86	0.3	0.6	A	9.1	A	A
208	2.1	0.5	23.81	0.00	0.0	1.3	A	23.9	N	W
209	3.35	0.28	8.36	59.52	1.3	0.7	N	8.6	A	N
210	2.1	0.06	2.86	0.00	0.0	0.2	A	3.5	A	A
211	2	0.06	3.00	-4.76	0.1	0.2	A	3.6	A	A
212	2.15	0.08	3.72	2.38	0.0	0.2	A	4.2	A	A
213	2.09	0.07	3.35	-0.48	0.0	0.2	A	3.9	A	A
214	2.11	0.07	3.32	0.48	0.0	0.2	A	3.9	A	A
215	1.9	0.11	5.79	-9.52	0.2	0.3	A	6.1	A	A
216	1.87	0.17	9.09	-10.95	0.2	0.5	A	9.3	A	A
217	1.92	0.11	5.73	-8.57	0.2	0.3	A	6.1	A	A
218	1.942	0.106	5.46	-7.52	0.2	0.3	A	5.8	A	A
219	1.75	0.06	3.43	-16.67	0.4	0.2	N	4.0	A	N
220	2.24	0.21	9.38	6.67	0.1	0.6	A	9.6	A	A
221	2.2	0.2	9.09	4.76	0.1	0.5	A	9.3	A	A
223	1.88	0.22	11.70	-10.48	0.2	0.6	A	11.9	N	N
224	1.93	0.4	20.73	-8.10	0.2	1.0	A	20.8	N	W
226	2.1	0.5	23.81	0.00	0.0	1.3	A	23.9	N	W
227	1.9	0.1	5.26	-9.52	0.2	0.3	A	5.6	A	A
232	1.83	0.06	3.28	-12.86	0.3	0.2	N	3.8	A	N
233	1.83	0.16	8.74	-12.86	0.3	0.4	A	9.0	A	A
235	2.5	0.65	26.00	19.05	0.4	1.7	A	26.1	N	N
236	2.32	0.31	13.36	10.48	0.2	0.8	A	13.5	N	N
237	2	0.2	10.00	-4.76	0.1	0.5	A	10.2	N	W
238	1.99	0.06	3.02	-5.24	0.1	0.2	A	3.6	A	A
239	1.74	0.08	4.60	-17.14	0.4	0.2	N	5.0	A	N
240	1.6	0.2	12.50	-23.81	0.5	0.5	A	12.7	N	N
241	2	0.2	10.00	-4.76	0.1	0.5	A	10.2	N	W
242	2.21	0.09	4.07	5.24	0.1	0.3	A	4.5	A	A
243	2.089	0.131	6.27	-0.52	0.0	0.4	A	6.6	A	A
244	1.97	0.089	4.52	-6.19	0.1	0.3	A	4.9	A	A
245	2.09	0.07	3.35	-0.48	0.0	0.2	A	3.9	A	A

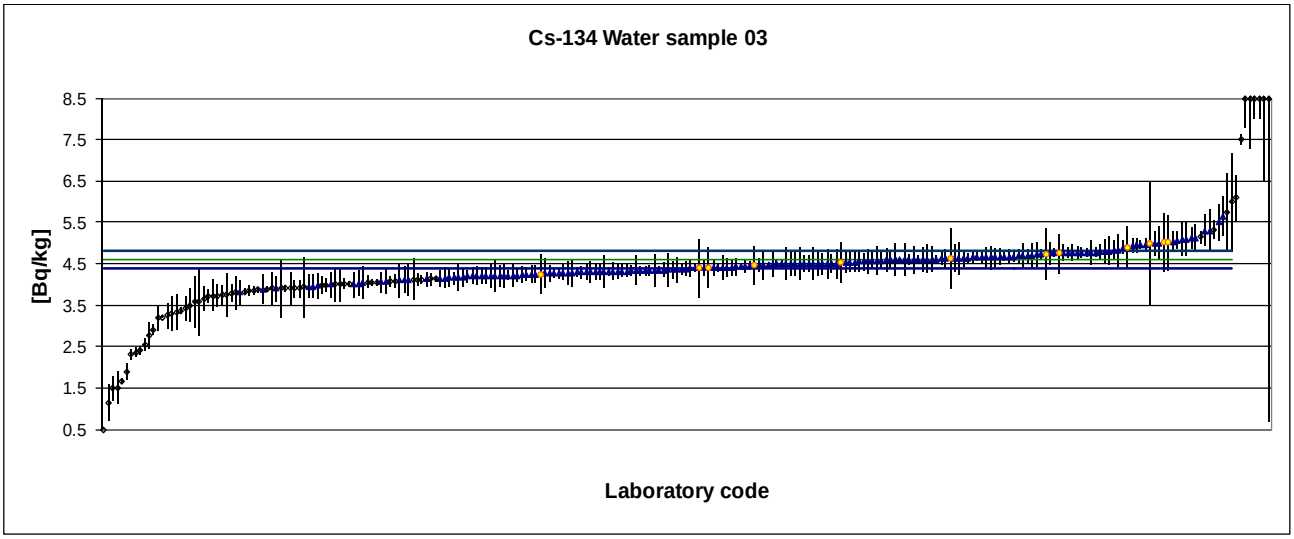
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
246	1.13	0.17	15.04	-46.19	1.0	0.5	N	15.2	N	N
249	1.7	0.09	5.29	-19.05	0.4	0.3	N	5.7	A	N
250	1.81	0.12	6.63	-13.81	0.3	0.3	A	6.9	A	A
251	2.01	0.17	8.46	-4.29	0.1	0.5	A	8.7	A	A
252	2	0.1	5.00	-4.76	0.1	0.3	A	5.4	A	A
253	2.7	0.2	7.41	28.57	0.6	0.5	N	7.7	A	N
254	1.46	0.08	5.48	-30.48	0.6	0.2	N	5.8	A	N
255	1.87	0.09	4.81	-10.95	0.2	0.3	A	5.2	A	A
256	2.02	0.21	10.40	-3.81	0.1	0.6	A	10.6	N	W
257	1.94	0.25	12.89	-7.62	0.2	0.7	A	13.0	N	W
258	2.1	0.13	6.19	0.00	0.0	0.4	A	6.5	A	A
259	1.87	0.05	2.67	-10.95	0.2	0.2	N	3.3	A	N
260	2.32	0.11	4.74	10.48	0.2	0.3	A	5.1	A	A
261	2.8	0.2	7.14	33.33	0.7	0.5	N	7.4	A	N
263	1.8	0.2	11.11	-14.29	0.3	0.5	A	11.3	N	N
264	5.97	0.261	4.37	184.29	3.9	0.7	N	4.8	A	N
265	2.03	0.037	1.82	-3.33	0.1	0.1	A	2.7	A	A
267	2.14	0.17	7.94	1.90	0.0	0.5	A	8.2	A	A
268	2.01	0.14	6.97	-4.29	0.1	0.4	A	7.2	A	A
269	2	0.3	15.00	-4.76	0.1	0.8	A	15.1	N	W
270	2.32	0.2	8.62	10.48	0.2	0.5	A	8.8	A	A
271	1.91	0.07	3.66	-9.05	0.2	0.2	A	4.2	A	A
272	1.97	0.12	6.09	-6.19	0.1	0.3	A	6.4	A	A
273	0.4		0.00	-80.95	1.7	0.1	N	2.0	A	N
274	1.93	0.09	4.66	-8.10	0.2	0.3	A	5.1	A	A
275	2.39	0.12	5.02	13.81	0.3	0.3	A	5.4	A	A
276	1.9	0.3	15.79	-9.52	0.2	0.8	A	15.9	N	W
277	0.047	0.001	2.13	-97.76	2.1	0.1	N	2.9	A	N
278	1.93	0.35	18.13	-8.10	0.2	0.9	A	18.2	N	W
279	1.96	0.08	4.08	-6.67	0.1	0.2	A	4.5	A	A
283	1.61	0.17	10.56	-23.33	0.5	0.5	N	10.7	N	N
284	2.23	0.18	8.07	6.19	0.1	0.5	A	8.3	A	A
285	2.21	0.17	7.69	5.24	0.1	0.5	A	7.9	A	A
286	111.03	4.74	4.27	5187.14	108.9	12.2	N	4.7	A	N
288	2.3	0.1	4.35	9.52	0.2	0.3	A	4.8	A	A
289	2.07	0.09	4.35	-1.43	0.0	0.3	A	4.8	A	A
290	1.9	0.2	10.53	-9.52	0.2	0.5	A	10.7	N	W
292	2	0.1	5.00	-4.76	0.1	0.3	A	5.4	A	A
293	2	0.1	5.00	-4.76	0.1	0.3	A	5.4	A	A
294	2.22	0.09	4.05	5.71	0.1	0.3	A	4.5	A	A
295	2.06	0.12	5.83	-1.90	0.0	0.3	A	6.2	A	A
296	2.7	0.2	7.41	28.57	0.6	0.5	N	7.7	A	N
297	0.769	0.352	45.77	-63.38	1.3	0.9	N	45.8	N	N
298	2.256	0.089	3.95	7.43	0.2	0.3	A	4.4	A	A
300	1.85	0.15	8.11	-11.90	0.3	0.4	A	8.4	A	A

Performance evaluation of Cs-134 measurement results

Spiked water sample 03

Target Value: 4.6 ± 0.1 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	4.53	0.48	10.60	-1.52	0.1	1.3	A	10.8	N	W
2	4.73	0.13	2.75	2.83	0.1	0.4	A	3.5	A	A
3	4.4	0.7	15.91	-4.35	0.2	1.8	A	16.1	N	W
4	4.78	0.18	3.77	3.91	0.2	0.5	A	4.3	A	A
5	12.67	0.5	3.95	175.43	8.1	1.3	N	4.5	A	N
6	4.27	0.2	4.68	-7.17	0.3	0.6	A	5.2	A	A
7	4.62	0.16	3.46	0.43	0.0	0.5	A	4.1	A	A
9	3.98	0.21	5.28	-13.48	0.6	0.6	N	5.7	A	N
11	4.2	0.2	4.76	-8.70	0.4	0.6	A	5.2	A	A
12	4.6	0.2	4.35	0.00	0.0	0.6	A	4.9	A	A
13	2.9	0.12	4.14	-36.96	1.7	0.4	N	4.7	A	N
14	4.07	0.29	7.13	-11.52	0.5	0.8	A	7.4	A	A
15	1.14	0.44	38.60	-75.22	3.5	1.2	N	38.7	N	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
16	5.14	0.16	3.11	11.74	0.5	0.5	N	3.8	A	N
17	4.16	0.21	5.05	-9.57	0.4	0.6	A	5.5	A	A
18	4.64	0.12	2.59	0.87	0.0	0.4	A	3.4	A	A
19	4.131	0.04	0.97	-10.20	0.5	0.3	N	2.4	A	N
20	4.67	0.12	2.57	1.52	0.1	0.4	A	3.4	A	A
21	4.12	0.51	12.38	-10.43	0.5	1.3	A	12.6	N	N
22	4.48	0.05	1.12	-2.61	0.1	0.3	A	2.4	A	A
23	4.6	0.4	8.70	0.00	0.0	1.1	A	9.0	A	A
24	4.34	0.13	3.00	-5.65	0.3	0.4	A	3.7	A	A
25	5.01	0.7	13.97	8.91	0.4	1.8	A	14.1	N	W
26	3.97	0.31	7.81	-13.70	0.6	0.8	A	8.1	A	A
27	4.047	0.3903	9.64	-12.02	0.6	1.0	A	9.9	A	A
29	4.3	0.2	4.65	-6.52	0.3	0.6	A	5.1	A	A
30	4	0.3	7.50	-13.04	0.6	0.8	A	7.8	A	A
31	3.5	0.4	11.43	-23.91	1.1	1.1	N	11.6	N	N
32	4.39	0.21	4.78	-4.57	0.2	0.6	A	5.3	A	A
33	4.84	0.39	8.06	5.22	0.2	1.0	A	8.3	A	A
34	4.08	0.16	3.92	-11.30	0.5	0.5	N	4.5	A	N
35	6.1	0.54	8.85	32.61	1.5	1.4	N	9.1	A	N
36	4.37	0.12	2.75	-5.00	0.2	0.4	A	3.5	A	A
37	4.62	0.23	4.98	0.43	0.0	0.6	A	5.4	A	A
38	4.6	0.0015	0.03	0.00	0.0	0.3	A	2.2	A	A
39	4.4	0.2	4.55	-4.35	0.2	0.6	A	5.0	A	A
40	4.77	0.29	6.08	3.70	0.2	0.8	A	6.5	A	A
41	4.5	0.1	2.22	-2.17	0.1	0.4	A	3.1	A	A
42	4.6	0.4	8.70	0.00	0.0	1.1	A	9.0	A	A
43	2.55	0.14	5.49	-44.57	2.1	0.4	N	5.9	A	N
44	4.2	0.22	5.24	-8.70	0.4	0.6	A	5.7	A	A
45	4.37	0.18	4.12	-5.00	0.2	0.5	A	4.7	A	A
46	4.2	0.2	4.76	-8.70	0.4	0.6	A	5.2	A	A
47	4.47	0.17	3.80	-2.83	0.1	0.5	A	4.4	A	A
50	4.55	0.23	5.05	-1.09	0.0	0.6	A	5.5	A	A
51	4.33	0.13	3.00	-5.87	0.3	0.4	A	3.7	A	A
52	3.3	0.43	13.03	-28.26	1.3	1.1	N	13.2	N	N
53	4.57	0.19	4.16	-0.65	0.0	0.6	A	4.7	A	A
54	4.51	0.36	7.98	-1.96	0.1	1.0	A	8.3	A	A
55	4.75	0.27	5.68	3.26	0.2	0.7	A	6.1	A	A
56	4.7	0.3	6.38	2.17	0.1	0.8	A	6.7	A	A
57	4.56	0.3	6.58	-0.87	0.0	0.8	A	6.9	A	A
58	4.67	0.18	3.85	1.52	0.1	0.5	A	4.4	A	A
59	4.75	0.1	2.11	3.26	0.2	0.4	A	3.0	A	A
60	4.77	0.11	2.31	3.70	0.2	0.4	A	3.2	A	A
61	4.96	0.11	2.22	7.83	0.4	0.4	A	3.1	A	A
62	4.65	0.14	3.01	1.09	0.1	0.4	A	3.7	A	A
63	4.6	0.12	2.61	0.00	0.0	0.4	A	3.4	A	A
64	4.58	0.355	7.75	-0.43	0.0	1.0	A	8.1	A	A
65	4.67	0.14	3.00	1.52	0.1	0.4	A	3.7	A	A
68	4.2	0.2	4.76	-8.70	0.4	0.6	A	5.2	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
70	4.4	0.5	11.36	-4.35	0.2	1.3	A	11.6	N	W
71	4.53	0.25	5.52	-1.52	0.1	0.7	A	5.9	A	A
72	3.88	0.35	9.02	-15.65	0.7	0.9	A	9.3	A	A
74	1.9	0.2	10.53	-58.70	2.7	0.6	N	10.7	N	N
75	4.4	0.2	4.55	-4.35	0.2	0.6	A	5.0	A	A
76	4.13	0.15	3.63	-10.22	0.5	0.5	N	4.2	A	N
77	3.714	0.176	4.74	-19.26	0.9	0.5	N	5.2	A	N
78	3.37	0.0788	2.34	-26.74	1.2	0.3	N	3.2	A	N
79	4	0.4	10.00	-13.04	0.6	1.1	A	10.2	N	N
80	4.5	0.1	2.22	-2.17	0.1	0.4	A	3.1	A	A
81	4.02	0.31	7.71	-12.61	0.6	0.8	A	8.0	A	A
82	4.06	0.23	5.67	-11.74	0.5	0.6	A	6.1	A	A
83	3.85	0.12	3.12	-16.30	0.8	0.4	N	3.8	A	N
84	4.5	0.4	8.89	-2.17	0.1	1.1	A	9.2	A	A
85	1.5	0.3	20.00	-67.39	3.1	0.8	N	20.1	N	N
86	3.9	0.4	10.26	-15.22	0.7	1.1	A	10.5	N	N
87	4.51	0.23	5.10	-1.96	0.1	0.6	A	5.5	A	A
88	4.5	0.3	6.67	-2.17	0.1	0.8	A	7.0	A	A
89	4.4	0.1	2.27	-4.35	0.2	0.4	A	3.1	A	A
90	3.73	0.37	9.92	-18.91	0.9	1.0	A	10.2	N	N
91	4	0.4	10.00	-13.04	0.6	1.1	A	10.2	N	N
92	4.32	0.22	5.09	-6.09	0.3	0.6	A	5.5	A	A
93	4.29	0.11	2.56	-6.74	0.3	0.4	A	3.4	A	A
94	4.35	0.39	8.97	-5.43	0.3	1.0	A	9.2	A	A
95	4.6	0.34	7.39	0.00	0.0	0.9	A	7.7	A	A
96	4.2	0.3	7.14	-8.70	0.4	0.8	A	7.5	A	A
97	4.15	0.2	4.82	-9.78	0.4	0.6	A	5.3	A	A
98	3.96	0.29	7.32	-13.91	0.6	0.8	A	7.6	A	A
99	4.65	0.1	2.15	1.09	0.1	0.4	A	3.1	A	A
100	3.58	0.61	17.04	-22.17	1.0	1.6	A	17.2	N	N
101	4.25	0.22	5.18	-7.61	0.4	0.6	A	5.6	A	A
105	4.22	0.29	6.87	-8.26	0.4	0.8	A	7.2	A	A
106	4.11	0.38	9.25	-10.65	0.5	1.0	A	9.5	A	A
107	5.02	0.67	13.35	9.13	0.4	1.7	A	13.5	N	W
109	4.17	0.33	7.91	-9.35	0.4	0.9	A	8.2	A	A
110	4.61	0.346	7.51	0.22	0.0	0.9	A	7.8	A	A
111	4.63	0.32	6.91	0.65	0.0	0.9	A	7.2	A	A
112	4.54	0.22	4.85	-1.30	0.1	0.6	A	5.3	A	A
114	4.5	0.3	6.67	-2.17	0.1	0.8	A	7.0	A	A
115	4.5	0.4	8.89	-2.17	0.1	1.1	A	9.2	A	A
118	4.95	0.18	3.64	7.61	0.4	0.5	A	4.2	A	A
119	5.13	0.33	6.43	11.52	0.5	0.9	A	6.8	A	A
120	4.54	0.22	4.85	-1.30	0.1	0.6	A	5.3	A	A
121	5.65	0.47	8.32	22.83	1.1	1.2	A	8.6	A	A
122	4.65	0.15	3.23	1.09	0.1	0.5	A	3.9	A	A
123	4.05	0.14	3.46	-11.96	0.6	0.4	N	4.1	A	N
124	4.125	0.179	4.34	-10.33	0.5	0.5	A	4.9	A	A
125	3.9	0.3	7.69	-15.22	0.7	0.8	A	8.0	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
126	4.2	0.4	9.52	-8.70	0.4	1.1	A	9.8	A	A
127	4.15	0.25	6.02	-9.78	0.4	0.7	A	6.4	A	A
128	4.42	0.2	4.52	-3.91	0.2	0.6	A	5.0	A	A
130	4.25	0.21	4.94	-7.61	0.4	0.6	A	5.4	A	A
131	3.93	0.73	18.58	-14.57	0.7	1.9	A	18.7	N	N
132	4.756	0.128	2.69	3.39	0.2	0.4	A	3.5	A	A
133	4.8	0.3	6.25	4.35	0.2	0.8	A	6.6	A	A
134	4.6	0.1	2.17	0.00	0.0	0.4	A	3.1	A	A
136	4.214	0.116	2.75	-8.39	0.4	0.4	A	3.5	A	A
137	10.57	1.21	11.45	129.78	6.0	3.1	N	11.7	N	N
138	4.2	0.27	6.43	-8.70	0.4	0.7	A	6.8	A	A
139	4	0.134	3.35	-13.04	0.6	0.4	N	4.0	A	N
140	4.7	0.16	3.40	2.17	0.1	0.5	A	4.0	A	A
141	5.29	0.37	6.99	15.00	0.7	1.0	A	7.3	A	A
142	3.21	0.0025	0.08	-30.22	1.4	0.3	N	2.2	A	N
143	3.33	0.42	12.61	-27.61	1.3	1.1	N	12.8	N	N
144	2.76	0.33	11.96	-40.00	1.8	0.9	N	12.2	N	N
145	4.33	0.35	8.08	-5.87	0.3	0.9	A	8.4	A	A
146	3.42	0.3	8.77	-25.65	1.2	0.8	N	9.0	A	N
150	2.31	0.12	5.19	-49.78	2.3	0.4	N	5.6	A	N
151	2.36	0.12	5.08	-48.70	2.2	0.4	N	5.5	A	N
152	2.4	0.1	4.17	-47.83	2.2	0.4	N	4.7	A	N
153	4.363	0.307	7.04	-5.15	0.2	0.8	A	7.4	A	A
154	4.4	0.3	6.82	-4.35	0.2	0.8	A	7.2	A	A
157	4.5	0.2	4.44	-2.17	0.1	0.6	A	4.9	A	A
158	4.66	0.24	5.15	1.30	0.1	0.7	A	5.6	A	A
159	4.35	0.09	2.07	-5.43	0.3	0.3	A	3.0	A	A
160	4.75	0.48	10.11	3.26	0.2	1.3	A	10.3	N	W
161	4.36	0.4	9.17	-5.22	0.2	1.1	A	9.4	A	A
162	4.32	0.19	4.40	-6.09	0.3	0.6	A	4.9	A	A
163	4.82	0.23	4.77	4.78	0.2	0.6	A	5.2	A	A
164	4.36	0.22	5.05	-5.22	0.2	0.6	A	5.5	A	A
165	4.55	0.2	4.40	-1.09	0.0	0.6	A	4.9	A	A
166	4.3	0.25	5.81	-6.52	0.3	0.7	A	6.2	A	A
167	3.25	0.31	9.54	-29.35	1.4	0.8	N	9.8	A	N
168	3.82	0.08	2.09	-16.96	0.8	0.3	N	3.0	A	N
169	4.75	0.2	4.21	3.26	0.2	0.6	A	4.7	A	A
170	4.3	0.2	4.65	-6.52	0.3	0.6	A	5.1	A	A
171	4.96	0.15	3.02	7.83	0.4	0.5	A	3.7	A	A
172	4.7	0.3	6.38	2.17	0.1	0.8	A	6.7	A	A
173	3.88	0.08	2.06	-15.65	0.7	0.3	N	3.0	A	N
174	4.76	0.2	4.20	3.48	0.2	0.6	A	4.7	A	A
175	4.65	0.24	5.16	1.09	0.1	0.7	A	5.6	A	A
177	5.03	0.25	4.97	9.35	0.4	0.7	A	5.4	A	A
178	5.06	0.214	4.23	10.00	0.5	0.6	A	4.8	A	A
179	3.86	0.1	2.59	-16.09	0.7	0.4	N	3.4	A	N
181	4.27	0.1	2.34	-7.17	0.3	0.4	A	3.2	A	A
182	5.32	0.24	4.51	15.65	0.7	0.7	N	5.0	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
183	4.28	0.18	4.21	-6.96	0.3	0.5	A	4.7	A	A
184	3.79	0.22	5.80	-17.61	0.8	0.6	N	6.2	A	N
185	4.47	0.36	8.05	-2.83	0.1	1.0	A	8.3	A	A
186	4.68	0.18	3.85	1.74	0.1	0.5	A	4.4	A	A
187	3.9	0.7	17.95	-15.22	0.7	1.8	A	18.1	N	N
188	4.2	0.3	7.14	-8.70	0.4	0.8	A	7.5	A	A
190	3.75	0.52	13.87	-18.48	0.9	1.4	A	14.0	N	N
191	4.19	0.14	3.34	-8.91	0.4	0.4	A	4.0	A	A
192	4.9	0.5	10.20	6.52	0.3	1.3	A	10.4	N	W
193	5.1	0.4	7.84	10.87	0.5	1.1	A	8.1	A	A
194	5.3	0.5	9.43	15.22	0.7	1.3	A	9.7	A	A
195	4.27	0.14	3.28	-7.17	0.3	0.4	A	3.9	A	A
197	7.51	0.14	1.86	63.26	2.9	0.4	N	2.9	A	N
199	5.1	0.4	7.84	10.87	0.5	1.1	A	8.1	A	A
200	4.35	0.18	4.14	-5.43	0.3	0.5	A	4.7	A	A
201	4.765	0.11	2.31	3.59	0.2	0.4	A	3.2	A	A
202	5.114	0.254	4.97	11.17	0.5	0.7	A	5.4	A	A
204	9.8	0.7	7.14	113.04	5.2	1.8	N	7.5	A	N
206	1.66	0.07	4.22	-63.91	2.9	0.3	N	4.7	A	N
207	5	1.5	30.00	8.70	0.4	3.9	A	30.1	N	W
208	3.8	0.4	10.53	-17.39	0.8	1.1	A	10.7	N	N
209	5.5	0.43	7.82	19.57	0.9	1.1	A	8.1	A	A
210	4	0.06	1.50	-13.04	0.6	0.3	N	2.6	A	N
211	4.4	0.22	5.00	-4.35	0.2	0.6	A	5.5	A	A
212	4.29	0.14	3.26	-6.74	0.3	0.4	A	3.9	A	A
213	4.39	0.08	1.82	-4.57	0.2	0.3	A	2.8	A	A
214	4.33	0.12	2.77	-5.87	0.3	0.4	A	3.5	A	A
215	4.32	0.16	3.70	-6.09	0.3	0.5	A	4.3	A	A
216	4.81	0.35	7.28	4.57	0.2	0.9	A	7.6	A	A
217	4.23	0.19	4.49	-8.04	0.4	0.6	A	5.0	A	A
218	4.058	0.081	2.00	-11.78	0.5	0.3	N	3.0	A	N
219	4.23	0.17	4.02	-8.04	0.4	0.5	A	4.6	A	A
220	4.93	0.18	3.65	7.17	0.3	0.5	A	4.2	A	A
221	4.63	0.4	8.64	0.65	0.0	1.1	A	8.9	A	A
223	3.18	0.32	10.06	-30.87	1.4	0.9	N	10.3	N	N
224	3.73	0.28	7.51	-18.91	0.9	0.8	N	7.8	A	N
225	22	2	9.09	378.26	17.4	5.2	N	9.3	A	N
226	5	0.3	6.00	8.70	0.4	0.8	A	6.4	A	A
227	4.33	0.11	2.54	-5.87	0.3	0.4	A	3.3	A	A
230	5.99	1.18	19.70	30.22	1.4	3.1	A	19.8	N	N
232	4.88	0.16	3.28	6.09	0.3	0.5	A	3.9	A	A
233	4.26	0.36	8.45	-7.39	0.3	1.0	A	8.7	A	A
234	5.74	0.937	16.32	24.78	1.1	2.4	A	16.5	N	N
235	4.62	0.74	16.02	0.43	0.0	1.9	A	16.2	N	W
236	4.73	0.63	13.32	2.83	0.1	1.6	A	13.5	N	W
237	4.4	0.2	4.55	-4.35	0.2	0.6	A	5.0	A	A
238	4.46	0.09	2.02	-3.04	0.1	0.3	A	3.0	A	A
239	4.16	0.15	3.61	-9.57	0.4	0.5	A	4.2	A	A

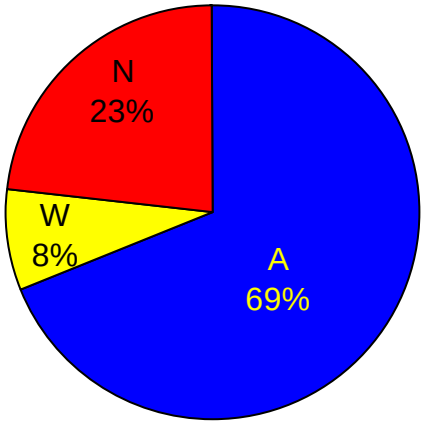
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
240	4.1	0.4	9.76	-10.87	0.5	1.1	A	10.0	A	A
241	4	0.3	7.50	-13.04	0.6	0.8	A	7.8	A	A
242	4.42	0.09	2.04	-3.91	0.2	0.3	A	3.0	A	A
243	4.501	0.2529	5.62	-2.15	0.1	0.7	A	6.0	A	A
244	4.43	0.164	3.70	-3.70	0.2	0.5	A	4.3	A	A
245	4.05	0.08	1.98	-11.96	0.6	0.3	N	2.9	A	N
246	4.28	0.28	6.54	-6.96	0.3	0.8	A	6.9	A	A
249	4.22	0.14	3.32	-8.26	0.4	0.4	A	4.0	A	A
250	3.98	0.17	4.27	-13.48	0.6	0.5	N	4.8	A	N
251	4.61	0.32	6.94	0.22	0.0	0.9	A	7.3	A	A
252	4.5	0.2	4.44	-2.17	0.1	0.6	A	4.9	A	A
253	4.3	0.2	4.65	-6.52	0.3	0.6	A	5.1	A	A
254	4.12	0.15	3.64	-10.43	0.5	0.5	N	4.2	A	N
255	4.76	0.16	3.36	3.48	0.2	0.5	A	4.0	A	A
256	4.46	0.46	10.31	-3.04	0.1	1.2	A	10.5	N	W
257	4.48	0.3	6.70	-2.61	0.1	0.8	A	7.0	A	A
258	4.18	0.22	5.26	-9.13	0.4	0.6	A	5.7	A	A
259	3.87	0.05	1.29	-15.87	0.7	0.3	N	2.5	A	N
260	4.65	0.28	6.02	1.09	0.1	0.8	A	6.4	A	A
261	5	0.4	8.00	8.70	0.4	1.1	A	8.3	A	A
263	4.1	0.32	7.80	-10.87	0.5	0.9	A	8.1	A	A
264	12.8	0.508	3.97	178.26	8.2	1.3	N	4.5	A	N
265	4.61	0.071	1.54	0.22	0.0	0.3	A	2.7	A	A
267	3.95	0.282	7.14	-14.13	0.6	0.8	A	7.5	A	A
268	4.72	0.3	6.36	2.61	0.1	0.8	A	6.7	A	A
269	4.5	0.4	8.89	-2.17	0.1	1.1	A	9.2	A	A
270	4.59	0.28	6.10	-0.22	0.0	0.8	A	6.5	A	A
271	3.9	0.08	2.05	-15.22	0.7	0.3	N	3.0	A	N
272	4.12	0.1	2.43	-10.43	0.5	0.4	N	3.3	A	N
273	1.5	0.4	26.67	-67.39	3.1	1.1	N	26.8	N	N
274	4.66	0.19	4.08	1.30	0.1	0.6	A	4.6	A	A
275	4.58	0.19	4.15	-0.43	0.0	0.6	A	4.7	A	A
276	3.9	0.4	10.26	-15.22	0.7	1.1	A	10.5	N	N
277	0.099	0.002	2.02	-97.85	4.5	0.3	N	3.0	A	N
278	4.25	0.47	11.06	-7.61	0.4	1.2	A	11.3	N	W
279	4.07	0.13	3.19	-11.52	0.5	0.4	N	3.9	A	N
283	3.74	0.25	6.68	-18.70	0.9	0.7	N	7.0	A	N
284	4.28	0.32	7.48	-6.96	0.3	0.9	A	7.8	A	A
285	4.12	0.32	7.77	-10.43	0.5	0.9	A	8.1	A	A
286	347.67	7.82	2.25	7458.04	343.1	20.2	N	3.1	A	N
288	4.6	0.3	6.52	0.00	0.0	0.8	A	6.9	A	A
289	4.63	0.18	3.89	0.65	0.0	0.5	A	4.5	A	A
290	3.8	0.3	7.89	-17.39	0.8	0.8	A	8.2	A	A
292	3.9	0.2	5.13	-15.22	0.7	0.6	N	5.6	A	N
293	3.9	0.2	5.13	-15.22	0.7	0.6	N	5.6	A	N
294	4.76	0.13	2.73	3.48	0.2	0.4	A	3.5	A	A
295	4.32	0.15	3.47	-6.09	0.3	0.5	A	4.1	A	A
296	4.5	0.3	6.67	-2.17	0.1	0.8	A	7.0	A	A

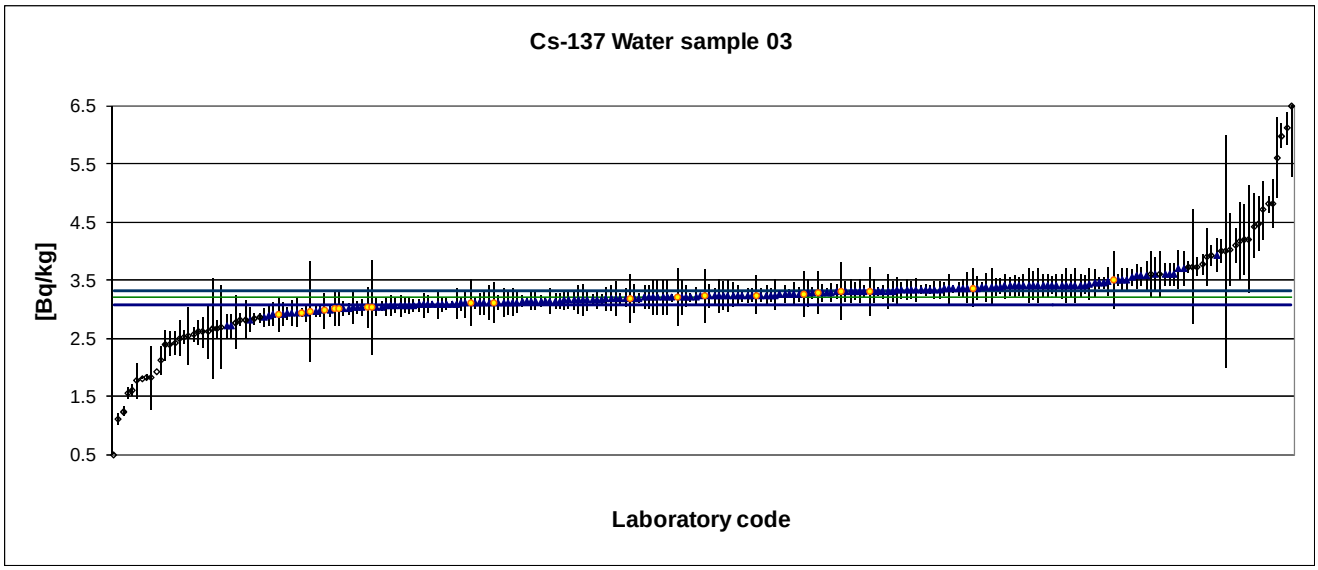
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
297	4.3	0.4	9.30	-6.52	0.3	1.1	A	9.6	A	A
298	4.31	0.09	2.09	-6.30	0.3	0.3	A	3.0	A	A
299	3.58	0.8	22.35	-22.17	1.0	2.1	A	22.5	N	N
300	4.51	0.36	7.98	-1.96	0.1	1.0	A	8.3	A	A

Performance evaluation of Cs-137 measurement results

Spiked water sample 03

Target Value: 3.2 ± 0.06 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	2.82	0.33	11.70	-11.88	0.4	0.9	A	11.9	N	N
2	2.96	0.1	3.38	-7.50	0.2	0.3	A	3.9	A	A
3	3.3	0.5	15.15	3.12	0.1	1.3	A	15.3	N	W
4	2.92	0.1	3.42	-8.75	0.3	0.3	A	4.0	A	A
5	9.27	0.56	6.04	189.69	6.1	1.5	N	6.4	A	N
6	3.39	0.21	6.19	5.94	0.2	0.6	A	6.5	A	A
7	2.97	0.11	3.70	-7.19	0.2	0.3	A	4.2	A	A
9	3.21	0.18	5.61	0.31	0.0	0.5	A	6.0	A	A
11	3.4	0.2	5.88	6.25	0.2	0.5	A	6.2	A	A
12	4	0.2	5.00	25.00	0.8	0.5	N	5.4	A	N
13	2.83	0.1	3.53	-11.56	0.4	0.3	N	4.1	A	N
14	2.38	0.26	10.92	-25.63	0.8	0.7	N	11.1	N	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
15	2.66	0.86	32.33	-16.88	0.5	2.2	A	32.4	N	N
16	3.29	0.05	1.52	2.81	0.1	0.2	A	2.5	A	A
17	3.39	0.17	5.01	5.94	0.2	0.5	A	5.4	A	A
18	3.08	0.05	1.62	-3.75	0.1	0.2	A	2.6	A	A
19	3.255	0.06	1.94	1.72	0.1	0.2	A	2.8	A	A
20	3.25	0.05	1.54	1.56	0.0	0.2	A	2.5	A	A
21	3.24	0.33	10.19	1.25	0.0	0.9	A	10.4	N	W
22	3.22	0.04	1.24	0.63	0.0	0.2	A	2.4	A	A
23	3.33	0.08	2.40	4.06	0.1	0.3	A	3.1	A	A
24	3.33	0.1	3.00	4.06	0.1	0.3	A	3.6	A	A
25	4.17	0.67	16.07	30.31	1.0	1.7	A	16.2	N	N
26	2.94	0.25	8.50	-8.13	0.3	0.7	A	8.7	A	A
27	2.541	0.48	19.15	-20.59	0.7	1.3	A	19.3	N	N
29	3.2	0.2	6.25	0.00	0.0	0.5	A	6.6	A	A
30	3.4	0.3	8.82	6.25	0.2	0.8	A	9.0	A	A
31	3.9	0.5	12.82	21.88	0.7	1.3	A	13.0	N	N
32	3.4	0.25	7.35	6.25	0.2	0.7	A	7.6	A	A
33	3.18	0.22	6.92	-0.63	0.0	0.6	A	7.2	A	A
34	3.18	0.29	9.12	-0.63	0.0	0.8	A	9.3	A	A
35	3.3	0.17	5.15	3.12	0.1	0.5	A	5.5	A	A
36	3.34	0.12	3.59	4.37	0.1	0.4	A	4.1	A	A
37	3.25	0.14	4.31	1.56	0.0	0.4	A	4.7	A	A
38	1.8	0.014	0.78	-43.75	1.4	0.2	N	2.1	A	N
39	2.9	0.2	6.90	-9.38	0.3	0.5	A	7.2	A	A
40	3.26	0.19	5.83	1.87	0.1	0.5	A	6.2	A	A
41	3	0.3	10.00	-6.25	0.2	0.8	A	10.2	N	W
42	3.6	0.4	11.11	12.50	0.4	1.0	A	11.3	N	N
43	1.82	0.05	2.75	-43.13	1.4	0.2	N	3.4	A	N
44	3.36	0.26	7.74	5.00	0.2	0.7	A	8.0	A	A
45	3.07	0.11	3.58	-4.06	0.1	0.3	A	4.1	A	A
46	3.6	0.3	8.33	12.50	0.4	0.8	A	8.6	A	A
47	3.39	0.18	5.31	5.94	0.2	0.5	A	5.7	A	A
50	3.13	0.16	5.11	-2.19	0.1	0.4	A	5.5	A	A
51	3.04	0.15	4.93	-5.00	0.2	0.4	A	5.3	A	A
52	3.07	0.21	6.84	-4.06	0.1	0.6	A	7.1	A	A
53	3.13	0.16	5.11	-2.19	0.1	0.4	A	5.5	A	A
54	3.42	0.27	7.89	6.87	0.2	0.7	A	8.1	A	A
55	3.38	0.24	7.10	5.62	0.2	0.6	A	7.4	A	A
56	3.3	0.2	6.06	3.12	0.1	0.5	A	6.4	A	A
57	3.11	0.24	7.72	-2.81	0.1	0.6	A	8.0	A	A
58	3.3	0.15	4.55	3.12	0.1	0.4	A	5.0	A	A
59	3.33	0.08	2.40	4.06	0.1	0.3	A	3.1	A	A
60	3.19	0.08	2.51	-0.31	0.0	0.3	A	3.2	A	A
61	3.45	0.11	3.19	7.81	0.3	0.3	A	3.8	A	A
62	3.26	0.12	3.68	1.87	0.1	0.4	A	4.2	A	A
63	3.21	0.08	2.49	0.31	0.0	0.3	A	3.2	A	A
64	3.24	0.113	3.49	1.25	0.0	0.3	A	4.0	A	A
65	3.35	0.11	3.28	4.69	0.2	0.3	A	3.8	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
68	3.2	0.2	6.25	0.00	0.0	0.5	A	6.6	A	A
70	3.6	0.4	11.11	12.50	0.4	1.0	A	11.3	N	N
71	3.08	0.25	8.12	-3.75	0.1	0.7	A	8.4	A	A
72	2.94	0.07	2.38	-8.13	0.3	0.2	N	3.1	A	W
73	3.11	0.21	6.75	-2.81	0.1	0.6	A	7.0	A	A
74	3.2	0.3	9.38	0.00	0.0	0.8	A	9.6	A	A
75	3.3	0.2	6.06	3.12	0.1	0.5	A	6.4	A	A
76	3.1	0.11	3.55	-3.13	0.1	0.3	A	4.1	A	A
77	3.147	0.16	5.08	-1.66	0.1	0.4	A	5.5	A	A
78	2.52	0.115	4.56	-21.25	0.7	0.3	N	5.0	A	N
79	3.5	0.5	14.29	9.37	0.3	1.3	A	14.4	N	W
80	3.3	0.1	3.03	3.12	0.1	0.3	A	3.6	A	A
81	3.11	0.23	7.40	-2.81	0.1	0.6	A	7.7	A	A
82	2.88	0.18	6.25	-10.00	0.3	0.5	A	6.6	A	A
83	2.66	0.14	5.26	-16.88	0.5	0.4	N	5.6	A	N
84	3.4	0.3	8.82	6.25	0.2	0.8	A	9.0	A	A
85	2.6	0.2	7.69	-18.75	0.6	0.5	N	7.9	A	N
86	2.4	0.2	8.33	-25.00	0.8	0.5	N	8.6	A	N
87	3.39	0.16	4.72	5.94	0.2	0.4	A	5.1	A	A
88	3.4	0.2	5.88	6.25	0.2	0.5	A	6.2	A	A
89	3.28	0.09	2.74	2.50	0.1	0.3	A	3.4	A	A
90	3.15	0.15	4.76	-1.56	0.1	0.4	A	5.2	A	A
91	3.2	0.3	9.38	0.00	0.0	0.8	A	9.6	A	A
92	3.05	0.16	5.25	-4.69	0.2	0.4	A	5.6	A	A
93	3.29	0.16	4.86	2.81	0.1	0.4	A	5.3	A	A
94	3.36	0.34	10.12	5.00	0.2	0.9	A	10.3	N	W
95	3.23	0.24	7.43	0.94	0.0	0.6	A	7.7	A	A
96	3.4	0.2	5.88	6.25	0.2	0.5	A	6.2	A	A
97	3.07	0.15	4.89	-4.06	0.1	0.4	A	5.3	A	A
98	3.23	0.28	8.67	0.94	0.0	0.7	A	8.9	A	A
99	3.37	0.07	2.08	5.31	0.2	0.2	A	2.9	A	A
100	2.95	0.86	29.15	-7.81	0.3	2.2	A	29.2	N	W
101	3.6	0.19	5.28	12.50	0.4	0.5	A	5.6	A	A
105	3.03	0.35	11.55	-5.31	0.2	0.9	A	11.7	N	W
106	3.3	0.42	12.73	3.12	0.1	1.1	A	12.9	N	W
107	3.03	0.82	27.06	-5.31	0.2	2.1	A	27.1	N	W
109	3.28	0.37	11.28	2.50	0.1	1.0	A	11.5	N	W
110	3.1	0.233	7.52	-3.13	0.1	0.6	A	7.8	A	A
111	3.22	0.45	13.98	0.63	0.0	1.2	A	14.1	N	W
112	3.33	0.15	4.50	4.06	0.1	0.4	A	4.9	A	A
114	3.3	0.2	6.06	3.12	0.1	0.5	A	6.4	A	A
115	4.2	0.6	14.29	31.25	1.0	1.6	A	14.4	N	N
118	3.23	0.21	6.50	0.94	0.0	0.6	A	6.8	A	A
119	3.93	0.29	7.38	22.81	0.7	0.8	A	7.6	A	A
120	3.33	0.15	4.50	4.06	0.1	0.4	A	4.9	A	A
121	13.1	0.52	3.97	309.38	9.9	1.4	N	4.4	A	N
122	3.4	0.15	4.41	6.25	0.2	0.4	A	4.8	A	A
123	2.56	0.13	5.08	-20.00	0.6	0.4	N	5.5	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
124	3.179	0.197	6.20	-0.66	0.0	0.5	A	6.5	A	A
125	4.7	0.5	10.64	46.88	1.5	1.3	N	10.8	N	N
126	2.6	0.26	10.00	-18.75	0.6	0.7	A	10.2	N	N
127	3.02	0.29	9.60	-5.63	0.2	0.8	A	9.8	A	A
128	3.22	0.2	6.21	0.63	0.0	0.5	A	6.5	A	A
130	3.14	0.13	4.14	-1.88	0.1	0.4	A	4.6	A	A
131	3.02	0.11	3.64	-5.63	0.2	0.3	A	4.2	A	A
132	3.239	0.114	3.52	1.22	0.0	0.3	A	4.0	A	A
133	3.35	0.15	4.48	4.69	0.2	0.4	A	4.9	A	A
134	3.18	0.1	3.14	-0.63	0.0	0.3	A	3.7	A	A
136	3.388	0.147	4.34	5.87	0.2	0.4	A	4.8	A	A
137	5.98	0.21	3.51	86.88	2.8	0.6	N	4.0	A	N
138	3.47	0.24	6.92	8.44	0.3	0.6	A	7.2	A	A
139	3.23	0.161	4.98	0.94	0.0	0.4	A	5.4	A	A
140	4	2	50.00	25.00	0.8	5.2	A	50.0	N	N
141	4.46	0.47	10.54	39.38	1.3	1.2	N	10.7	N	N
142	1.91	0.002	0.10	-40.31	1.3	0.2	N	2.0	A	N
144	1.77	0.31	17.51	-44.69	1.4	0.8	N	17.6	N	N
145	3.38	0.32	9.47	5.62	0.2	0.8	A	9.7	A	A
146	3.26	0.4	12.27	1.87	0.1	1.0	A	12.4	N	W
150	2.85	0.09	3.16	-10.94	0.4	0.3	N	3.7	A	N
151	1.55	0.09	5.81	-51.56	1.7	0.3	N	6.1	A	N
152	1.6	0.1	6.25	-50.00	1.6	0.3	N	6.6	A	N
153	3.44	0.245	7.12	7.50	0.2	0.7	A	7.4	A	A
154	3.7	0.3	8.11	15.63	0.5	0.8	A	8.4	A	A
157	3.4	0.2	5.88	6.25	0.2	0.5	A	6.2	A	A
158	3.57	0.21	5.88	11.56	0.4	0.6	A	6.2	A	A
159	3.04	0.08	2.63	-5.00	0.2	0.3	A	3.3	A	A
160	4.42	0.56	12.67	38.13	1.2	1.5	A	12.8	N	N
161	3.32	0.24	7.23	3.75	0.1	0.6	A	7.5	A	A
162	3.27	0.23	7.03	2.19	0.1	0.6	A	7.3	A	A
163	3.24	0.17	5.25	1.25	0.0	0.5	A	5.6	A	A
164	3.05	0.17	5.57	-4.69	0.2	0.5	A	5.9	A	A
165	2.94	0.15	5.10	-8.13	0.3	0.4	A	5.5	A	A
166	3.4	0.21	6.18	6.25	0.2	0.6	A	6.5	A	A
167	2.97	0.31	10.44	-7.19	0.2	0.8	A	10.6	N	W
168	2.98	0.11	3.69	-6.88	0.2	0.3	A	4.2	A	A
169	3.32	0.13	3.92	3.75	0.1	0.4	A	4.4	A	A
170	3.2	0.3	9.38	0.00	0.0	0.8	A	9.6	A	A
171	3.51	0.19	5.41	9.69	0.3	0.5	A	5.8	A	A
172	3.1	0.4	12.90	-3.13	0.1	1.0	A	13.1	N	W
173	3.12	0.1	3.21	-2.50	0.1	0.3	A	3.8	A	A
174	3.31	0.17	5.14	3.44	0.1	0.5	A	5.5	A	A
175	3.15	0.16	5.08	-1.56	0.1	0.4	A	5.5	A	A
176	3.12	0.07	2.24	-2.50	0.1	0.2	A	3.0	A	A
177	3.36	0.2	5.95	5.00	0.2	0.5	A	6.3	A	A
178	3.28	0.14	4.27	2.50	0.1	0.4	A	4.7	A	A
179	3.1	0.1	3.23	-3.13	0.1	0.3	A	3.8	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
181	3.09	0.05	1.62	-3.44	0.1	0.2	A	2.6	A	A
182	4.8	0.13	2.71	50.00	1.6	0.4	N	3.4	A	N
183	3.38	0.15	4.44	5.62	0.2	0.4	A	4.9	A	A
184	3.02	0.13	4.30	-5.63	0.2	0.4	A	4.7	A	A
185	3.1	0.19	6.13	-3.13	0.1	0.5	A	6.4	A	A
186	3.22	0.14	4.35	0.63	0.0	0.4	A	4.8	A	A
187	3.1	0.2	6.45	-3.13	0.1	0.5	A	6.8	A	A
188	3.21	0.16	4.98	0.31	0.0	0.4	A	5.4	A	A
190	4.02	0.63	15.67	25.63	0.8	1.6	A	15.8	N	N
191	3.01	0.12	3.99	-5.94	0.2	0.4	A	4.5	A	A
192	3.4	0.3	8.82	6.25	0.2	0.8	A	9.0	A	A
193	3.4	0.2	5.88	6.25	0.2	0.5	A	6.2	A	A
194	3.6	0.2	5.56	12.50	0.4	0.5	A	5.9	A	A
195	3.41	0.16	4.69	6.56	0.2	0.4	A	5.1	A	A
197	6.11	0.28	4.58	90.94	2.9	0.7	N	5.0	A	N
199	3	0.3	10.00	-6.25	0.2	0.8	A	10.2	N	W
200	3.16	0.17	5.38	-1.25	0.0	0.5	A	5.7	A	A
201	3.06	0.12	3.92	-4.38	0.1	0.4	A	4.4	A	A
202	7.201	0.523	7.26	125.03	4.0	1.4	N	7.5	A	N
203	30.3	0.96	3.17	846.88	27.1	2.5	N	3.7	A	N
204	11	2	18.18	243.75	7.8	5.2	N	18.3	N	N
205	2.42	0.2	8.26	-24.38	0.8	0.5	N	8.5	A	N
206	1.24	0.08	6.45	-61.25	2.0	0.3	N	6.8	A	N
207	3.92	0.18	4.59	22.50	0.7	0.5	N	5.0	A	N
208	2.5	0.3	12.00	-21.88	0.7	0.8	A	12.2	N	N
209	4.82	0.42	8.71	50.63	1.6	1.1	N	8.9	A	N
210	3.3	0.08	2.42	3.12	0.1	0.3	A	3.1	A	A
211	3.16	0.1	3.16	-1.25	0.0	0.3	A	3.7	A	A
212	3.3	0.11	3.33	3.12	0.1	0.3	A	3.9	A	A
213	3.01	0.1	3.32	-5.94	0.2	0.3	A	3.9	A	A
214	3.24	0.1	3.09	1.25	0.0	0.3	A	3.7	A	A
215	3.51	0.19	5.41	9.69	0.3	0.5	A	5.8	A	A
216	3.24	0.27	8.33	1.25	0.0	0.7	A	8.6	A	A
217	3.16	0.15	4.75	-1.25	0.0	0.4	A	5.2	A	A
218	3.325	0.148	4.45	3.91	0.1	0.4	A	4.9	A	A
219	2.85	0.16	5.61	-10.94	0.4	0.4	A	6.0	A	A
220	3.15	0.24	7.62	-1.56	0.1	0.6	A	7.9	A	A
221	3.4	0.3	8.82	6.25	0.2	0.8	A	9.0	A	A
223	2.12	0.24	11.32	-33.75	1.1	0.6	N	11.5	N	N
224	1.82	0.54	29.67	-43.13	1.4	1.4	A	29.7	N	N
225	15.5	3	19.35	384.38	12.3	7.7	N	19.5	N	N
226	5.6	0.7	12.50	75.00	2.4	1.8	N	12.7	N	N
227	3.14	0.13	4.14	-1.88	0.1	0.4	A	4.6	A	A
230	6.95	1.23	17.70	117.19	3.8	3.2	N	17.8	N	N
232	3.46	0.1	2.89	8.12	0.3	0.3	A	3.5	A	A
233	3.15	0.27	8.57	-1.56	0.1	0.7	A	8.8	A	A
234	4.2	0.919	21.88	31.25	1.0	2.4	A	22.0	N	N
235	2.69	0.72	26.77	-15.94	0.5	1.9	A	26.8	N	N

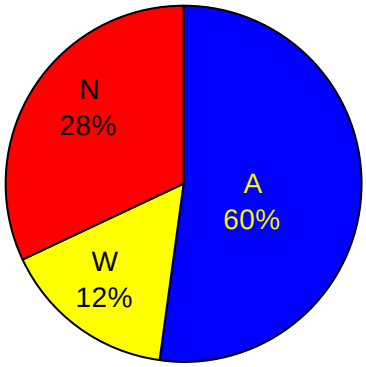
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
236	2.77	0.45	16.25	-13.44	0.4	1.2	A	16.4	N	N
237	3.2	0.3	9.38	0.00	0.0	0.8	A	9.6	A	A
238	3.23	0.09	2.79	0.94	0.0	0.3	A	3.4	A	A
239	2.81	0.11	3.91	-12.19	0.4	0.3	N	4.4	A	N
240	2.9	0.3	10.34	-9.38	0.3	0.8	A	10.5	N	W
241	3.1	0.3	9.68	-3.13	0.1	0.8	A	9.9	A	A
242	3.05	0.13	4.26	-4.69	0.2	0.4	A	4.7	A	A
243	3.326	0.2024	6.09	3.94	0.1	0.5	A	6.4	A	A
244	3.06	0.133	4.35	-4.38	0.1	0.4	A	4.8	A	A
245	3.13	0.09	2.88	-2.19	0.1	0.3	A	3.5	A	A
246	3.57	0.16	4.48	11.56	0.4	0.4	A	4.9	A	A
249	3.32	0.17	5.12	3.75	0.1	0.5	A	5.5	A	A
250	3.05	0.19	6.23	-4.69	0.2	0.5	A	6.5	A	A
251	3.18	0.16	5.03	-0.63	0.0	0.4	A	5.4	A	A
252	2.9	0.2	6.90	-9.38	0.3	0.5	A	7.2	A	A
253	3.6	0.2	5.56	12.50	0.4	0.5	A	5.9	A	A
254	3.08	0.13	4.22	-3.75	0.1	0.4	A	4.7	A	A
255	3.08	0.1	3.25	-3.75	0.1	0.3	A	3.8	A	A
256	3.18	0.42	13.21	-0.63	0.0	1.1	A	13.4	N	W
257	3.34	0.26	7.78	4.37	0.1	0.7	A	8.0	A	A
258	3.11	0.17	5.47	-2.81	0.1	0.5	A	5.8	A	A
259	3.13	0.08	2.56	-2.19	0.1	0.3	A	3.2	A	A
260	3.18	0.25	7.86	-0.63	0.0	0.7	A	8.1	A	A
261	4.1	0.3	7.32	28.13	0.9	0.8	N	7.6	A	N
263	3.1	0.35	11.29	-3.13	0.1	0.9	A	11.5	N	W
264	9.38	0.288	3.07	193.13	6.2	0.8	N	3.7	A	N
265	3.2	0.062	1.94	0.00	0.0	0.2	A	2.8	A	A
267	2.93	0.215	7.34	-8.44	0.3	0.6	A	7.6	A	A
268	3.22	0.28	8.70	0.63	0.0	0.7	A	8.9	A	A
269	3.3	0.3	9.09	3.12	0.1	0.8	A	9.3	A	A
270	3.57	0.24	6.72	11.56	0.4	0.6	A	7.0	A	A
271	3.1	0.12	3.87	-3.13	0.1	0.4	A	4.4	A	A
272	3.06	0.11	3.59	-4.38	0.1	0.3	A	4.1	A	A
273	1.1	0.1	9.09	-65.63	2.1	0.3	N	9.3	A	N
274	3.16	0.1	3.16	-1.25	0.0	0.3	A	3.7	A	A
275	3.73	0.16	4.29	16.56	0.5	0.4	N	4.7	A	N
276	3.2	0.5	15.63	0.00	0.0	1.3	A	15.8	N	W
277	0.076	0.002	2.63	-97.63	3.1	0.2	N	3.3	A	N
278	2.61	0.46	17.62	-18.44	0.6	1.2	A	17.7	N	N
279	3.23	0.12	3.72	0.94	0.0	0.4	A	4.2	A	A
283	3.77	0.18	4.77	17.81	0.6	0.5	N	5.2	A	N
284	2.82	0.22	7.80	-11.88	0.4	0.6	A	8.1	A	A
285	3.15	0.23	7.35	-2.19	0.1	0.6	A	7.6	A	A
286	136.59	3.36	2.46	4168.44	133.4	8.7	N	3.2	A	N
288	3.5	0.1	2.86	9.37	0.3	0.3	A	3.5	A	A
289	3.34	0.07	2.10	4.37	0.1	0.2	A	2.9	A	A
290	3.2	0.3	9.38	0.00	0.0	0.8	A	9.6	A	A
292	2.7	0.2	7.41	-15.63	0.5	0.5	A	7.7	A	A

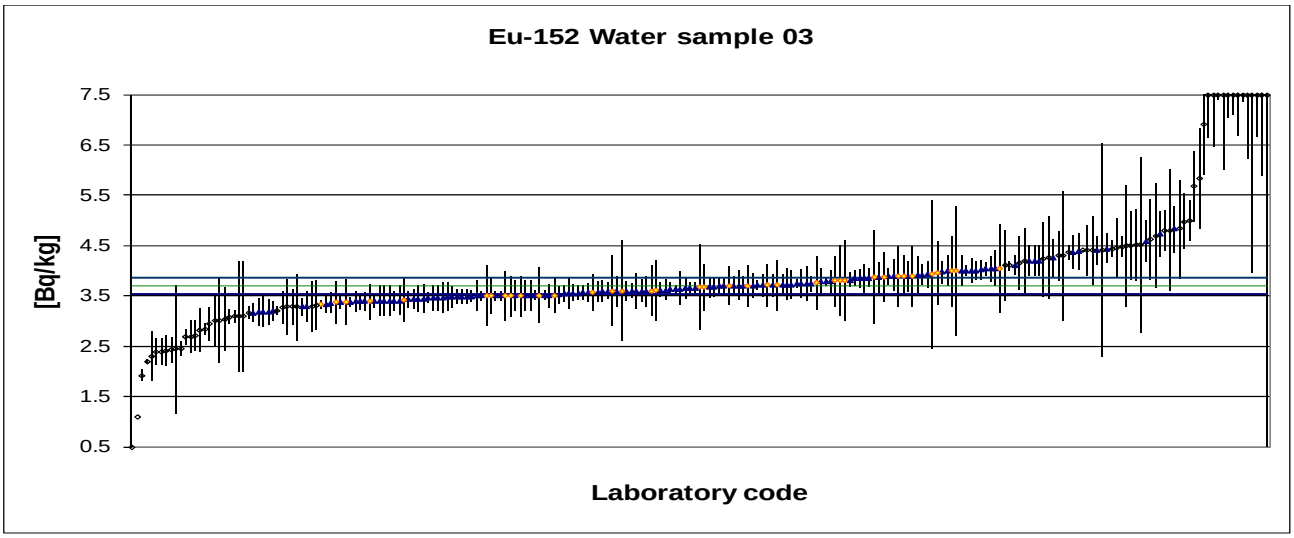
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
293	2.7	0.2	7.41	-15.63	0.5	0.5	A	7.7	A	A
294	3.72	0.1	2.69	16.25	0.5	0.3	N	3.4	A	N
295	3.55	0.15	4.23	10.94	0.4	0.4	A	4.7	A	A
296	3.4	0.2	5.88	6.25	0.2	0.5	A	6.2	A	A
297	3.69	0.33	8.94	15.31	0.5	0.9	A	9.2	A	A
298	3.295	0.1232	3.74	2.97	0.1	0.4	A	4.2	A	A
299	3.72	0.99	26.61	16.25	0.5	2.6	A	26.7	N	N
300	3.09	0.25	8.09	-3.44	0.1	0.7	A	8.3	A	A

Performance evaluation of Eu-152 measurement results

Spiked water sample 03

Target Value: 3.7 ± 0.08 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	3.42	0.44	12.87	-7.57	0.3	1.2	A	13.0	N	W
3	3.9	0.6	15.38	5.41	0.2	1.6	A	15.5	N	W
4	4.41	0.29	6.58	19.19	0.7	0.8	A	6.9	A	A
5	10.06	0.8	7.95	171.89	6.4	2.1	N	8.2	A	N
6	3.59	0.22	6.13	-2.97	0.1	0.6	A	6.5	A	A
7	3.54	0.16	4.52	-4.32	0.2	0.5	A	5.0	A	A
9	4.16	0.52	12.50	12.43	0.5	1.4	A	12.7	N	N
11	4	0.3	7.50	8.11	0.3	0.8	A	7.8	A	A
12	2.7	0.3	11.11	-27.03	1.0	0.8	N	11.3	N	N
13	3.43	0.16	4.66	-7.30	0.3	0.5	A	5.1	A	A
14	10.7	0.15	1.40	189.19	7.0	0.4	N	2.6	A	N
16	3.74	0.08	2.14	1.08	0.0	0.3	A	3.0	A	A
17	3.86	0.19	4.92	4.32	0.2	0.5	A	5.4	A	A
18	3.56	0.14	3.93	-3.78	0.1	0.4	A	4.5	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
19	3.452	0.107	3.10	-6.70	0.2	0.3	A	3.8	A	A
20	3.71	0.1	2.70	0.27	0.0	0.3	A	3.5	A	A
21	3.37	0.42	12.46	-8.92	0.3	1.1	A	12.6	N	W
22	3.64	0.09	2.47	-1.62	0.1	0.3	A	3.3	A	A
23	3.51	0.1	2.85	-5.14	0.2	0.3	A	3.6	A	A
24	3.6	0.16	4.44	-2.70	0.1	0.5	A	4.9	A	A
26	3.57	0.37	10.36	-3.51	0.1	1.0	A	10.6	N	W
29	3.6	0.7	19.44	-2.70	0.1	1.8	A	19.6	N	W
30	3.8	0.5	13.16	2.70	0.1	1.3	A	13.3	N	W
31	3.1	1.1	35.48	-16.22	0.6	2.8	A	35.5	N	N
32	4.74	0.45	9.49	28.11	1.0	1.2	A	9.7	A	A
34	3.28	0.55	16.77	-11.35	0.4	1.4	A	16.9	N	N
35	3.9	0.31	7.95	5.41	0.2	0.8	A	8.2	A	A
36	3.38	0.14	4.14	-8.65	0.3	0.4	A	4.7	A	A
37	2.46	0.13	5.28	-33.51	1.2	0.4	N	5.7	A	N
38	4.4	0.0063	0.14	18.92	0.7	0.2	N	2.2	A	N
39	3.4	0.3	8.82	-8.11	0.3	0.8	A	9.1	A	A
40	3.74	0.28	7.49	1.08	0.0	0.8	A	7.8	A	A
41	3.5	0.3	8.57	-5.41	0.2	0.8	A	8.8	A	A
42	3.9	0.4	10.26	5.41	0.2	1.1	A	10.5	N	W
43	2.19	0.04	1.83	-40.81	1.5	0.2	N	2.8	A	N
44	2.82	0.43	15.25	-23.78	0.9	1.1	A	15.4	N	N
45	3.93	0.27	6.87	6.22	0.2	0.7	A	7.2	A	A
46	3.7	0.38	10.27	0.00	0.0	1.0	A	10.5	N	W
47	4.01	0.25	6.23	8.38	0.3	0.7	A	6.6	A	A
50	3.31	0.5	15.11	-10.54	0.4	1.3	A	15.3	N	N
51	4.98	0.54	10.84	34.59	1.3	1.4	A	11.1	N	N
52	3.28	0.35	10.67	-11.35	0.4	0.9	A	10.9	N	N
53	3.36	0.2	5.95	-9.19	0.3	0.6	A	6.3	A	A
54	4.05	0.36	8.89	9.46	0.4	1.0	A	9.1	A	A
55	3.71	0.23	6.20	0.27	0.0	0.6	A	6.6	A	A
56	3.9	0.3	7.69	5.41	0.2	0.8	A	8.0	A	A
57	3.73	0.32	8.58	0.81	0.0	0.9	A	8.8	A	A
58	3.68	0.19	5.16	-0.54	0.0	0.5	A	5.6	A	A
59	3.5	0.1	2.86	-5.41	0.2	0.3	A	3.6	A	A
60	3.79	0.09	2.37	2.43	0.1	0.3	A	3.2	A	A
61	4.04	0.13	3.22	9.19	0.3	0.4	A	3.9	A	A
62	3.62	0.14	3.87	-2.16	0.1	0.4	A	4.4	A	A
63	4.01	0.18	4.49	8.38	0.3	0.5	A	5.0	A	A
64	3.87	0.936	24.19	4.59	0.2	2.4	A	24.3	N	W
65	3.84	0.15	3.91	3.78	0.1	0.4	A	4.5	A	A
68	3.6	0.3	8.33	-2.70	0.1	0.8	A	8.6	A	A
70	3.6	1	27.78	-2.70	0.1	2.6	A	27.9	N	W
71	3.61	0.6	16.62	-2.43	0.1	1.6	A	16.8	N	W
72	3.33	0.08	2.40	-10.00	0.4	0.3	N	3.2	A	W
73	4.8	0.4	8.33	29.73	1.1	1.1	N	8.6	A	N
75	9.9	0.4	4.04	167.57	6.2	1.1	N	4.6	A	N
76	4.383	0.37	8.44	18.46	0.7	1.0	A	8.7	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
77	5.838	0.995	17.04	57.78	2.1	2.6	A	17.2	N	N
78	2.69	0.147	5.46	-27.30	1.0	0.4	N	5.9	A	N
80	3.7	0.2	5.41	0.00	0.0	0.6	A	5.8	A	A
81	3.51	0.55	15.67	-5.14	0.2	1.4	A	15.8	N	W
82	2.69	0.32	11.90	-27.30	1.0	0.9	N	12.1	N	N
84	4.2	0.3	7.14	13.51	0.5	0.8	A	7.5	A	A
86	3.8	0.7	18.42	2.70	0.1	1.8	A	18.5	N	W
87	3.5	0.6	17.14	-5.41	0.2	1.6	A	17.3	N	W
88	6.9	1	14.49	86.49	3.2	2.6	N	14.7	N	N
89	3.49	0.14	4.01	-5.68	0.2	0.4	A	4.6	A	A
90	3.28	0.66	20.12	-11.35	0.4	1.7	A	20.2	N	N
91	3.3	0.5	15.15	-10.81	0.4	1.3	A	15.3	N	N
92	3.44	0.2	5.81	-7.03	0.3	0.6	A	6.2	A	A
93	4.48	0.21	4.69	21.08	0.8	0.6	N	5.2	A	N
94	4.5	1.2	26.67	21.62	0.8	3.1	A	26.8	N	N
95	3.48	0.28	8.05	-5.95	0.2	0.8	A	8.3	A	A
96	3.4	0.3	8.82	-8.11	0.3	0.8	A	9.1	A	A
97	3.97	0.23	5.79	7.30	0.3	0.6	A	6.2	A	A
98	3.38	0.45	13.31	-8.65	0.3	1.2	A	13.5	N	W
99	3.51	0.1	2.85	-5.14	0.2	0.3	A	3.6	A	A
100	4.52	1.74	38.50	22.16	0.8	4.5	A	38.6	N	N
101	3.65	0.22	6.03	-1.35	0.1	0.6	A	6.4	A	A
106	4.83	0.47	9.73	30.54	1.1	1.2	A	10.0	A	A
107	4.42	2.12	47.96	19.46	0.7	5.5	A	48.0	N	N
109	3.76	0.53	14.10	1.62	0.1	1.4	A	14.3	N	W
111	3.67	0.85	23.16	-0.81	0.0	2.2	A	23.3	N	W
112	3.46	0.26	7.51	-6.49	0.2	0.7	A	7.8	A	A
114	4.3	0.5	11.63	16.22	0.6	1.3	A	11.8	N	N
115	9.4	1.5	15.96	154.05	5.7	3.9	N	16.1	N	N
118	3.64	0.33	9.07	-1.62	0.1	0.9	A	9.3	A	A
120	3.46	0.26	7.51	-6.49	0.2	0.7	A	7.8	A	A
121	2.44	1.28	52.46	-34.05	1.3	3.3	A	52.5	N	N
122	3.75	0.15	4.00	1.35	0.0	0.4	A	4.5	A	A
123	3.08	0.14	4.55	-16.76	0.6	0.4	N	5.0	A	N
124	3.175	0.268	8.44	-14.19	0.5	0.7	A	8.7	A	A
125	2.3	0.5	21.74	-37.84	1.4	1.3	N	21.8	N	N
126	3.1	1.1	35.48	-16.22	0.6	2.8	A	35.5	N	N
128	3.62	0.2	5.52	-2.16	0.1	0.6	A	5.9	A	A
130	3.5	0.36	10.29	-5.41	0.2	1.0	A	10.5	N	W
131	3.34	0.18	5.39	-9.73	0.4	0.5	A	5.8	A	A
132	3.492	0.126	3.61	-5.62	0.2	0.4	A	4.2	A	A
133	3.81	0.14	3.67	2.97	0.1	0.4	A	4.3	A	A
134	3.84	0.18	4.69	3.78	0.1	0.5	A	5.2	A	A
136	22.35	0.83	3.71	504.05	18.7	2.2	N	4.3	A	N
138	3.02	0.84	27.81	-18.38	0.7	2.2	A	27.9	N	N
139	3.6	0.193	5.36	-2.70	0.1	0.5	A	5.8	A	A
140	3.6	0.14	3.89	-2.70	0.1	0.4	A	4.4	A	A
141	3.67	0.46	12.53	-0.81	0.0	1.2	A	12.7	N	W

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
143	7.72	1.02	13.21	108.65	4.0	2.6	N	13.4	N	N
144	3.93	1.47	37.40	6.22	0.2	3.8	A	37.5	N	W
146	3.01	0.5	16.61	-18.65	0.7	1.3	A	16.8	N	N
150	2.39	0.26	10.88	-35.41	1.3	0.7	N	11.1	N	N
151	2.39	0.26	10.88	-35.41	1.3	0.7	N	11.1	N	N
152	2.4	0.3	12.50	-35.14	1.3	0.8	N	12.7	N	N
153	3.872	0.504	13.02	4.65	0.2	1.3	A	13.2	N	W
154	4.2	0.3	7.14	13.51	0.5	0.8	A	7.5	A	A
157	3.2	0.2	6.25	-13.51	0.5	0.6	A	6.6	A	A
158	3.7	0.29	7.84	0.00	0.0	0.8	A	8.1	A	A
159	3.38	0.1	2.96	-8.65	0.3	0.3	A	3.7	A	A
160	4.25	0.82	19.29	14.86	0.6	2.1	A	19.4	N	N
161	3.71	0.41	11.05	0.27	0.0	1.1	A	11.3	N	W
162	3.71	0.23	6.20	0.27	0.0	0.6	A	6.6	A	A
163	4.44	0.29	6.53	20.00	0.7	0.8	A	6.9	A	A
164	3.51	0.24	6.84	-5.14	0.2	0.7	A	7.2	A	A
165	3.66	0.11	3.01	-1.08	0.0	0.4	A	3.7	A	A
166	3.74	0.34	9.09	1.08	0.0	0.9	A	9.3	A	A
167	3.27	0.33	10.09	-11.62	0.4	0.9	A	10.3	N	N
168	3.09	0.12	3.88	-16.49	0.6	0.4	N	4.4	A	N
169	3.69	0.19	5.15	-0.27	0.0	0.5	A	5.6	A	A
170	4	0.7	17.50	8.11	0.3	1.8	A	17.6	N	W
171	4.36	0.14	3.21	17.84	0.7	0.4	N	3.9	A	N
172	4.1	0.7	17.07	10.81	0.4	1.8	A	17.2	N	N
173	3.66	0.11	3.01	-1.08	0.0	0.4	A	3.7	A	A
174	4.11	0.2	4.87	11.08	0.4	0.6	A	5.3	A	A
175	3.72	0.22	5.91	0.54	0.0	0.6	A	6.3	A	A
177	5.67	0.71	12.52	53.24	2.0	1.8	N	12.7	N	N
178	4.44	0.168	3.78	20.00	0.7	0.5	N	4.4	A	N
179	3.5	0.1	2.86	-5.41	0.2	0.3	A	3.6	A	A
181	3.89	0.16	4.11	5.14	0.2	0.5	A	4.6	A	A
182	4.63	0.8	17.28	25.14	0.9	2.1	A	17.4	N	N
183	3.39	0.2	5.90	-8.38	0.3	0.6	A	6.3	A	A
184	4.05	0.88	21.73	9.46	0.4	2.3	A	21.8	N	W
185	3.45	0.28	8.12	-6.76	0.3	0.8	A	8.4	A	A
186	3.69	0.16	4.34	-0.27	0.0	0.5	A	4.8	A	A
187	3.8	0.8	21.05	2.70	0.1	2.1	A	21.2	N	W
188	3.4	0.3	8.82	-8.11	0.3	0.8	A	9.1	A	A
190	4.83	0.97	20.08	30.54	1.1	2.5	A	20.2	N	N
191	3.84	0.28	7.29	3.78	0.1	0.8	A	7.6	A	A
192	3.9	0.6	15.38	5.41	0.2	1.6	A	15.5	N	W
193	3.5	0.1	2.86	-5.41	0.2	0.3	A	3.6	A	A
194	3.7	0.2	5.41	0.00	0.0	0.6	A	5.8	A	A
195	3.48	0.22	6.32	-5.95	0.2	0.6	A	6.7	A	A
197	8.34	0.11	1.32	125.41	4.6	0.4	N	2.5	A	N
199	4	1.3	32.50	8.11	0.3	3.4	A	32.6	N	W
200	1.92	0.11	5.73	-48.11	1.8	0.4	N	6.1	A	N
201	3.395	0.13	3.83	-8.24	0.3	0.4	A	4.4	A	A

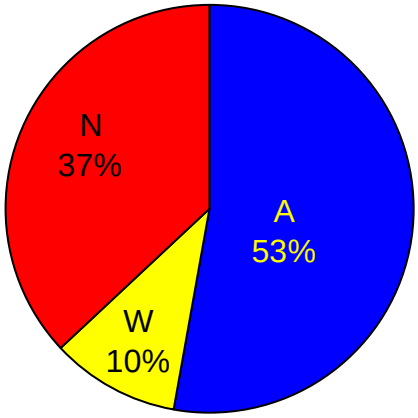
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
202	4.375	0.332	7.59	18.24	0.7	0.9	A	7.9	A	A
207	4.3	1.3	30.23	16.22	0.6	3.4	A	30.3	N	N
208	3.7	0.4	10.81	0.00	0.0	1.1	A	11.0	N	W
209	7.55	0.85	11.26	104.05	3.9	2.2	N	11.5	N	N
210	3.2	0.08	2.50	-13.51	0.5	0.3	N	3.3	A	N
211	3.56	0.18	5.06	-3.78	0.1	0.5	A	5.5	A	A
212	3.49	0.14	4.01	-5.68	0.2	0.4	A	4.6	A	A
213	3.87	0.3	7.75	4.59	0.2	0.8	A	8.0	A	A
214	3.63	0.13	3.58	-1.89	0.1	0.4	A	4.2	A	A
215	3.4	0.2	5.88	-8.11	0.3	0.6	A	6.3	A	A
216	4.19	0.65	15.51	13.24	0.5	1.7	A	15.7	N	N
217	3.4	0.29	8.53	-8.11	0.3	0.8	A	8.8	A	A
218	3.29	0.178	5.41	-11.08	0.4	0.5	A	5.8	A	A
219	3.73	0.28	7.51	0.81	0.0	0.8	A	7.8	A	A
220	3.44	0.26	7.56	-7.03	0.3	0.7	A	7.9	A	A
221	3.6	0.35	9.72	-2.70	0.1	0.9	A	10.0	A	A
223	2.43	0.25	10.29	-34.32	1.3	0.7	N	10.5	N	N
224	3.03	0.62	20.46	-18.11	0.7	1.6	A	20.6	N	N
225	2730	280	10.26	73683.7	2726.3	722.4	N	10.5	N	N
227	3.92	0.21	5.36	5.95	0.2	0.6	A	5.8	A	A
230	11.24	1.29	11.48	203.78	7.5	3.3	N	11.7	N	N
232	3.18	0.3	9.43	-14.05	0.5	0.8	A	9.7	A	A
233	3.47	0.3	8.65	-6.22	0.2	0.8	A	8.9	A	A
235	13.08	3.54	27.06	253.51	9.4	9.1	N	27.2	N	N
236	4.69	1.04	22.17	26.76	1.0	2.7	A	22.3	N	N
237	3.5	0.5	14.29	-5.41	0.2	1.3	A	14.4	N	W
238	3.55	0.16	4.51	-4.05	0.2	0.5	A	5.0	A	A
239	2.84	0.12	4.23	-23.24	0.9	0.4	N	4.7	A	N
240	3.5	0.4	11.43	-5.41	0.2	1.1	A	11.6	N	W
241	3.5	0.3	8.57	-5.41	0.2	0.8	A	8.8	A	A
242	3.39	0.16	4.72	-8.38	0.3	0.5	A	5.2	A	A
243	3.704	0.2456	6.63	0.11	0.0	0.7	A	7.0	A	A
244	3.53	0.179	5.07	-4.59	0.2	0.5	A	5.5	A	A
245	3.39	0.18	5.31	-8.38	0.3	0.5	A	5.7	A	A
246	3.6	0.22	6.11	-2.70	0.1	0.6	A	6.5	A	A
249	3.58	0.21	5.87	-3.24	0.1	0.6	A	6.3	A	A
250	3.6	0.3	8.33	-2.70	0.1	0.8	A	8.6	A	A
251	3.91	0.36	9.21	5.68	0.2	1.0	A	9.5	A	A
252	4	0.3	7.50	8.11	0.3	0.8	A	7.8	A	A
253	4.4	0.5	11.36	18.92	0.7	1.3	A	11.6	N	N
254	3.78	0.27	7.14	2.16	0.1	0.7	A	7.5	A	A
255	3.54	0.3	8.47	-4.32	0.2	0.8	A	8.7	A	A
256	4.45	0.58	13.03	20.27	0.8	1.5	A	13.2	N	N
258	3.29	0.31	9.42	-11.08	0.4	0.8	A	9.7	A	A
259	3.17	0.19	5.99	-14.32	0.5	0.5	A	6.4	A	A
260	2.94	0.33	11.22	-20.54	0.8	0.9	A	11.4	N	N
261	5	0.4	8.00	35.14	1.3	1.1	N	8.3	A	N
263	4.5	0.68	15.11	21.62	0.8	1.8	A	15.3	N	N

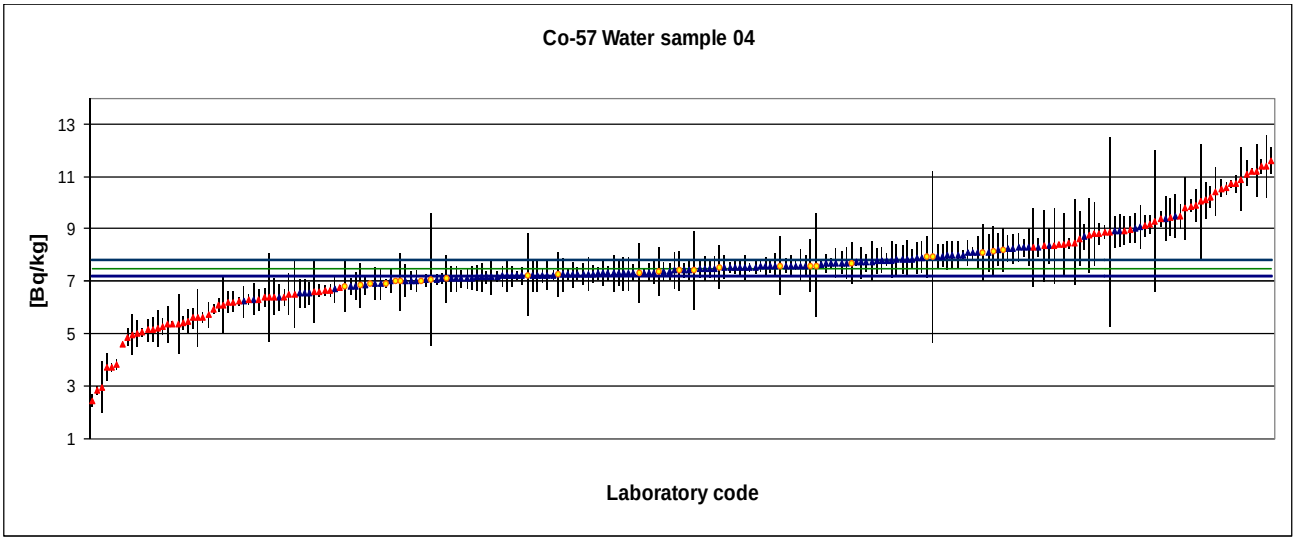
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
264	9.65	0.454	4.70	160.81	6.0	1.2	N	5.2	A	N
265	4.02	0.197	4.90	8.65	0.3	0.5	A	5.4	A	A
267	3.95	0.629	15.92	6.76	0.3	1.6	A	16.1	N	W
268	3.71	0.51	13.75	0.27	0.0	1.3	A	13.9	N	W
269	4.8	1.2	25.00	29.73	1.1	3.1	A	25.1	N	N
270	4.4	0.67	15.23	18.92	0.7	1.7	A	15.4	N	N
271	3.49	0.14	4.01	-5.68	0.2	0.4	A	4.6	A	A
272	3.55	0.14	3.94	-4.05	0.2	0.4	A	4.5	A	A
273	1.1		0.00	-70.27	2.6	0.2	N	2.2	A	N
274	3.51	0.35	9.97	-5.14	0.2	0.9	A	10.2	N	W
275	4.25	0.37	8.71	14.86	0.6	1.0	A	9.0	A	A
276	3.6	0.5	13.89	-2.70	0.1	1.3	A	14.1	N	W
277	0.07	0.003	4.23	-98.08	3.6	0.2	N	4.7	A	N
278	4.23	0.74	17.49	14.32	0.5	1.9	A	17.6	N	N
279	3.16	0.12	3.80	-14.59	0.5	0.4	N	4.4	A	N
284	4.58	0.41	8.95	23.78	0.9	1.1	A	9.2	A	A
285	4.3	0.3	7.14	13.51	0.5	0.8	A	7.5	A	A
286	40.7	1.61	3.96	1000	37.0	4.2	N	4.5	A	N
288	4.1	0.1	2.44	10.81	0.4	0.3	N	3.3	A	N
289	3.67	0.21	5.72	-0.81	0.0	0.6	A	6.1	A	A
290	3.5	0.4	11.43	-5.41	0.2	1.1	A	11.6	N	W
292	3.5	0.3	8.57	-5.41	0.2	0.8	A	8.8	A	A
293	3.5	0.3	8.57	-5.41	0.2	0.8	A	8.8	A	A
294	3.79	0.23	6.07	2.43	0.1	0.6	A	6.4	A	A
295	3.39	0.35	10.32	-8.38	0.3	0.9	A	10.5	N	W
296	4	0.1	2.50	8.11	0.3	0.3	A	3.3	A	A
297	4.51	0.71	15.74	21.89	0.8	1.8	A	15.9	N	N
298	4.04	0.26	6.42	9.41	0.3	0.7	A	6.8	A	A
300	3.19	0.26	8.15	-13.78	0.5	0.7	A	8.4	A	A

Performance evaluation of Co-57 measurement results

Spiked water sample 04

Target Value: 7.5 ± 0.15 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	8.25	0.56	6.79	10.00	0.8	1.5	A	7.1	A	A
3	7.4	0.7	9.46	-1.33	0.1	1.8	A	9.7	A	A
4	6.8	1	14.71	-9.33	0.7	2.6	A	14.8	N	W
5	2.44	0.23	9.43	-67.47	5.1	0.7	N	9.6	A	N
6	7.98	0.54	6.77	6.40	0.5	1.4	A	7.1	A	A
7	7.01	0.36	5.14	-6.53	0.5	1.0	A	5.5	A	A
9	6.4	1.7	26.56	-14.67	1.1	4.4	A	26.6	N	N
11	8.2	0.6	7.32	9.33	0.7	1.6	A	7.6	A	A
12	8.1	1.1	13.58	8.00	0.6	2.9	A	13.7	N	W
13	5.95	0.2	3.36	-20.67	1.6	0.6	N	3.9	A	N
14	5.03	0.16	3.18	-32.93	2.5	0.6	N	3.8	A	N
15	7.44	1.49	20.03	-0.80	0.1	3.9	A	20.1	N	W
16	7.1	0.21	2.96	-5.33	0.4	0.7	A	3.6	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
17	7.34	0.35	4.77	-2.13	0.2	1.0	A	5.2	A	A
18	6.91	0.17	2.46	-7.87	0.6	0.6	N	3.2	A	W
19	6.745	0.107	1.59	-10.07	0.8	0.5	N	2.6	A	N
20	7.3	0.22	3.01	-2.67	0.2	0.7	A	3.6	A	A
21	7.53	0.84	11.16	0.40	0.0	2.2	A	11.3	N	W
22	7.57	0.22	2.91	0.93	0.1	0.7	A	3.5	A	A
23	6.89	0.11	1.60	-8.13	0.6	0.5	N	2.6	A	W
24	7.17	0.2	2.79	-4.40	0.3	0.6	A	3.4	A	A
25	8.98	0.5	5.57	19.73	1.5	1.3	N	5.9	A	N
26	7.22	1.57	21.75	-3.73	0.3	4.1	A	21.8	N	W
27	9.071	0.8214	9.06	20.95	1.6	2.2	A	9.3	A	A
29	9.3	2.7	29.03	24.00	1.8	7.0	A	29.1	N	N
30	5.6	0.4	7.14	-25.33	1.9	1.1	N	7.4	A	N
31	6.4	0.7	10.94	-14.67	1.1	1.8	A	11.1	N	N
32	7.49	0.46	6.14	-0.13	0.0	1.2	A	6.5	A	A
34	7.4	0.77	10.41	-1.33	0.1	2.0	A	10.6	N	W
36	8.35	0.66	7.90	11.33	0.9	1.7	A	8.2	A	A
37	8.94	0.53	5.93	19.20	1.4	1.4	N	6.3	A	N
38	8.4	0.0123	0.15	12.00	0.9	0.4	N	2.0	A	N
39	7.1	0.9	12.68	-5.33	0.4	2.4	A	12.8	N	W
40	7.7	0.44	5.71	2.67	0.2	1.2	A	6.1	A	A
41	7.1	0.5	7.04	-5.33	0.4	1.3	A	7.3	A	A
42	8.3	0.7	8.43	10.67	0.8	1.8	A	8.7	A	A
43	4.57	0.06	1.31	-39.07	2.9	0.4	N	2.4	A	N
44	7.33	1.12	15.28	-2.27	0.2	2.9	A	15.4	N	W
45	7.46	0.47	6.30	-0.53	0.0	1.3	A	6.6	A	A
46	7	0.45	6.43	-6.67	0.5	1.2	A	6.7	A	A
47	7.6	0.29	3.82	1.33	0.1	0.8	A	4.3	A	A
50	7.36	0.37	5.03	-1.87	0.1	1.0	A	5.4	A	A
51	9.18	0.36	3.92	22.40	1.7	1.0	N	4.4	A	N
52	10.9	1.2	11.01	45.33	3.4	3.1	N	11.2	N	N
53	7.7	0.6	7.79	2.67	0.2	1.6	A	8.0	A	A
54	7.92	0.79	9.97	5.60	0.4	2.1	A	10.2	N	W
55	7.16	0.68	9.50	-4.53	0.3	1.8	A	9.7	A	A
56	7.6	0.4	5.26	1.33	0.1	1.1	A	5.6	A	A
57	7.78	0.49	6.30	3.73	0.3	1.3	A	6.6	A	A
58	8.25	0.5	6.06	10.00	0.8	1.3	A	6.4	A	A
59	7.6	0.2	2.63	1.33	0.1	0.6	A	3.3	A	A
60	6.63	0.21	3.17	-11.60	0.9	0.7	N	3.7	A	N
61	7.96	0.45	5.65	6.13	0.5	1.2	A	6.0	A	A
62	7.55	0.26	3.44	0.67	0.0	0.8	A	4.0	A	A
63	7.54	0.32	4.24	0.53	0.0	0.9	A	4.7	A	A
64	7.84	0.699	8.92	4.53	0.3	1.8	A	9.1	A	A
65	7.28	0.23	3.16	-2.93	0.2	0.7	A	3.7	A	A
68	6.8	0.3	4.41	-9.33	0.7	0.9	A	4.8	A	A
70	8.3	1.5	18.07	10.67	0.8	3.9	A	18.2	N	N
71	7.33	0.17	2.32	-2.27	0.2	0.6	A	3.1	A	A
72	7.02	0.1	1.42	-6.40	0.5	0.5	N	2.5	A	W

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
73	6.4	0.5	7.81	-14.67	1.1	1.3	A	8.1	A	A
74	3.7	0.5	13.51	-50.67	3.8	1.3	N	13.7	N	N
75	11.6	0.5	4.31	54.67	4.1	1.3	N	4.8	A	N
76	8.28	0.55	6.64	10.40	0.8	1.5	A	6.9	A	A
77	6.618	0.237	3.58	-11.76	0.9	0.7	N	4.1	A	N
78	8.85	0.266	3.01	18.00	1.4	0.8	N	3.6	A	N
79	13.7	1.2	8.76	82.67	6.2	3.1	N	9.0	A	N
80	6.3	0.6	9.52	-16.00	1.2	1.6	A	9.7	A	A
81	8.33	1.35	16.21	11.07	0.8	3.5	A	16.3	N	N
82	13.45	0.22	1.64	79.33	6.0	0.7	N	2.6	A	N
83	9.8	1.17	11.94	30.67	2.3	3.0	A	12.1	N	N
84	8.9	0.6	6.74	18.67	1.4	1.6	A	7.0	A	A
86	5.6	1.1	19.64	-25.33	1.9	2.9	A	19.7	N	N
87	6.3	0.4	6.35	-16.00	1.2	1.1	N	6.7	A	N
88	7.8	0.5	6.41	4.00	0.3	1.3	A	6.7	A	A
89	5.14	0.45	8.75	-31.47	2.4	1.2	N	9.0	A	N
91	8.4	1.2	14.29	12.00	0.9	3.1	A	14.4	N	N
92	5.27	0.32	6.07	-29.73	2.2	0.9	N	6.4	A	N
93	11.39	0.28	2.46	51.87	3.9	0.8	N	3.2	A	N
94	6.2	0.4	6.45	-17.33	1.3	1.1	N	6.8	A	N
95	7.14	0.49	6.86	-4.80	0.4	1.3	A	7.1	A	A
96	7.1	0.5	7.04	-5.33	0.4	1.3	A	7.3	A	A
97	7.54	0.47	6.23	0.53	0.0	1.3	A	6.5	A	A
98	7.35	0.93	12.65	-2.00	0.2	2.4	A	12.8	N	W
99	7.71	0.15	1.95	2.80	0.2	0.5	A	2.8	A	A
100	5.37	1.14	21.23	-28.40	2.1	3.0	A	21.3	N	N
101	8.7	0.5	5.75	16.00	1.2	1.3	A	6.1	A	A
105	11.1	0.5	4.50	48.00	3.6	1.3	N	4.9	A	N
106	7.26	0.65	8.95	-3.20	0.2	1.7	A	9.2	A	A
107	8.35	1.43	17.13	11.33	0.9	3.7	A	17.2	N	N
109	8.8	1.2	13.64	17.33	1.3	3.1	A	13.8	N	N
110	7.14	0.537	7.52	-4.80	0.4	1.4	A	7.8	A	A
111	6.9	0.61	8.84	-8.00	0.6	1.6	A	9.1	A	A
112	7.22	0.6	8.31	-3.73	0.3	1.6	A	8.5	A	A
113	8.48	1.65	19.46	13.07	1.0	4.3	A	19.6	N	N
114	7.2	0.4	5.56	-4.00	0.3	1.1	A	5.9	A	A
118	7.53	0.44	5.84	0.40	0.0	1.2	A	6.2	A	A
119	8.07	0.51	6.32	7.60	0.6	1.4	A	6.6	A	A
120	7.22	0.6	8.31	-3.73	0.3	1.6	A	8.5	A	A
122	7.4	0.3	4.05	-1.33	0.1	0.9	A	4.5	A	A
123	5.17	0.47	9.09	-31.07	2.3	1.3	N	9.3	A	N
124	6.386	0.376	5.89	-14.85	1.1	1.0	N	6.2	A	N
125	7.3	0.5	6.85	-2.67	0.2	1.3	A	7.1	A	A
126	6.6	1.2	18.18	-12.00	0.9	3.1	A	18.3	N	N
127	6.53	0.43	6.58	-12.93	1.0	1.2	A	6.9	A	A
128	7.3	0.3	4.11	-2.67	0.2	0.9	A	4.6	A	A
130	7.93	0.48	6.05	5.73	0.4	1.3	A	6.4	A	A
131	8.08	0.62	7.67	7.73	0.6	1.6	A	7.9	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
132	7.538	0.254	3.37	0.51	0.0	0.8	A	3.9	A	A
133	7.2	0.6	8.33	-4.00	0.3	1.6	A	8.6	A	A
134	7.24	0.17	2.35	-3.47	0.3	0.6	A	3.1	A	A
136	9.501	0.468	4.93	26.68	2.0	1.3	N	5.3	A	N
138	8.17	0.97	11.87	8.93	0.7	2.5	A	12.0	N	W
139	7.84	0.37	4.72	4.53	0.3	1.0	A	5.1	A	A
140	7.1	0.34	4.79	-5.33	0.4	1.0	A	5.2	A	A
141	10.41	0.91	8.74	38.80	2.9	2.4	N	9.0	A	N
144	7.92	3.26	41.16	5.60	0.4	8.4	A	41.2	N	W
146	4.86	0.33	6.79	-35.20	2.6	0.9	N	7.1	A	N
150	2.85	0.15	5.26	-62.00	4.7	0.5	N	5.6	A	N
151	5.46	0.46	8.42	-27.20	2.0	1.2	N	8.7	A	N
152	5	0.5	10.00	-33.33	2.5	1.3	N	10.2	N	N
153	7.245	0.855	11.80	-3.40	0.3	2.2	A	12.0	N	W
154	7.6	0.6	7.89	1.33	0.1	1.6	A	8.1	A	A
157	7.9	0.6	7.59	5.33	0.4	1.6	A	7.9	A	A
158	7.57	0.37	4.89	0.93	0.1	1.0	A	5.3	A	A
159	7.26	0.2	2.75	-3.20	0.2	0.6	A	3.4	A	A
160	10.53	0.34	3.23	40.40	3.0	1.0	N	3.8	A	N
161	7.29	0.64	8.78	-2.80	0.2	1.7	A	9.0	A	A
162	7.58	0.44	5.80	1.07	0.1	1.2	A	6.1	A	A
163	7.72	0.6	7.77	2.93	0.2	1.6	A	8.0	A	A
164	8.2	0.83	10.12	9.33	0.7	2.2	A	10.3	N	W
165	7.6	0.41	5.39	1.33	0.1	1.1	A	5.8	A	A
166	7.87	0.59	7.50	4.93	0.4	1.6	A	7.8	A	A
167	5.39	0.26	4.82	-28.13	2.1	0.8	N	5.2	A	N
168	7.54	0.15	1.99	0.53	0.0	0.5	A	2.8	A	A
169	7.8	0.24	3.08	4.00	0.3	0.7	A	3.7	A	A
170	7.2	0.4	5.56	-4.00	0.3	1.1	A	5.9	A	A
171	7.21	0.34	4.72	-3.87	0.3	1.0	A	5.1	A	A
173	7.14	0.24	3.36	-4.80	0.4	0.7	A	3.9	A	A
174	7.32	0.33	4.51	-2.40	0.2	0.9	A	4.9	A	A
175	7.13	0.45	6.31	-4.93	0.4	1.2	A	6.6	A	A
176	8.46	0.21	2.48	12.80	1.0	0.7	N	3.2	A	N
177	7.22	0.24	3.32	-3.73	0.3	0.7	A	3.9	A	A
178	7.01	0.406	5.79	-6.53	0.5	1.1	A	6.1	A	A
179	6.18	0.43	6.96	-17.60	1.3	1.2	N	7.2	A	N
181	8.01	0.21	2.62	6.80	0.5	0.7	A	3.3	A	A
183	9.43	0.72	7.64	25.73	1.9	1.9	N	7.9	A	N
184	10.55	0.23	2.18	40.67	3.1	0.7	N	3.0	A	N
185	6.52	0.52	7.98	-13.07	1.0	1.4	A	8.2	A	A
186	7.38	0.32	4.34	-1.60	0.1	0.9	A	4.8	A	A
187	5.2	0.7	13.46	-30.67	2.3	1.8	N	13.6	N	N
188	7.7	0.8	10.39	2.67	0.2	2.1	A	10.6	N	W
190	8.74	1.42	16.25	16.53	1.2	3.7	A	16.4	N	N
191	6.28	0.22	3.50	-16.27	1.2	0.7	N	4.0	A	N
192	10.1	0.7	6.93	34.67	2.6	1.8	N	7.2	A	N
193	10.2	0.4	3.92	36.00	2.7	1.1	N	4.4	A	N

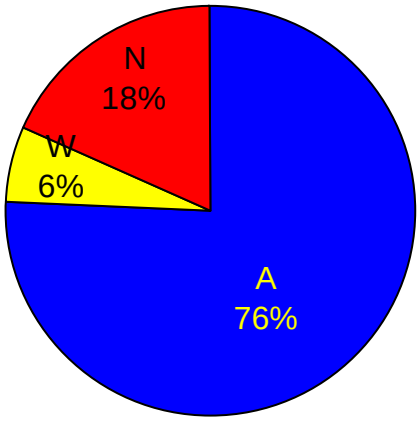
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
194	9.9	0.6	6.06	32.00	2.4	1.6	N	6.4	A	N
195	6.83	0.86	12.59	-8.93	0.7	2.3	A	12.7	N	W
197	14.9	0.42	2.82	98.67	7.4	1.2	N	3.5	A	N
199	7.8	0.7	8.97	4.00	0.3	1.8	A	9.2	A	A
200	7.29	0.33	4.53	-2.80	0.2	0.9	A	4.9	A	A
201	7.2	0.16	2.22	-4.00	0.3	0.6	A	3.0	A	A
202	10.038	2.178	21.70	33.84	2.5	5.6	A	21.8	N	N
206	5.36	0.1	1.87	-28.53	2.1	0.5	N	2.7	A	N
207	11.4	1.2	10.53	52.00	3.9	3.1	N	10.7	N	N
208	6.5	0.8	12.31	-13.33	1.0	2.1	A	12.5	N	N
209	6.22	0.15	2.41	-17.07	1.3	0.5	N	3.1	A	N
210	7	0.11	1.57	-6.67	0.5	0.5	N	2.5	A	W
211	7.47	0.38	5.09	-0.40	0.0	1.1	A	5.5	A	A
212	8.3	0.37	4.46	10.67	0.8	1.0	A	4.9	A	A
213	7.68	0.59	7.68	2.40	0.2	1.6	A	7.9	A	A
214	8.07	0.22	2.73	7.60	0.6	0.7	A	3.4	A	A
215	7.67	0.37	4.82	2.27	0.2	1.0	A	5.2	A	A
216	10.7	0.11	1.03	42.67	3.2	0.5	N	2.2	A	N
217	7.26	0.49	6.75	-3.20	0.2	1.3	A	7.0	A	A
218	9.858	0.234	2.37	31.44	2.4	0.7	N	3.1	A	N
219	7.04	0.25	3.55	-6.13	0.5	0.8	A	4.1	A	A
220	6.22	0.6	9.65	-17.07	1.3	1.6	A	9.9	A	A
221	7.3	0.7	9.59	-2.67	0.2	1.8	A	9.8	A	A
223	4.95	0.77	15.56	-34.00	2.6	2.0	N	15.7	N	N
224	7.72	0.33	4.27	2.93	0.2	0.9	A	4.7	A	A
225	113	34	30.09	1406.67	105.5	87.7	N	30.2	N	N
227	7.34	0.43	5.86	-2.13	0.2	1.2	A	6.2	A	A
232	10.7	0.32	2.99	42.67	3.2	0.9	N	3.6	A	N
233	7.31	0.64	8.76	-2.53	0.2	1.7	A	9.0	A	A
234	8.88	3.62	40.77	18.40	1.4	9.3	A	40.8	N	N
235	9.02	0.58	6.43	20.27	1.5	1.5	A	6.7	A	A
236	7.59	1.1	14.49	1.20	0.1	2.9	A	14.6	N	W
237	7	1.1	15.71	-6.67	0.5	2.9	A	15.8	N	W
238	7.64	0.16	2.09	1.87	0.1	0.6	A	2.9	A	A
239	5.62	0.19	3.38	-25.07	1.9	0.6	N	3.9	A	N
240	6.9	0.6	8.70	-8.00	0.6	1.6	A	8.9	A	A
241	6.1	1.1	18.03	-18.67	1.4	2.9	A	18.1	N	N
242	7.08	0.21	2.97	-5.60	0.4	0.7	A	3.6	A	A
243	7.285	0.4126	5.66	-2.87	0.2	1.1	A	6.0	A	A
244	6.09	0.249	4.09	-18.80	1.4	0.7	N	4.6	A	N
245	7.53	0.21	2.79	0.40	0.0	0.7	A	3.4	A	A
246	11.7	0.66	5.64	56.00	4.2	1.7	N	6.0	A	N
249	8.82	0.41	4.65	17.60	1.3	1.1	N	5.1	A	N
250	9.13	0.4	4.38	21.73	1.6	1.1	N	4.8	A	N
251	7.31	0.65	8.89	-2.53	0.2	1.7	A	9.1	A	A
252	5.7	0.5	8.77	-24.00	1.8	1.3	N	9.0	A	N
253	6.4	0.3	4.69	-14.67	1.1	0.9	N	5.1	A	N
254	7.45	0.36	4.83	-0.67	0.0	1.0	A	5.2	A	A

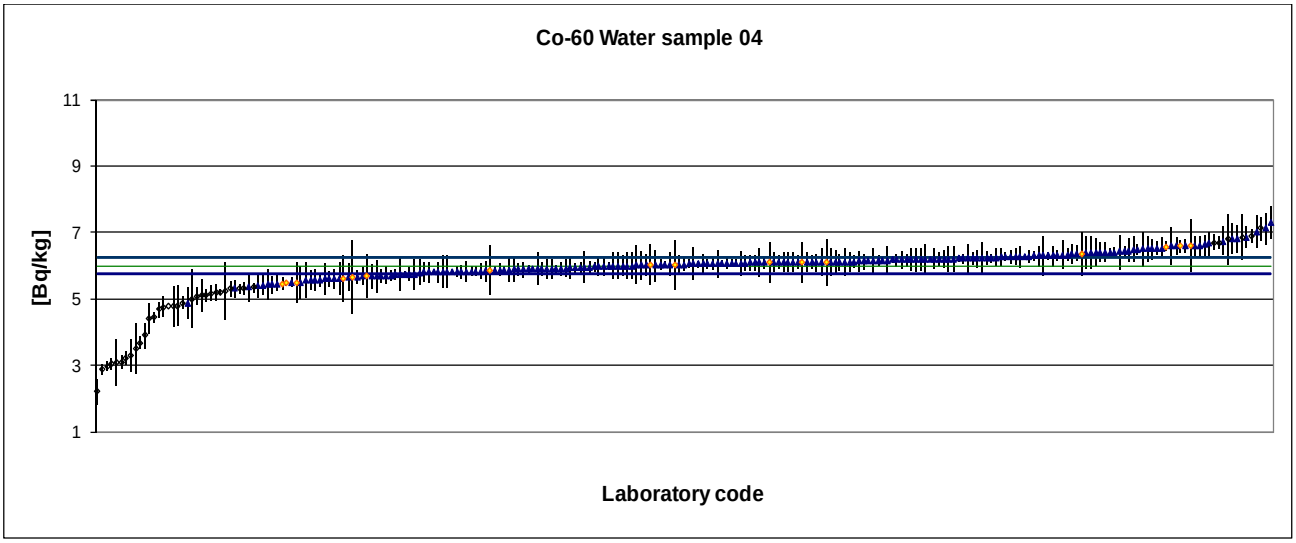
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
255	12.8	0.4	3.13	70.67	5.3	1.1	N	3.7	A	N
256	7.75	0.74	9.55	3.33	0.3	1.9	A	9.8	A	A
257	7.4	0.36	4.86	-1.33	0.1	1.0	A	5.3	A	A
258	8.11	0.72	8.88	8.13	0.6	1.9	A	9.1	A	A
259	5.34	0.68	12.73	-28.80	2.2	1.8	N	12.9	N	N
260	8.91	0.61	6.85	18.80	1.4	1.6	A	7.1	A	A
261	9.4	0.85	9.04	25.33	1.9	2.2	A	9.3	A	A
263	2.92	0.98	33.56	-61.07	4.6	2.6	N	33.6	N	N
264	3.71	0.17	4.58	-50.53	3.8	0.6	N	5.0	A	N
265	11.2	0.113	1.01	49.33	3.7	0.5	N	2.2	A	N
267	7	0.63	9.00	-6.67	0.5	1.7	A	9.2	A	A
268	8.59	1.03	11.99	14.53	1.1	2.7	A	12.2	N	N
269	7.6	1	13.16	1.33	0.1	2.6	A	13.3	N	W
270	6.84	0.34	4.97	-8.80	0.7	1.0	A	5.4	A	A
271	6.63	0.24	3.62	-11.60	0.9	0.7	N	4.1	A	N
272	9.36	0.27	2.88	24.80	1.9	0.8	N	3.5	A	N
273	3.8	0.2	5.26	-49.33	3.7	0.6	N	5.6	A	N
274	7.82	0.55	7.03	4.27	0.3	1.5	A	7.3	A	A
275	11.7	0.37	3.16	56.00	4.2	1.0	N	3.7	A	N
276	7.6	2	26.32	1.33	0.1	5.2	A	26.4	N	W
278	11.2	1	8.93	49.33	3.7	2.6	N	9.1	A	N
279	7.57	0.26	3.43	0.93	0.1	0.8	A	4.0	A	A
284	9.49	0.81	8.54	26.53	2.0	2.1	A	8.8	A	A
285	6.05	0.46	7.60	0.83	0.0	1.2	A	7.9	A	A
288	7.1	0.4	5.63	-5.33	0.4	1.1	A	6.0	A	A
289	6.7	0.5	7.46	-10.67	0.8	1.3	A	7.7	A	A
290	7.3	0.5	6.85	-2.67	0.2	1.3	A	7.1	A	A
292	8	0.5	6.25	6.67	0.5	1.3	A	6.6	A	A
293	8	0.5	6.25	6.67	0.5	1.3	A	6.6	A	A
294	8.29	0.33	3.98	10.53	0.8	0.9	A	4.5	A	A
295	7.81	0.6	7.68	4.13	0.3	1.6	A	7.9	A	A
296	6.8	0.5	7.35	-9.33	0.7	1.3	A	7.6	A	A
297	7.06	2.53	35.84	-5.87	0.4	6.5	A	35.9	N	W
298	7.67	0.21	2.74	2.27	0.2	0.7	A	3.4	A	A
299	6.5	1.3	20.00	-13.33	1.0	3.4	A	20.1	N	N
300	7.22	0.58	8.03	-3.73	0.3	1.5	A	8.3	A	A

Performance evaluation of Co-60 measurement results

Spiked water sample 04

Target Value: 6.0 ± 0.12 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	5.56	0.57	10.25	-7.33	0.4	1.5	A	10.4	N	W
2	6.16	0.29	4.71	2.67	0.2	0.8	A	5.1	A	A
3	6.1	0.6	9.84	1.67	0.1	1.6	A	10.0	N	W
4	6	0.1	1.67	0.00	0.0	0.4	A	2.6	A	A
5	2.01	0.11	5.47	-66.50	4.0	0.4	N	5.8	A	N
6	6.11	0.24	3.93	1.83	0.1	0.7	A	4.4	A	A
7	5.86	0.15	2.56	-2.33	0.1	0.5	A	3.2	A	A
9	5.7	0.3	5.26	-5.00	0.3	0.8	A	5.6	A	A
11	6.1	0.3	4.92	1.67	0.1	0.8	A	5.3	A	A
12	6.6	0.2	3.03	10.00	0.6	0.6	A	3.6	A	A
13	5.52	0.19	3.44	-8.00	0.5	0.6	A	4.0	A	A
14	3.57	0.16	4.48	-40.50	2.4	0.5	N	4.9	A	N
15	2.85	0.78	27.37	-52.50	3.2	2.0	N	27.4	N	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
16	6.16	0.12	1.95	2.67	0.2	0.4	A	2.8	A	A
17	6.54	0.28	4.28	9.00	0.5	0.8	A	4.7	A	A
18	6.06	0.1	1.65	1.00	0.1	0.4	A	2.6	A	A
19	6.087	0.054	0.89	1.45	0.1	0.3	A	2.2	A	A
20	6.12	0.08	1.31	2.00	0.1	0.4	A	2.4	A	A
21	6.22	0.66	10.61	3.67	0.2	1.7	A	10.8	N	W
22	5.95	0.07	1.18	-0.83	0.0	0.4	A	2.3	A	A
23	6.09	0.09	1.48	1.50	0.1	0.4	A	2.5	A	A
24	6.19	0.1	1.62	3.17	0.2	0.4	A	2.6	A	A
25	15.96	2.33	14.60	166.00	10.0	6.0	N	14.7	N	N
26	5.79	0.28	4.84	-3.50	0.2	0.8	A	5.2	A	A
27	6.029	0.4862	8.06	0.48	0.0	1.3	A	8.3	A	A
30	5.4	0.4	7.41	-10.00	0.6	1.1	A	7.7	A	A
31	5.5	0.4	7.27	-8.33	0.5	1.1	A	7.5	A	A
32	5.93	0.28	4.72	-1.17	0.1	0.8	A	5.1	A	A
33	6.09	0.55	9.03	1.50	0.1	1.5	A	9.3	A	A
34	6.42	0.08	1.25	7.00	0.4	0.4	N	2.4	A	W
35	6.1	0.18	2.95	1.67	0.1	0.6	A	3.6	A	A
36	6.3	0.15	2.38	5.00	0.3	0.5	A	3.1	A	A
37	6.78	0.45	6.64	13.00	0.8	1.2	A	6.9	A	A
38	4.5	0.0024	0.05	-25.00	1.5	0.3	N	2.0	A	N
39	6.2	0.3	4.84	3.33	0.2	0.8	A	5.2	A	A
40	6.18	0.33	5.34	3.00	0.2	0.9	A	5.7	A	A
41	6	0.2	3.33	0.00	0.0	0.6	A	3.9	A	A
42	6.5	0.3	4.62	8.33	0.5	0.8	A	5.0	A	A
43	3.55	0.1	2.82	-40.83	2.5	0.4	N	3.5	A	N
44	5.59	0.26	4.65	-6.83	0.4	0.7	A	5.1	A	A
45	6.23	0.24	3.85	3.83	0.2	0.7	A	4.3	A	A
46	5.4	0.22	4.07	-10.00	0.6	0.6	A	4.5	A	A
47	6.5	0.19	2.92	8.33	0.5	0.6	A	3.5	A	A
50	5.83	0.29	4.97	-2.83	0.2	0.8	A	5.4	A	A
51	5.86	0.19	3.24	-2.33	0.1	0.6	A	3.8	A	A
52	5.4	0.3	5.56	-10.00	0.6	0.8	A	5.9	A	A
53	6.1	0.3	4.92	1.67	0.1	0.8	A	5.3	A	A
54	6.31	0.51	8.08	5.17	0.3	1.4	A	8.3	A	A
55	6.29	0.38	6.04	4.83	0.3	1.0	A	6.4	A	A
56	6.2	0.3	4.84	3.33	0.2	0.8	A	5.2	A	A
57	6.04	0.36	5.96	0.67	0.0	1.0	A	6.3	A	A
58	6.13	0.25	4.08	2.17	0.1	0.7	A	4.5	A	A
59	6.37	0.12	1.88	6.17	0.4	0.4	A	2.7	A	A
60	6.32	0.19	3.01	5.33	0.3	0.6	A	3.6	A	A
61	6.29	0.13	2.07	4.83	0.3	0.5	A	2.9	A	A
62	6.14	0.17	2.77	2.33	0.1	0.5	A	3.4	A	A
63	6.07	0.16	2.64	1.17	0.1	0.5	A	3.3	A	A
64	6.6	0.509	7.71	10.00	0.6	1.3	A	8.0	A	A
65	6.22	0.14	2.25	3.67	0.2	0.5	A	3.0	A	A
68	6.1	0.2	3.28	1.67	0.1	0.6	A	3.8	A	A
70	6.4	0.7	10.94	6.67	0.4	1.8	A	11.1	N	W

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
71	5.82	0.32	5.50	-3.00	0.2	0.9	A	5.9	A	A
72	5.74	0.07	1.22	-4.33	0.3	0.4	A	2.3	A	A
73	6.3	0.3	4.76	5.00	0.3	0.8	A	5.2	A	A
74	3	0.3	10.00	-50.00	3.0	0.8	N	10.2	N	N
75	6.3	0.2	3.17	5.00	0.3	0.6	A	3.8	A	A
76	5.94	0.12	2.02	-1.00	0.1	0.4	A	2.8	A	A
77	5.366	0.124	2.31	-10.57	0.6	0.4	N	3.1	A	N
78	6.94	0.133	1.92	15.67	0.9	0.5	N	2.8	A	N
79	7.5	0.8	10.67	25.00	1.5	2.1	A	10.9	N	N
80	6.2	0.3	4.84	3.33	0.2	0.8	A	5.2	A	A
81	5.75	0.28	4.87	-4.17	0.3	0.8	A	5.3	A	A
82	7.3	0.36	4.93	21.67	1.3	1.0	N	5.3	A	N
83	5.46	0.18	3.30	-9.00	0.5	0.6	A	3.9	A	A
84	6.4	0.3	4.69	6.67	0.4	0.8	A	5.1	A	A
85	3.2	0.5	15.63	-46.67	2.8	1.3	N	15.8	N	N
86	5.7	0.6	10.53	-5.00	0.3	1.6	A	10.7	N	W
87	6.3	0.11	1.75	5.00	0.3	0.4	A	2.7	A	A
88	6.2	0.2	3.23	3.33	0.2	0.6	A	3.8	A	A
89	6.49	0.13	2.00	8.17	0.5	0.5	N	2.8	A	W
90	6.11	0.22	3.60	1.83	0.1	0.6	A	4.1	A	A
91	5.7	0.5	8.77	-5.00	0.3	1.3	A	9.0	A	A
92	5.93	0.3	5.06	-1.17	0.1	0.8	A	5.4	A	A
93	5.04	0.19	3.77	-16.00	1.0	0.6	N	4.3	A	N
94	6.02	0.36	5.98	0.33	0.0	1.0	A	6.3	A	A
95	5.89	0.41	6.96	-1.83	0.1	1.1	A	7.2	A	A
96	6	0.4	6.67	0.00	0.0	1.1	A	7.0	A	A
97	6.06	0.25	4.13	1.00	0.1	0.7	A	4.6	A	A
98	5.45	0.47	8.62	-9.17	0.6	1.3	A	8.9	A	A
99	6.15	0.09	1.46	2.50	0.2	0.4	A	2.5	A	A
100	5.76	0.92	15.97	-4.00	0.2	2.4	A	16.1	N	W
101	6.04	0.32	5.30	0.67	0.0	0.9	A	5.7	A	A
105	5.49	0.39	7.10	-8.50	0.5	1.1	A	7.4	A	A
106	5.74	0.49	8.54	-4.33	0.3	1.3	A	8.8	A	A
107	6.73	0.74	11.00	12.17	0.7	1.9	A	11.2	N	N
109	6.15	0.5	8.13	2.50	0.2	1.3	A	8.4	A	A
110	6.04	0.454	7.52	0.67	0.0	1.2	A	7.8	A	A
111	6.5	0.39	6.00	8.33	0.5	1.1	A	6.3	A	A
112	5.96	0.23	3.86	-0.67	0.0	0.7	A	4.3	A	A
113	7.25	0.54	7.45	20.83	1.3	1.4	A	7.7	A	A
114	5.8	0.4	6.90	-3.33	0.2	1.1	A	7.2	A	A
115	6.3	0.5	7.94	5.00	0.3	1.3	A	8.2	A	A
118	6	0.51	8.50	0.00	0.0	1.4	A	8.7	A	A
119	6.98	0.45	6.45	16.33	1.0	1.2	A	6.8	A	A
120	5.96	0.23	3.86	-0.67	0.0	0.7	A	4.3	A	A
121	7.74	0.47	6.07	29.00	1.7	1.3	N	6.4	A	N
122	6.1	0.2	3.28	1.67	0.1	0.6	A	3.8	A	A
123	5.23	0.18	3.44	-12.83	0.8	0.6	N	4.0	A	N
124	5.97	0.213	3.57	-0.50	0.0	0.6	A	4.1	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
125	5.8	0.4	6.90	-3.33	0.2	1.1	A	7.2	A	A
126	5.6	0.5	8.93	-6.67	0.4	1.3	A	9.1	A	A
127	6.03	0.35	5.80	0.50	0.0	1.0	A	6.1	A	A
128	6	0.3	5.00	0.00	0.0	0.8	A	5.4	A	A
130	6.21	0.19	3.06	3.50	0.2	0.6	A	3.7	A	A
131	5.4	0.24	4.44	-10.00	0.6	0.7	A	4.9	A	A
132	6.182	0.182	2.94	3.03	0.2	0.6	A	3.6	A	A
133	6.1	0.2	3.28	1.67	0.1	0.6	A	3.8	A	A
134	5.69	0.1	1.76	-5.17	0.3	0.4	A	2.7	A	A
136	6.717	0.318	4.73	11.95	0.7	0.9	A	5.1	A	A
137	10.85	0.745	6.87	80.83	4.9	1.9	N	7.2	A	N
138	5.85	0.36	6.15	-2.50	0.2	1.0	A	6.5	A	A
139	5.55	0.187	3.37	-7.50	0.5	0.6	A	3.9	A	A
140	6.7	0.22	3.28	11.67	0.7	0.6	N	3.8	A	N
141	7.72	0.57	7.38	28.67	1.7	1.5	N	7.6	A	N
142	5.19	0.003	0.06	-13.50	0.8	0.3	N	2.0	A	N
143	7.33	0.6	8.19	22.17	1.3	1.6	A	8.4	A	A
144	5.28	1.01	19.13	-12.00	0.7	2.6	A	19.2	N	N
145	5.05	0.3	5.94	-15.83	1.0	0.8	N	6.3	A	N
146	5.08	0.24	4.72	-15.33	0.9	0.7	N	5.1	A	N
150	2.97	0.19	6.40	-50.50	3.0	0.6	N	6.7	A	N
151	3.06	0.18	5.88	-49.00	2.9	0.6	N	6.2	A	N
152	3.1	0.2	6.45	-48.33	2.9	0.6	N	6.8	A	N
153	6.605	0.262	3.97	10.08	0.6	0.7	A	4.4	A	A
154	6.3	0.4	6.35	5.00	0.3	1.1	A	6.7	A	A
157	5.7	0.3	5.26	-5.00	0.3	0.8	A	5.6	A	A
158	6.51	0.32	4.92	8.50	0.5	0.9	A	5.3	A	A
159	5.98	0.23	3.85	-0.33	0.0	0.7	A	4.3	A	A
160	7.36	0.63	8.56	22.67	1.4	1.7	A	8.8	A	A
161	5.61	0.41	7.31	-6.50	0.4	1.1	A	7.6	A	A
162	6.07	0.25	4.12	1.17	0.1	0.7	A	4.6	A	A
163	6.02	0.3	4.98	0.33	0.0	0.8	A	5.4	A	A
164	5.89	0.31	5.26	-1.83	0.1	0.9	A	5.6	A	A
165	5.95	0.27	4.54	-0.83	0.0	0.8	A	5.0	A	A
166	6.18	0.34	5.50	3.00	0.2	0.9	A	5.9	A	A
167	6.28	0.35	5.57	4.67	0.3	1.0	A	5.9	A	A
168	5.68	0.13	2.29	-5.33	0.3	0.5	A	3.0	A	A
169	5.86	0.15	2.56	-2.33	0.1	0.5	A	3.2	A	A
170	6.3	0.3	4.76	5.00	0.3	0.8	A	5.2	A	A
171	6.75	0.31	4.59	12.50	0.8	0.9	A	5.0	A	A
172	5.9	0.3	5.08	-1.67	0.1	0.8	A	5.5	A	A
173	5.76	0.11	1.91	-4.00	0.2	0.4	A	2.8	A	A
174	6.48	0.34	5.25	8.00	0.5	0.9	A	5.6	A	A
175	6	0.31	5.17	0.00	0.0	0.9	A	5.5	A	A
176	6.56	0.17	2.59	9.33	0.6	0.5	N	3.3	A	W
177	6.05	0.13	2.15	0.83	0.0	0.5	A	2.9	A	A
178	6.99	0.252	3.61	16.50	1.0	0.7	N	4.1	A	N
179	5.33	0.26	4.88	-11.17	0.7	0.7	A	5.3	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
181	6.25	0.1	1.60	4.17	0.3	0.4	A	2.6	A	A
182	5.7	0.4	7.02	-5.00	0.3	1.1	A	7.3	A	A
183	5.69	0.2	3.51	-5.17	0.3	0.6	A	4.0	A	A
184	5.92	0.26	4.39	-1.33	0.1	0.7	A	4.8	A	A
185	5.9	0.35	5.93	-1.67	0.1	1.0	A	6.3	A	A
186	6.2	0.28	4.52	3.33	0.2	0.8	A	4.9	A	A
187	5.6	0.5	8.93	-6.67	0.4	1.3	A	9.1	A	A
188	5.3	0.27	5.09	-11.67	0.7	0.8	A	5.5	A	A
190	5.75	0.74	12.87	-4.17	0.3	1.9	A	13.0	N	W
191	5.86	0.2	3.41	-2.33	0.1	0.6	A	4.0	A	A
192	6.3	0.3	4.76	5.00	0.3	0.8	A	5.2	A	A
193	6.4	0.3	4.69	6.67	0.4	0.8	A	5.1	A	A
194	6.3	0.2	3.17	5.00	0.3	0.6	A	3.8	A	A
195	6.62	0.21	3.17	10.33	0.6	0.6	A	3.8	A	A
197	11.2	0.28	2.50	86.67	5.2	0.8	N	3.2	A	N
199	5.7	0.4	7.02	-5.00	0.3	1.1	A	7.3	A	A
200	5.75	0.17	2.96	-4.17	0.3	0.5	A	3.6	A	A
201	6.82	0.11	1.61	13.67	0.8	0.4	N	2.6	A	N
202	6.32	0.457	7.23	5.33	0.3	1.2	A	7.5	A	A
204	5.5	0.9	16.36	-8.33	0.5	2.3	A	16.5	N	W
205	4.54	0.31	6.83	-24.33	1.5	0.9	N	7.1	A	N
206	2.69	0.17	6.32	-55.17	3.3	0.5	N	6.6	A	N
207	6.76	0.45	6.66	12.67	0.8	1.2	A	7.0	A	A
208	6.9	0.8	11.59	15.00	0.9	2.1	A	11.8	N	N
209	7.03	0.35	4.98	17.17	1.0	1.0	N	5.4	A	N
210	5.8	0.09	1.55	-3.33	0.2	0.4	A	2.5	A	A
211	6.17	0.19	3.08	2.83	0.2	0.6	A	3.7	A	A
212	6.3	0.21	3.33	5.00	0.3	0.6	A	3.9	A	A
213	6.16	0.15	2.44	2.67	0.2	0.5	A	3.2	A	A
214	6.02	0.17	2.82	0.33	0.0	0.5	A	3.5	A	A
215	6.08	0.23	3.78	1.33	0.1	0.7	A	4.3	A	A
216	6.29	0.29	4.61	4.83	0.3	0.8	A	5.0	A	A
217	5.66	0.18	3.18	-5.67	0.3	0.6	A	3.8	A	A
218	6.048	0.163	2.70	0.80	0.0	0.5	A	3.4	A	A
219	5.37	0.16	2.98	-10.50	0.6	0.5	N	3.6	A	N
220	6.01	0.33	5.49	0.17	0.0	0.9	A	5.8	A	A
221	6	0.45	7.50	0.00	0.0	1.2	A	7.8	A	A
223	5.57	0.64	11.49	-7.17	0.4	1.7	A	11.7	N	W
224	5.93	0.46	7.76	-1.17	0.1	1.2	A	8.0	A	A
225	258	67	25.97	4200.00	252.0	172.9	N	26.0	N	N
226	8	1.1	13.75	33.33	2.0	2.9	A	13.9	N	N
227	5.84	0.17	2.91	-2.67	0.2	0.5	A	3.5	A	A
232	5.77	0.17	2.95	-3.83	0.2	0.5	A	3.6	A	A
233	5.39	0.45	8.35	-10.17	0.6	1.2	A	8.6	A	A
234	8.18	1.36	16.63	36.33	2.2	3.5	A	16.7	N	N
235	6.67	0.82	12.29	11.17	0.7	2.1	A	12.5	N	N
236	6.17	0.51	8.27	2.83	0.2	1.4	A	8.5	A	A
237	6	0.4	6.67	0.00	0.0	1.1	A	7.0	A	A

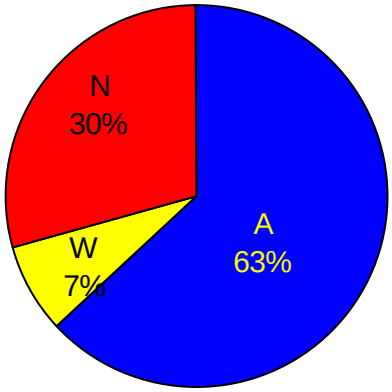
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
238	5.96	0.13	2.18	-0.67	0.0	0.5	A	3.0	A	A
239	4.32	0.17	3.94	-28.00	1.7	0.5	N	4.4	A	N
240	5.8	0.4	6.90	-3.33	0.2	1.1	A	7.2	A	A
241	5.5	0.5	9.09	-8.33	0.5	1.3	A	9.3	A	A
242	6.3	0.14	2.22	5.00	0.3	0.5	A	3.0	A	A
243	6.057	0.3372	5.57	0.95	0.1	0.9	A	5.9	A	A
244	5.83	0.208	3.57	-2.83	0.2	0.6	A	4.1	A	A
245	6.1	0.1	1.64	1.67	0.1	0.4	A	2.6	A	A
246	5.68	0.37	6.51	-5.33	0.3	1.0	A	6.8	A	A
249	5.18	0.21	4.05	-13.67	0.8	0.6	N	4.5	A	N
250	5	0.21	4.20	-16.67	1.0	0.6	N	4.7	A	N
251	5.91	0.41	6.94	-1.50	0.1	1.1	A	7.2	A	A
252	6	0.2	3.33	0.00	0.0	0.6	A	3.9	A	A
253	5.9	0.3	5.08	-1.67	0.1	0.8	A	5.5	A	A
254	4.51	0.16	3.55	-24.83	1.5	0.5	N	4.1	A	N
255	5.88	0.24	4.08	-2.00	0.1	0.7	A	4.5	A	A
256	5.69	0.58	10.19	-5.17	0.3	1.5	A	10.4	N	W
257	5.39	0.37	6.86	-10.17	0.6	1.0	A	7.1	A	A
258	6.28	0.36	5.73	4.67	0.3	1.0	A	6.1	A	A
259	6.05	0.08	1.32	0.83	0.0	0.4	A	2.4	A	A
260	6.73	0.47	6.98	12.17	0.7	1.3	A	7.3	A	A
261	7	0.5	7.14	16.67	1.0	1.3	A	7.4	A	A
263	1.91	0.19	9.95	-68.17	4.1	0.6	N	10.1	N	N
264	2.11	0.134	6.35	-64.83	3.9	0.5	N	6.7	A	N
265	6.02	0.057	0.95	0.33	0.0	0.3	A	2.2	A	A
267	6.27	0.29	4.63	4.50	0.3	0.8	A	5.0	A	A
268	5.84	0.16	2.74	-2.67	0.2	0.5	A	3.4	A	A
269	6.1	0.6	9.84	1.67	0.1	1.6	A	10.0	N	W
270	6.35	0.31	4.88	5.83	0.4	0.9	A	5.3	A	A
271	6	0.14	2.33	0.00	0.0	0.5	A	3.1	A	A
272	5.94	0.32	5.39	-1.00	0.1	0.9	A	5.7	A	A
274	5.99	0.21	3.51	-0.17	0.0	0.6	A	4.0	A	A
275	6.39	0.17	2.66	6.50	0.4	0.5	A	3.3	A	A
276	5.9	0.5	8.47	-1.67	0.1	1.3	A	8.7	A	A
278	6.12	0.67	10.95	2.00	0.1	1.8	A	11.1	N	W
279	6.07	0.16	2.64	1.17	0.1	0.5	A	3.3	A	A
283	4.78	0.26	5.44	-20.33	1.2	0.7	N	5.8	A	N
284	5.96	0.46	7.72	-0.67	0.0	1.2	A	8.0	A	A
285	6.05	0.46	7.60	0.83	0.0	1.2	A	7.9	A	A
286	11.64	0.26	2.23	94.00	5.6	0.7	N	3.0	A	N
288	6.1	0.1	1.64	1.67	0.1	0.4	A	2.6	A	A
289	6.36	0.29	4.56	6.00	0.4	0.8	A	5.0	A	A
290	5.9	0.5	8.47	-1.67	0.1	1.3	A	8.7	A	A
292	6.4	0.4	6.25	6.67	0.4	1.1	A	6.6	A	A
293	6.4	0.4	6.25	6.67	0.4	1.1	A	6.6	A	A
294	6.43	0.22	3.42	7.17	0.4	0.6	A	4.0	A	A
295	6.02	0.15	2.49	0.33	0.0	0.5	A	3.2	A	A
296	6.6	0.3	4.55	10.00	0.6	0.8	A	5.0	A	A

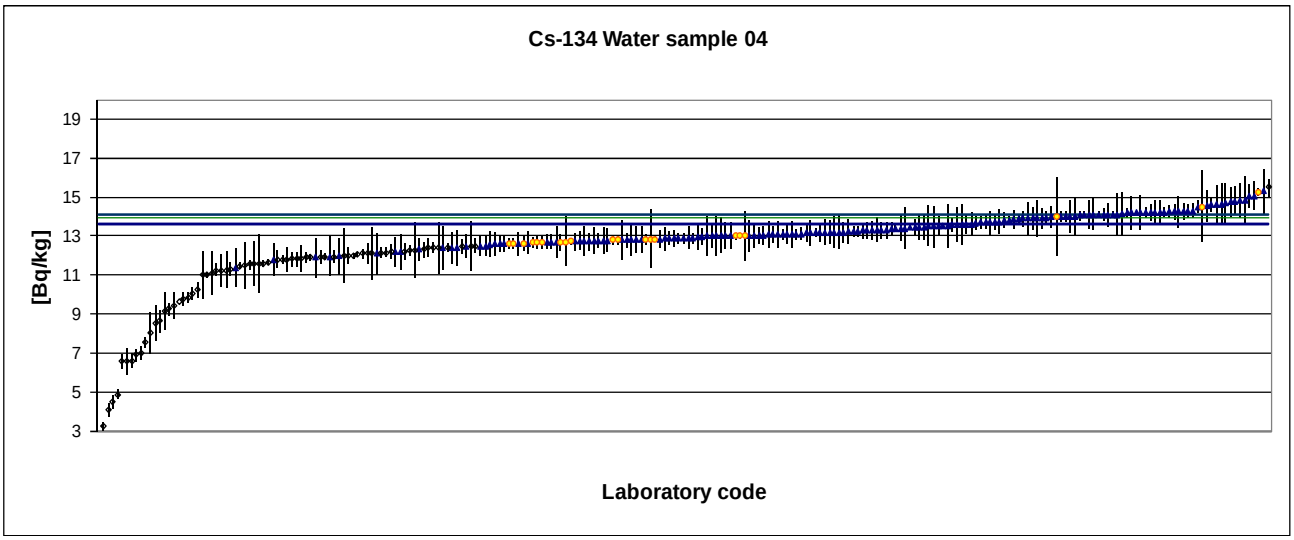
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
297	4.81	0.49	10.19	-19.83	1.2	1.3	A	10.4	N	N
298	6.228	0.121	1.94	3.80	0.2	0.4	A	2.8	A	A
299	5.9	1.1	18.64	-1.67	0.1	2.9	A	18.8	N	W
300	6.18	0.49	7.93	3.00	0.2	1.3	A	8.2	A	A

Performance evaluation of Cs-134 measurement results

Spiked water sample 04

Target Value: 13.9 ± 0.28 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	11.25	0.92	8.18	-19.06	2.7	2.5	N	8.4	A	N
2	14.26	0.39	2.73	2.59	0.4	1.2	A	3.4	A	A
3	14	2	14.29	0.72	0.1	5.2	A	14.4	N	W
4	14.6	0.4	2.74	5.04	0.7	1.3	A	3.4	A	A
5	4.51	0.36	7.98	-67.55	9.4	1.2	N	8.2	A	N
6	13.04	0.47	3.60	-6.19	0.9	1.4	A	4.1	A	A
7	14.27	0.44	3.08	2.66	0.4	1.3	A	3.7	A	A
9	12.4	0.5	4.03	-10.79	1.5	1.5	N	4.5	A	N
11	12.3	0.6	4.88	-11.51	1.6	1.7	A	5.3	A	A
12	13.1	0.4	3.05	-5.76	0.8	1.3	A	3.7	A	A
13	9.77	0.35	3.58	-29.71	4.1	1.2	N	4.1	A	N
14	8.64	0.59	6.83	-37.84	5.3	1.7	N	7.1	A	N
15	6.57	0.72	10.96	-52.73	7.3	2.0	N	11.1	N	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
16	13.9	0.4	2.88	0.00	0.0	1.3	A	3.5	A	A
17	13.2	0.6	4.55	-5.04	0.7	1.7	A	5.0	A	A
18	13.85	0.28	2.02	-0.36	0.1	1.0	A	2.8	A	A
19	12.085	0.074	0.61	-13.06	1.8	0.7	N	2.1	A	N
20	13.93	0.35	2.51	0.22	0.0	1.2	A	3.2	A	A
21	12.83	1.5	11.69	-7.70	1.1	3.9	A	11.9	N	W
22	13.51	0.11	0.81	-2.81	0.4	0.8	A	2.2	A	A
23	13.9	0.89	6.40	0.00	0.0	2.4	A	6.7	A	A
24	12.79	0.24	1.88	-7.99	1.1	0.9	N	2.7	A	W
25	14.86	1.21	8.14	6.91	1.0	3.2	A	8.4	A	A
26	11.75	0.83	7.06	-15.47	2.2	2.3	A	7.3	A	A
27	12.78	0.6949	5.44	-8.06	1.1	1.9	A	5.8	A	A
29	12.4	0.3	2.42	-10.79	1.5	1.1	N	3.1	A	N
30	12.5	0.6	4.80	-10.07	1.4	1.7	A	5.2	A	A
31	13	1	7.69	-6.47	0.9	2.7	A	7.9	A	A
32	12.7	0.4	3.15	-8.63	1.2	1.3	A	3.7	A	A
33	14.64	1.06	7.24	5.32	0.7	2.8	A	7.5	A	A
34	11.86	0.68	5.73	-14.68	2.0	1.9	N	6.1	A	N
35	16	0.71	4.44	15.11	2.1	2.0	N	4.9	A	N
36	12.65	0.28	2.21	-8.99	1.3	1.0	N	3.0	A	W
37	14.19	0.86	6.06	2.09	0.3	2.3	A	6.4	A	A
38	14.2	0.0011	0.01	2.16	0.3	0.7	A	2.0	A	A
39	12.9	0.4	3.10	-7.19	1.0	1.3	A	3.7	A	A
40	14.2	0.89	6.27	2.16	0.3	2.4	A	6.6	A	A
41	13.4	0.3	2.24	-3.60	0.5	1.1	A	3.0	A	A
42	13	0.6	4.62	-6.47	0.9	1.7	A	5.0	A	A
43	7.56	0.26	3.44	-45.61	6.3	1.0	N	4.0	A	N
44	12.85	0.45	3.50	-7.55	1.1	1.4	A	4.0	A	A
45	13.17	0.51	3.87	-5.25	0.7	1.5	A	4.4	A	A
46	12.2	0.38	3.11	-12.23	1.7	1.2	N	3.7	A	N
47	13.23	0.25	1.89	-4.82	0.7	1.0	A	2.8	A	A
50	13.16	0.66	5.02	-5.32	0.7	1.8	A	5.4	A	A
51	12.9	0.3	2.33	-7.19	1.0	1.1	A	3.1	A	A
52	11.5	1.2	10.43	-17.27	2.4	3.2	A	10.6	N	N
53	13.6	0.5	3.68	-2.16	0.3	1.5	A	4.2	A	A
54	13.51	1.08	7.99	-2.81	0.4	2.9	A	8.2	A	A
55	14.26	0.79	5.54	2.59	0.4	2.2	A	5.9	A	A
56	14.1	0.7	4.96	1.44	0.2	1.9	A	5.4	A	A
57	13.1	0.7	5.34	-5.76	0.8	1.9	A	5.7	A	A
58	13.9	0.6	4.32	0.00	0.0	1.7	A	4.8	A	A
59	14	0.3	2.14	0.72	0.1	1.1	A	2.9	A	A
60	13.7	0.3	2.19	-1.44	0.2	1.1	A	3.0	A	A
61	14.18	0.26	1.83	2.01	0.3	1.0	A	2.7	A	A
62	13.7	0.36	2.63	-1.44	0.2	1.2	A	3.3	A	A
63	13.66	0.33	2.42	-1.73	0.2	1.1	A	3.1	A	A
64	13.5	1.04	7.70	-2.88	0.4	2.8	A	8.0	A	A
65	13.8	0.39	2.83	-0.72	0.1	1.2	A	3.5	A	A
68	12.7	0.4	3.15	-8.63	1.2	1.3	A	3.7	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
70	12.5	1.3	10.40	-10.07	1.4	3.4	A	10.6	N	N
71	11.82	0.39	3.30	-14.96	2.1	1.2	N	3.9	A	N
72	11.54	0.25	2.17	-16.98	2.4	1.0	N	2.9	A	N
74	6.9	0.3	4.35	-50.36	7.0	1.1	N	4.8	A	N
75	12.9	0.3	2.33	-7.19	1.0	1.1	A	3.1	A	A
76	12.73	0.18	1.41	-8.42	1.2	0.9	N	2.4	A	W
77	12.78	0.59	4.62	-8.06	1.1	1.7	A	5.0	A	A
78	13.4	0.189	1.41	-3.60	0.5	0.9	A	2.4	A	A
79	13	1	7.69	-6.47	0.9	2.7	A	7.9	A	A
80	13	0.9	6.92	-6.47	0.9	2.4	A	7.2	A	A
81	11.8	0.43	3.64	-15.11	2.1	1.3	N	4.2	A	N
82	15.5	0.46	2.97	11.51	1.6	1.4	N	3.6	A	N
83	11.25	0.3	2.67	-19.06	2.7	1.1	N	3.3	A	N
84	13.3	0.5	3.76	-4.32	0.6	1.5	A	4.3	A	A
85	8	1.1	13.75	-42.45	5.9	2.9	N	13.9	N	N
86	12	1.4	11.67	-13.67	1.9	3.7	A	11.8	N	N
87	13.1	0.3	2.29	-5.76	0.8	1.1	A	3.0	A	A
88	13.1	0.5	3.82	-5.76	0.8	1.5	A	4.3	A	A
89	12.8	0.24	1.88	-7.91	1.1	0.9	N	2.7	A	W
90	11.6	1.15	9.91	-16.55	2.3	3.1	A	10.1	N	N
91	12.8	1	7.81	-7.91	1.1	2.7	A	8.1	A	A
92	12.95	0.66	5.10	-6.83	1.0	1.8	A	5.5	A	A
93	12.09	0.24	1.99	-13.02	1.8	0.9	N	2.8	A	N
94	13	0.7	5.38	-6.47	0.9	1.9	A	5.7	A	A
95	13.9	0.95	6.83	0.00	0.0	2.6	A	7.1	A	A
96	12.7	0.8	6.30	-8.63	1.2	2.2	A	6.6	A	A
97	12.74	0.49	3.85	-8.35	1.2	1.5	A	4.3	A	A
98	11.95	0.99	8.28	-14.03	2.0	2.7	A	8.5	A	A
99	14.05	0.26	1.85	1.08	0.2	1.0	A	2.7	A	A
100	11	1.2	10.91	-20.86	2.9	3.2	A	11.1	N	N
101	13.1	0.7	5.34	-5.76	0.8	1.9	A	5.7	A	A
105	12.6	0.59	4.68	-9.35	1.3	1.7	A	5.1	A	A
106	12.74	0.75	5.89	-8.35	1.2	2.1	A	6.2	A	A
107	14.66	1.08	7.37	5.47	0.8	2.9	A	7.6	A	A
109	12.2	0.78	6.39	-12.23	1.7	2.1	A	6.7	A	A
110	15.3	1.15	7.52	10.07	1.4	3.1	A	7.8	A	A
111	14.53	0.8	5.51	4.53	0.6	2.2	A	5.9	A	A
112	12.6	0.44	3.49	-9.35	1.3	1.3	A	4.0	A	A
113	15.86	0.98	6.18	14.10	2.0	2.6	A	6.5	A	A
114	14.1	0.8	5.67	1.44	0.2	2.2	A	6.0	A	A
115	13	0.7	5.38	-6.47	0.9	1.9	A	5.7	A	A
118	14.2	0.27	1.90	2.16	0.3	1.0	A	2.8	A	A
119	14.81	0.9	6.08	6.55	0.9	2.4	A	6.4	A	A
120	12.6	0.44	3.49	-9.35	1.3	1.3	A	4.0	A	A
121	15.99	0.66	4.13	15.04	2.1	1.8	N	4.6	A	N
122	13.15	0.5	3.80	-5.40	0.8	1.5	A	4.3	A	A
123	12.13	0.27	2.23	-12.73	1.8	1.0	N	3.0	A	N
124	11.95	0.34	2.85	-14.03	2.0	1.1	N	3.5	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
125	12.3	0.4	3.25	-11.51	1.6	1.3	N	3.8	A	N
126	11.1	1.1	9.91	-20.14	2.8	2.9	A	10.1	N	N
127	12	0.43	3.58	-13.67	1.9	1.3	N	4.1	A	N
128	13.6	0.6	4.41	-2.16	0.3	1.7	A	4.8	A	A
130	12.6	0.3	2.38	-9.35	1.3	1.1	N	3.1	A	W
131	11.82	0.36	3.05	-14.96	2.1	1.2	N	3.6	A	N
132	14.25	0.328	2.30	2.52	0.4	1.1	A	3.0	A	A
133	14.3	0.4	2.80	2.88	0.4	1.3	A	3.4	A	A
134	13.8	0.22	1.59	-0.72	0.1	0.9	A	2.6	A	A
136	12.14	0.23	1.89	-12.66	1.8	0.9	N	2.8	A	N
137	20.03	1.94	9.69	44.10	6.1	5.1	N	9.9	A	N
138	13.18	0.66	5.01	-5.18	0.7	1.8	A	5.4	A	A
139	11.9	0.273	2.29	-14.39	2.0	1.0	N	3.0	A	N
140	14.2	0.44	3.10	2.16	0.3	1.3	A	3.7	A	A
141	15.99	0.68	4.25	15.04	2.1	1.9	N	4.7	A	N
142	9.61	0.005	0.05	-30.86	4.3	0.7	N	2.0	A	N
143	12.75	0.7	5.49	-8.27	1.2	1.9	A	5.8	A	A
144	8.51	0.9	10.58	-38.78	5.4	2.4	N	10.8	N	N
145	13.29	0.43	3.24	-4.39	0.6	1.3	A	3.8	A	A
146	10.06	0.32	3.18	-27.63	3.8	1.1	N	3.8	A	N
150	6.98	0.35	5.01	-49.78	6.9	1.2	N	5.4	A	N
151	6.55	0.36	5.50	-52.88	7.4	1.2	N	5.8	A	N
152	6.6	0.4	6.06	-52.52	7.3	1.3	N	6.4	A	N
153	13.584	0.915	6.74	-2.27	0.3	2.5	A	7.0	A	A
154	13.2	0.8	6.06	-5.04	0.7	2.2	A	6.4	A	A
157	12.9	0.6	4.65	-7.19	1.0	1.7	A	5.1	A	A
158	13.46	0.62	4.61	-3.17	0.4	1.8	A	5.0	A	A
159	13	0.2	1.54	-6.47	0.9	0.9	N	2.5	A	W
160	12.64	0.58	4.59	-9.06	1.3	1.7	A	5.0	A	A
161	11.37	0.95	8.36	-18.20	2.5	2.6	A	8.6	A	A
162	12.88	0.37	2.87	-7.34	1.0	1.2	A	3.5	A	A
163	15.07	0.71	4.71	8.42	1.2	2.0	A	5.1	A	A
164	12.87	0.6	4.66	-7.41	1.0	1.7	A	5.1	A	A
165	13.3	0.6	4.51	-4.32	0.6	1.7	A	4.9	A	A
166	13.08	0.69	5.28	-5.90	0.8	1.9	A	5.6	A	A
167	10.22	0.36	3.52	-26.47	3.7	1.2	N	4.1	A	N
168	11.94	0.15	1.26	-14.10	2.0	0.8	N	2.4	A	N
169	14.22	0.25	1.76	2.30	0.3	1.0	A	2.7	A	A
170	13.3	0.4	3.01	-4.32	0.6	1.3	A	3.6	A	A
171	14.29	0.35	2.45	2.81	0.4	1.2	A	3.2	A	A
172	14	0.3	2.14	0.72	0.1	1.1	A	2.9	A	A
173	11.46	0.18	1.57	-17.55	2.4	0.9	N	2.5	A	N
174	13.97	0.55	3.94	0.50	0.1	1.6	A	4.4	A	A
175	13.4	0.67	5.00	-3.60	0.5	1.9	A	5.4	A	A
177	14.5	0.3	2.07	4.32	0.6	1.1	A	2.9	A	A
178	15.06	0.575	3.82	8.35	1.2	1.6	A	4.3	A	A
179	11.8	0.2	1.69	-15.11	2.1	0.9	N	2.6	A	N
181	13	0.14	1.08	-6.47	0.9	0.8	N	2.3	A	W

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
182	13.1	0.3	2.29	-5.76	0.8	1.1	A	3.0	A	A
183	12.74	0.46	3.61	-8.35	1.2	1.4	A	4.1	A	A
184	11.29	0.33	2.92	-18.78	2.6	1.1	N	3.5	A	N
185	13.5	1.08	8.00	-2.88	0.4	2.9	A	8.2	A	A
186	13.84	0.48	3.47	-0.43	0.1	1.4	A	4.0	A	A
187	11.6	1.5	12.93	-16.55	2.3	3.9	A	13.1	N	N
188	12.2	0.9	7.38	-12.23	1.7	2.4	A	7.6	A	A
190	12.27	1.42	11.57	-11.73	1.6	3.7	A	11.7	N	N
191	12.22	0.41	3.36	-12.09	1.7	1.3	N	3.9	A	N
192	14.1	0.2	1.42	1.44	0.2	0.9	A	2.5	A	A
193	14.2	0.6	4.23	2.16	0.3	1.7	A	4.7	A	A
194	14.1	0.3	2.13	1.44	0.2	1.1	A	2.9	A	A
195	13.27	0.36	2.71	-4.53	0.6	1.2	A	3.4	A	A
197	23	0.88	3.83	65.47	9.1	2.4	N	4.3	A	N
199	13.7	0.6	4.38	-1.44	0.2	1.7	A	4.8	A	A
200	12.96	0.43	3.32	-6.76	0.9	1.3	A	3.9	A	A
201	15.28	0.16	1.05	9.93	1.4	0.8	N	2.3	A	W
202	14.778	0.739	5.00	6.32	0.9	2.0	A	5.4	A	A
204	9.4	0.7	7.45	-32.37	4.5	1.9	N	7.7	A	N
206	3.24	0.2	6.17	-76.69	10.7	0.9	N	6.5	A	N
207	14.76	0.73	4.95	6.19	0.9	2.0	A	5.3	A	A
208	12.4	1.3	10.48	-10.79	1.5	3.4	A	10.7	N	N
209	13.02	0.42	3.23	-6.33	0.9	1.3	A	3.8	A	A
210	12	0.12	1.00	-13.67	1.9	0.8	N	2.2	A	N
211	13.47	0.68	5.05	-3.09	0.4	1.9	A	5.4	A	A
212	12.63	0.39	3.09	-9.14	1.3	1.2	N	3.7	A	W
213	13.16	0.2	1.52	-5.32	0.7	0.9	A	2.5	A	A
214	12.66	0.33	2.61	-8.92	1.2	1.1	N	3.3	A	W
215	12.45	0.37	2.97	-10.43	1.5	1.2	N	3.6	A	N
216	14.1	0.58	4.11	1.44	0.2	1.7	A	4.6	A	A
217	12.76	0.38	2.98	-8.20	1.1	1.2	A	3.6	A	A
218	14.094	0.185	1.31	1.40	0.2	0.9	A	2.4	A	A
219	12.1	0.5	4.13	-12.95	1.8	1.5	N	4.6	A	N
220	13.58	0.33	2.43	-2.30	0.3	1.1	A	3.1	A	A
221	13.01	0.58	4.46	-6.40	0.9	1.7	A	4.9	A	A
223	9.15	0.99	10.82	-34.17	4.8	2.7	N	11.0	N	N
224	13.44	0.43	3.20	-3.31	0.5	1.3	A	3.8	A	A
225	40	5	12.50	187.77	26.1	12.9	N	12.7	N	N
226	14.6	1	6.85	5.04	0.7	2.7	A	7.1	A	A
227	12.24	0.28	2.29	-11.94	1.7	1.0	N	3.0	A	N
230	14.51	1.83	12.61	4.39	0.6	4.8	A	12.8	N	W
232	12.8	0.4	3.13	-7.91	1.1	1.3	A	3.7	A	A
233	12.4	1.1	8.87	-10.79	1.5	2.9	A	9.1	A	A
234	12.1	1.37	11.32	-12.95	1.8	3.6	A	11.5	N	N
235	11.96	0.96	8.03	-13.96	1.9	2.6	A	8.3	A	A
236	13.2	0.9	6.82	-5.04	0.7	2.4	A	7.1	A	A
237	13.3	0.4	3.01	-4.32	0.6	1.3	A	3.6	A	A
238	13.26	0.27	2.04	-4.60	0.6	1.0	A	2.9	A	A

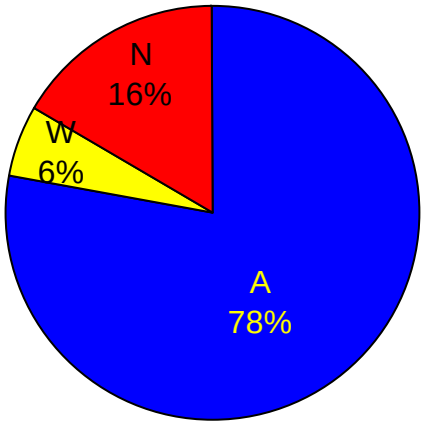
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
239	9.83	0.3	3.05	-29.28	4.1	1.1	N	3.6	A	N
240	12.8	0.8	6.25	-7.91	1.1	2.2	A	6.6	A	A
241	12.1	1.1	9.09	-12.95	1.8	2.9	A	9.3	A	A
242	13.43	0.16	1.19	-3.38	0.5	0.8	A	2.3	A	A
243	12.55	0.6521	5.20	-9.71	1.4	1.8	A	5.6	A	A
244	12.5	0.407	3.26	-10.07	1.4	1.3	N	3.8	A	N
245	11.9	0.18	1.51	-14.39	2.0	0.9	N	2.5	A	N
246	13.2	0.49	3.71	-5.04	0.7	1.5	A	4.2	A	A
249	11.93	0.36	3.02	-14.17	2.0	1.2	N	3.6	A	N
250	12.68	0.38	3.00	-8.78	1.2	1.2	N	3.6	A	W
251	14.16	1.11	7.84	1.87	0.3	3.0	A	8.1	A	A
252	12.6	0.3	2.38	-9.35	1.3	1.1	N	3.1	A	W
253	12.5	0.5	4.00	-10.07	1.4	1.5	A	4.5	A	A
254	12.73	0.45	3.53	-8.42	1.2	1.4	A	4.1	A	A
255	14.2	0.6	4.23	2.16	0.3	1.7	A	4.7	A	A
256	13	1.3	10.00	-6.47	0.9	3.4	A	10.2	N	W
257	13.73	0.64	4.66	-1.22	0.2	1.8	A	5.1	A	A
258	13.22	0.64	4.84	-4.89	0.7	1.8	A	5.2	A	A
259	11	0.1	0.91	-20.86	2.9	0.8	N	2.2	A	N
260	14	0.85	6.07	0.72	0.1	2.3	A	6.4	A	A
261	14	1	7.14	0.72	0.1	2.7	A	7.4	A	A
263	4.1	0.35	8.54	-70.50	9.8	1.2	N	8.8	A	N
264	4.86	0.262	5.39	-65.04	9.0	1.0	N	5.7	A	N
265	14.1	0.151	1.07	1.44	0.2	0.8	A	2.3	A	A
267	11.8	0.63	5.34	-15.11	2.1	1.8	N	5.7	A	N
268	13.59	1.02	7.51	-2.23	0.3	2.7	A	7.8	A	A
269	13	0.8	6.15	-6.47	0.9	2.2	A	6.5	A	A
270	12.7	0.42	3.31	-8.63	1.2	1.3	A	3.9	A	A
271	11.64	0.17	1.46	-16.26	2.3	0.8	N	2.5	A	N
272	12.4	0.21	1.69	-10.79	1.5	0.9	N	2.6	A	N
273	2.2	0.3	13.64	-84.17	11.7	1.1	N	13.8	N	N
274	13.5	0.5	3.70	-2.88	0.4	1.5	A	4.2	A	A
275	13.13	0.3	2.28	-5.54	0.8	1.1	A	3.0	A	A
276	11.9	1	8.40	-14.39	2.0	2.7	A	8.6	A	A
278	13.4	1.1	8.21	-3.60	0.5	2.9	A	8.4	A	A
279	11.6	0.2	1.72	-16.55	2.3	0.9	N	2.6	A	N
283	9.27	0.31	3.34	-33.31	4.6	1.1	N	3.9	A	N
284	12.42	0.89	7.17	-10.65	1.5	2.4	A	7.4	A	A
285	12.68	0.94	7.41	-8.78	1.2	2.5	A	7.7	A	A
286	20.55	0.67	3.26	47.84	6.7	1.9	N	3.8	A	N
288	12.6	0.6	4.76	-9.35	1.3	1.7	A	5.2	A	A
289	13.9	0.5	3.60	0.00	0.0	1.5	A	4.1	A	A
290	12.4	0.8	6.45	-10.79	1.5	2.2	A	6.8	A	A
292	12.8	0.7	5.47	-7.91	1.1	1.9	A	5.8	A	A
293	12.8	0.7	5.47	-7.91	1.1	1.9	A	5.8	A	A
294	13.7	0.4	2.92	-1.44	0.2	1.3	A	3.5	A	A
295	12.81	0.3	2.34	-7.84	1.1	1.1	N	3.1	A	W
296	12.9	0.3	2.33	-7.19	1.0	1.1	A	3.1	A	A

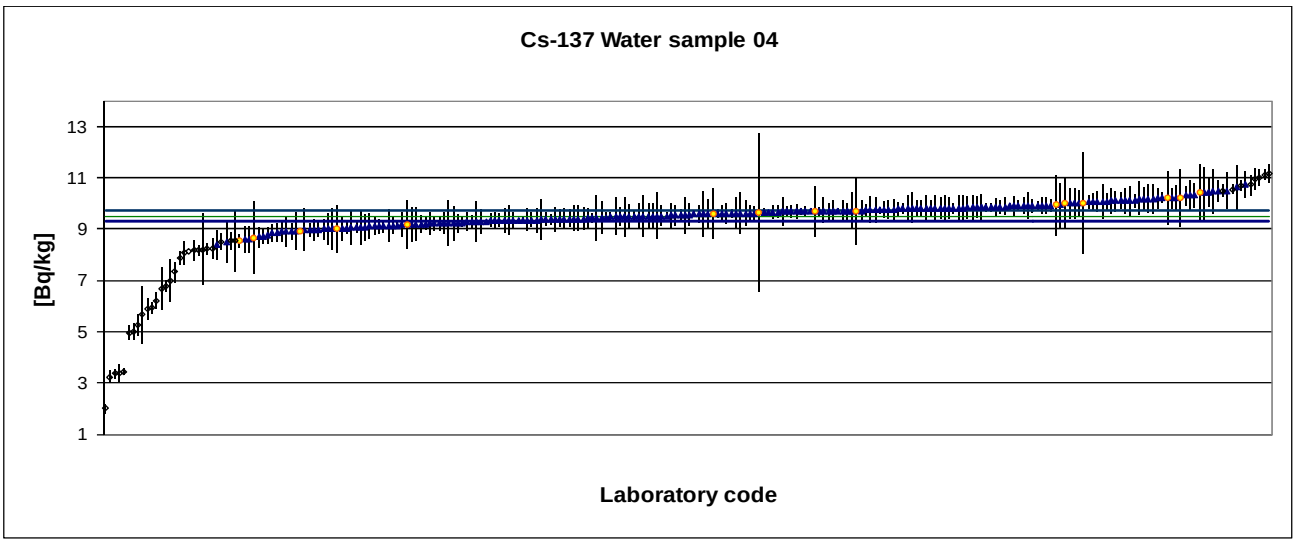
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
297	12.5	0.53	4.24	-10.07	1.4	1.5	A	4.7	A	A
298	12.83	0.14	1.09	-7.70	1.1	0.8	N	2.3	A	W
299	12.7	1.3	10.24	-8.63	1.2	3.4	A	10.4	N	W
300	14.1	1.1	7.80	1.44	0.2	2.9	A	8.1	A	A

Performance evaluation of Cs-137 measurement results

Spiked water sample 04

Target Value: 9.5 ± 0.19 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	8.91	0.75	8.42	-6.21	0.6	2.0	A	8.7	A	A
2	9.4	0.33	3.51	-1.05	0.1	1.0	A	4.0	A	A
3	9.6	1	10.42	1.05	0.1	2.6	A	10.6	N	W
4	9.5	0.2	2.11	0.00	0.0	0.7	A	2.9	A	A
5	3.24	0.22	6.79	-65.89	6.3	0.7	N	7.1	A	N
6	10.18	0.43	4.22	7.16	0.7	1.2	A	4.7	A	A
7	9.34	0.31	3.32	-1.68	0.2	0.9	A	3.9	A	A
9	9.4	0.4	4.26	-1.05	0.1	1.1	A	4.7	A	A
11	9.8	0.5	5.10	3.16	0.3	1.4	A	5.5	A	A
12	10.3	0.4	3.88	8.42	0.8	1.1	A	4.4	A	A
13	8.71	0.29	3.33	-8.32	0.8	0.9	A	3.9	A	A
14	7.33	0.39	5.32	-22.84	2.2	1.1	N	5.7	A	N
15	5.66	1.11	19.61	-40.42	3.8	2.9	N	19.7	N	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
16	9.85	0.15	1.52	3.68	0.4	0.6	A	2.5	A	A
17	10.32	0.46	4.46	8.63	0.8	1.3	A	4.9	A	A
18	9.34	0.1	1.07	-1.68	0.2	0.6	A	2.3	A	A
19	9.564	0.105	1.10	0.67	0.1	0.6	A	2.3	A	A
20	9.65	0.14	1.45	1.58	0.2	0.6	A	2.5	A	A
21	10.21	1.12	10.97	7.47	0.7	2.9	A	11.2	N	W
22	9.65	0.08	0.83	1.58	0.2	0.5	A	2.2	A	A
23	9.88	0.12	1.21	4.00	0.4	0.6	A	2.3	A	A
24	9.9	0.2	2.02	4.21	0.4	0.7	A	2.8	A	A
25	5.24	0.42	8.02	-44.84	4.3	1.2	N	8.3	A	N
26	9.02	0.46	5.10	-5.05	0.5	1.3	A	5.5	A	A
27	9.222	0.6926	7.51	-2.93	0.3	1.9	A	7.8	A	A
29	9	0.4	4.44	-5.26	0.5	1.1	A	4.9	A	A
30	9.8	0.6	6.12	3.16	0.3	1.6	A	6.4	A	A
31	10	1	10.00	5.26	0.5	2.6	A	10.2	N	W
32	10.1	0.5	4.95	6.32	0.6	1.4	A	5.3	A	A
33	9.58	0.59	6.16	0.84	0.1	1.6	A	6.5	A	A
34	9.83	0.43	4.37	3.47	0.3	1.2	A	4.8	A	A
35	9.4	0.35	3.72	-1.05	0.1	1.0	A	4.2	A	A
36	9.92	0.24	2.42	4.42	0.4	0.8	A	3.1	A	A
37	10.48	0.42	4.01	10.32	1.0	1.2	A	4.5	A	A
38	9.3	0.0018	0.02	-2.11	0.2	0.5	A	2.0	A	A
39	9.1	0.5	5.49	-4.21	0.4	1.4	A	5.8	A	A
40	9.82	0.52	5.30	3.37	0.3	1.4	A	5.7	A	A
41	9.5	0.5	5.26	0.00	0.0	1.4	A	5.6	A	A
42	8.9	0.4	4.49	-6.32	0.6	1.1	A	4.9	A	A
43	5.91	0.24	4.06	-37.79	3.6	0.8	N	4.5	A	N
44	9.33	0.49	5.25	-1.79	0.2	1.4	A	5.6	A	A
45	9.21	0.3	3.26	-3.05	0.3	0.9	A	3.8	A	A
46	9.4	0.51	5.43	-1.05	0.1	1.4	A	5.8	A	A
47	9.87	0.32	3.24	3.89	0.4	1.0	A	3.8	A	A
50	9.07	0.68	7.50	-4.53	0.4	1.8	A	7.8	A	A
51	9.26	0.36	3.89	-2.53	0.2	1.1	A	4.4	A	A
52	9.05	0.68	7.51	-4.74	0.4	1.8	A	7.8	A	A
53	9.4	0.5	5.32	-1.05	0.1	1.4	A	5.7	A	A
54	10.45	0.84	8.04	10.00	0.9	2.2	A	8.3	A	A
55	9.84	0.42	4.27	3.58	0.3	1.2	A	4.7	A	A
56	9.8	0.3	3.06	3.16	0.3	0.9	A	3.7	A	A
57	9.67	0.56	5.79	1.79	0.2	1.5	A	6.1	A	A
58	9.76	0.39	4.00	2.74	0.3	1.1	A	4.5	A	A
59	9.91	0.17	1.72	4.32	0.4	0.7	A	2.6	A	A
60	9.42	0.19	2.02	-0.84	0.1	0.7	A	2.8	A	A
61	10.05	0.27	2.69	5.79	0.6	0.9	A	3.3	A	A
62	9.68	0.28	2.89	1.89	0.2	0.9	A	3.5	A	A
63	9.6	0.16	1.67	1.05	0.1	0.6	A	2.6	A	A
64	9.64	3.1	32.16	1.47	0.1	8.0	A	32.2	N	W
65	9.67	0.21	2.17	1.79	0.2	0.7	A	3.0	A	A
68	9.8	0.3	3.06	3.16	0.3	0.9	A	3.7	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
70	10.4	1.1	10.58	9.47	0.9	2.9	A	10.8	N	W
71	8.86	0.35	3.95	-6.74	0.6	1.0	A	4.4	A	A
72	9.14	0.13	1.42	-3.79	0.4	0.6	A	2.5	A	A
73	9.8	0.5	5.10	3.16	0.3	1.4	A	5.5	A	A
74	9.7	1	10.31	2.11	0.2	2.6	A	10.5	N	W
75	9.6	0.3	3.13	1.05	0.1	0.9	A	3.7	A	A
76	9.69	0.22	2.27	2.00	0.2	0.7	A	3.0	A	A
77	8.554	0.258	3.02	-9.96	0.9	0.8	N	3.6	A	W
78	10.5	0.253	2.41	10.53	1.0	0.8	N	3.1	A	N
79	10.3	0.6	5.83	8.42	0.8	1.6	A	6.2	A	A
80	9.9	0.3	3.03	4.21	0.4	0.9	A	3.6	A	A
81	9.1	0.35	3.85	-4.21	0.4	1.0	A	4.3	A	A
82	11.16	0.35	3.14	17.47	1.7	1.0	N	3.7	A	N
83	8.21	0.25	3.05	-13.58	1.3	0.8	N	3.6	A	N
84	10.1	0.4	3.96	6.32	0.6	1.1	A	4.4	A	A
85	8.5	0.3	3.53	-10.53	1.0	0.9	N	4.1	A	N
86	9	0.6	6.67	-5.26	0.5	1.6	A	7.0	A	A
87	10.1	0.3	2.97	6.32	0.6	0.9	A	3.6	A	A
88	9.8	0.3	3.06	3.16	0.3	0.9	A	3.7	A	A
89	9.85	0.17	1.73	3.68	0.4	0.7	A	2.6	A	A
90	9.22	0.43	4.66	-2.95	0.3	1.2	A	5.1	A	A
91	9.5	0.8	8.42	0.00	0.0	2.1	A	8.7	A	A
92	9.16	0.47	5.13	-3.58	0.3	1.3	A	5.5	A	A
93	8.52	0.32	3.76	-10.32	1.0	1.0	N	4.3	A	N
94	9.9	0.5	5.05	4.21	0.4	1.4	A	5.4	A	A
95	9.13	0.62	6.79	-3.89	0.4	1.7	A	7.1	A	A
96	9.8	0.5	5.10	3.16	0.3	1.4	A	5.5	A	A
97	9.23	0.35	3.79	-2.84	0.3	1.0	A	4.3	A	A
98	8.97	0.82	9.14	-5.58	0.5	2.2	A	9.4	A	A
99	9.7	0.14	1.44	2.11	0.2	0.6	A	2.5	A	A
100	8.64	1.4	16.20	-9.05	0.9	3.6	A	16.3	N	W
101	10.1	0.5	4.95	6.32	0.6	1.4	A	5.3	A	A
105	9.07	0.52	5.73	-4.53	0.4	1.4	A	6.1	A	A
106	10.62	0.85	8.00	11.79	1.1	2.2	A	8.2	A	A
107	9.93	1.18	11.88	4.53	0.4	3.1	A	12.1	N	W
109	9.37	0.78	8.32	-1.37	0.1	2.1	A	8.6	A	A
110	9.48	0.713	7.52	-0.21	0.0	1.9	A	7.8	A	A
111	10.18	0.56	5.50	7.16	0.7	1.5	A	5.9	A	A
112	9.91	0.33	3.33	4.32	0.4	1.0	A	3.9	A	A
113	10.72	0.52	4.85	12.84	1.2	1.4	A	5.2	A	A
114	9.7	0.5	5.15	2.11	0.2	1.4	A	5.5	A	A
115	9	0.8	8.89	-5.26	0.5	2.1	A	9.1	A	A
118	8.98	0.27	3.01	-5.47	0.5	0.9	A	3.6	A	A
119	10.17	0.65	6.39	7.05	0.7	1.7	A	6.7	A	A
120	9.91	0.33	3.33	4.32	0.4	1.0	A	3.9	A	A
121	25.89	0.74	2.86	172.53	16.4	2.0	N	3.5	A	N
122	9.75	0.3	3.08	2.63	0.3	0.9	A	3.7	A	A
123	8.18	0.2	2.44	-13.89	1.3	0.7	N	3.2	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
124	9.757	0.363	3.72	2.71	0.3	1.1	A	4.2	A	A
125	10	0.6	6.00	5.26	0.5	1.6	A	6.3	A	A
126	8.5	0.8	9.41	-10.53	1.0	2.1	A	9.6	A	A
127	9.73	0.49	5.04	2.42	0.2	1.4	A	5.4	A	A
128	9.6	0.4	4.17	1.05	0.1	1.1	A	4.6	A	A
130	9.73	0.14	1.44	2.42	0.2	0.6	A	2.5	A	A
131	8.97	0.25	2.79	-5.58	0.5	0.8	A	3.4	A	A
132	9.663	0.254	2.63	1.72	0.2	0.8	A	3.3	A	A
133	9.7	0.3	3.09	2.11	0.2	0.9	A	3.7	A	A
134	9.79	0.21	2.15	3.05	0.3	0.7	A	2.9	A	A
136	9.27	0.28	3.02	-2.42	0.2	0.9	A	3.6	A	A
137	18.25	1.32	7.23	92.11	8.8	3.4	N	7.5	A	N
138	10.42	0.59	5.66	9.68	0.9	1.6	A	6.0	A	A
139	9.57	0.34	3.55	0.74	0.1	1.0	A	4.1	A	A
140	11.5	0.52	4.52	21.05	2.0	1.4	N	4.9	A	N
141	12.53	0.81	6.46	31.89	3.0	2.1	N	6.8	A	N
142	8.12	0.0042	0.05	-14.53	1.4	0.5	N	2.0	A	N
143	8.06	0.45	5.58	-15.16	1.4	1.3	N	5.9	A	N
144	6.68	0.83	12.43	-29.68	2.8	2.2	N	12.6	N	N
145	10.73	0.39	3.63	12.95	1.2	1.1	N	4.1	A	N
146	9.4	0.46	4.89	-1.05	0.1	1.3	A	5.3	A	A
150	6.21	0.31	4.99	-34.63	3.3	0.9	N	5.4	A	N
151	4.95	0.28	5.66	-47.89	4.6	0.9	N	6.0	A	N
152	5	0.3	6.00	-47.37	4.5	0.9	N	6.3	A	N
153	10.07	0.677	6.72	6.00	0.6	1.8	A	7.0	A	A
154	10	0.6	6.00	5.26	0.5	1.6	A	6.3	A	A
157	9.1	0.3	3.30	-4.21	0.4	0.9	A	3.9	A	A
158	9.83	0.49	4.98	3.47	0.3	1.4	A	5.4	A	A
159	9.39	0.21	2.24	-1.16	0.1	0.7	A	3.0	A	A
160	9.93	0.87	8.76	4.53	0.4	2.3	A	9.0	A	A
161	8.37	0.57	6.81	-11.89	1.1	1.6	A	7.1	A	A
162	9.52	0.46	4.83	0.21	0.0	1.3	A	5.2	A	A
163	9.55	0.44	4.61	0.53	0.1	1.2	A	5.0	A	A
164	8.97	0.41	4.57	-5.58	0.5	1.2	A	5.0	A	A
165	9.2	0.46	5.00	-3.16	0.3	1.3	A	5.4	A	A
166	10	0.54	5.40	5.26	0.5	1.5	A	5.8	A	A
167	8.24	0.39	4.73	-13.26	1.3	1.1	N	5.1	A	N
168	9.06	0.19	2.10	-4.63	0.4	0.7	A	2.9	A	A
169	9.72	0.25	2.57	2.32	0.2	0.8	A	3.3	A	A
170	9.7	0.4	4.12	2.11	0.2	1.1	A	4.6	A	A
171	9.84	0.52	5.28	3.58	0.3	1.4	A	5.7	A	A
172	9.5	0.5	5.26	0.00	0.0	1.4	A	5.6	A	A
173	9.32	0.25	2.68	-1.89	0.2	0.8	A	3.3	A	A
174	9.8	0.43	4.39	3.16	0.3	1.2	A	4.8	A	A
175	9.49	0.47	4.95	-0.11	0.0	1.3	A	5.3	A	A
176	9.67	0.23	2.38	1.79	0.2	0.8	A	3.1	A	A
177	9.78	0.26	2.66	2.95	0.3	0.8	A	3.3	A	A
178	10.19	0.414	4.06	7.26	0.7	1.2	A	4.5	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
179	9.18	0.66	7.19	-3.37	0.3	1.8	A	7.5	A	A
181	9.68	0.12	1.24	1.89	0.2	0.6	A	2.4	A	A
182	11.1	0.2	1.80	16.84	1.6	0.7	N	2.7	A	N
183	9.88	0.39	3.95	4.00	0.4	1.1	A	4.4	A	A
184	9.1	0.22	2.42	-4.21	0.4	0.7	A	3.1	A	A
185	9.33	0.56	6.00	-1.79	0.2	1.5	A	6.3	A	A
186	9.86	0.37	3.75	3.79	0.4	1.1	A	4.3	A	A
187	8.9	0.6	6.74	-6.32	0.6	1.6	A	7.0	A	A
188	9.39	0.47	5.01	-1.16	0.1	1.3	A	5.4	A	A
190	8.53	1.19	13.95	-10.21	1.0	3.1	A	14.1	N	N
191	9.32	0.3	3.22	-1.89	0.2	0.9	A	3.8	A	A
192	9.7	0.1	1.03	2.11	0.2	0.6	A	2.3	A	A
193	9.7	0.4	4.12	2.11	0.2	1.1	A	4.6	A	A
194	9.7	0.3	3.09	2.11	0.2	0.9	A	3.7	A	A
195	9.71	0.38	3.91	2.21	0.2	1.1	A	4.4	A	A
197	19.3	0.91	4.72	103.16	9.8	2.4	N	5.1	A	N
199	9.8	0.5	5.10	3.16	0.3	1.4	A	5.5	A	A
200	9.41	0.39	4.14	-0.95	0.1	1.1	A	4.6	A	A
201	10.553	0.16	1.52	11.08	1.1	0.6	N	2.5	A	N
202	14.12	0.852	6.03	48.63	4.6	2.3	N	6.4	A	N
204	10	2	20.00	5.26	0.5	5.2	A	20.1	N	W
205	5.86	0.42	7.17	-38.32	3.6	1.2	N	7.4	A	N
206	3.44	0.14	4.07	-63.79	6.1	0.6	N	4.5	A	N
207	10.06	0.39	3.88	5.89	0.6	1.1	A	4.4	A	A
208	9	0.9	10.00	-5.26	0.5	2.4	A	10.2	N	W
209	10.96	0.41	3.74	15.37	1.5	1.2	N	4.2	A	N
210	9.6	0.15	1.56	1.05	0.1	0.6	A	2.5	A	A
211	9.61	0.29	3.02	1.16	0.1	0.9	A	3.6	A	A
212	10.05	0.32	3.18	5.79	0.6	1.0	A	3.8	A	A
213	9.02	0.24	2.66	-5.05	0.5	0.8	A	3.3	A	A
214	9.66	0.26	2.69	1.68	0.2	0.8	A	3.4	A	A
215	9.51	0.37	3.89	0.11	0.0	1.1	A	4.4	A	A
216	9.35	0.45	4.81	-1.58	0.2	1.3	A	5.2	A	A
217	9.52	0.4	4.20	0.21	0.0	1.1	A	4.7	A	A
218	11.015	0.311	2.82	15.95	1.5	0.9	N	3.5	A	N
219	8.17	0.39	4.77	-14.00	1.3	1.1	N	5.2	A	N
220	9.48	0.36	3.80	-0.21	0.0	1.1	A	4.3	A	A
221	9.6	0.6	6.25	1.05	0.1	1.6	A	6.6	A	A
223	6.97	0.83	11.91	-26.63	2.5	2.2	N	12.1	N	N
224	9.45	0.62	6.56	-0.53	0.1	1.7	A	6.9	A	A
225	248	32	12.90	2510.53	238.5	82.6	N	13.1	N	N
226	9.6	0.8	8.33	1.05	0.1	2.1	A	8.6	A	A
227	9.21	0.3	3.26	-3.05	0.3	0.9	A	3.8	A	A
230	13.76	1.7	12.35	44.84	4.3	4.4	A	12.5	N	N
232	9.35	0.28	2.99	-1.58	0.2	0.9	A	3.6	A	A
233	9.28	0.79	8.51	-2.32	0.2	2.1	A	8.7	A	A
234	10.2	1.04	10.20	7.37	0.7	2.7	A	10.4	N	W
235	9.22	0.9	9.76	-2.95	0.3	2.4	A	10.0	A	A

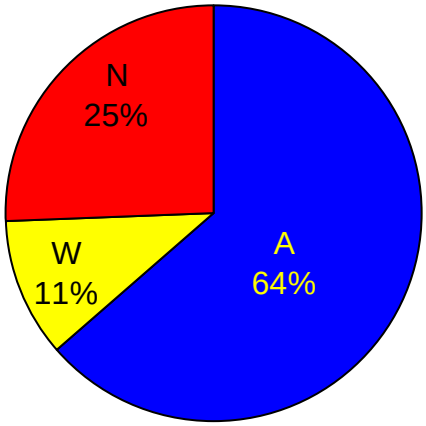
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
236	9.57	0.88	9.20	0.74	0.1	2.3	A	9.4	A	A
237	9.5	0.5	5.26	0.00	0.0	1.4	A	5.6	A	A
238	9.24	0.19	2.06	-2.74	0.3	0.7	A	2.9	A	A
239	6.79	0.22	3.24	-28.53	2.7	0.7	N	3.8	A	N
240	10.1	0.6	5.94	6.32	0.6	1.6	A	6.3	A	A
241	9.5	0.9	9.47	0.00	0.0	2.4	A	9.7	A	A
242	9.45	0.19	2.01	-0.53	0.1	0.7	A	2.8	A	A
243	9.728	0.5208	5.35	2.40	0.2	1.4	A	5.7	A	A
244	8.76	0.31	3.54	-7.79	0.7	0.9	A	4.1	A	A
245	9.47	0.16	1.69	-0.32	0.0	0.6	A	2.6	A	A
246	7.87	0.25	3.18	-17.16	1.6	0.8	N	3.8	A	N
249	8.84	0.33	3.73	-6.95	0.7	1.0	A	4.2	A	A
250	9.19	0.34	3.70	-3.26	0.3	1.0	A	4.2	A	A
251	9.35	0.47	5.03	-1.58	0.2	1.3	A	5.4	A	A
252	8.9	0.3	3.37	-6.32	0.6	0.9	A	3.9	A	A
253	9.8	0.4	4.08	3.16	0.3	1.1	A	4.5	A	A
254	9.13	0.31	3.40	-3.89	0.4	0.9	A	3.9	A	A
255	9.51	0.13	1.37	0.11	0.0	0.6	A	2.4	A	A
256	10.4	1	9.62	9.47	0.9	2.6	A	9.8	A	A
257	10.18	0.57	5.60	7.16	0.7	1.6	A	5.9	A	A
258	9.81	0.5	5.10	3.26	0.3	1.4	A	5.5	A	A
259	9.34	0.13	1.39	-1.68	0.2	0.6	A	2.4	A	A
260	9.6	0.5	5.21	1.05	0.1	1.4	A	5.6	A	A
261	10.5	0.7	6.67	10.53	1.0	1.9	A	7.0	A	A
263	3.4	0.36	10.59	-64.21	6.1	1.1	N	10.8	N	N
264	3.36	0.182	5.42	-64.63	6.1	0.7	N	5.8	A	N
265	9.69	0.113	1.17	2.00	0.2	0.6	A	2.3	A	A
267	8.68	0.38	4.38	-8.63	0.8	1.1	A	4.8	A	A
268	9.16	0.94	10.26	-3.58	0.3	2.5	A	10.5	N	W
269	9.7	0.7	7.22	2.11	0.2	1.9	A	7.5	A	A
270	10.2	0.4	3.92	7.37	0.7	1.1	A	4.4	A	A
271	9.32	0.25	2.68	-1.89	0.2	0.8	A	3.3	A	A
272	9.38	0.25	2.67	-1.26	0.1	0.8	A	3.3	A	A
273	2	0.2	10.00	-78.95	7.5	0.7	N	10.2	N	N
274	9.19	0.23	2.50	-3.26	0.3	0.8	A	3.2	A	A
275	10.07	0.3	2.98	6.00	0.6	0.9	A	3.6	A	A
276	9.7	1.3	13.40	2.11	0.2	3.4	A	13.6	N	W
278	9.42	0.9	9.55	-0.84	0.1	2.4	A	9.8	A	A
279	9.52	0.22	2.31	0.21	0.0	0.7	A	3.1	A	A
283	10.11	0.26	2.57	6.42	0.6	0.8	A	3.3	A	A
284	9.17	0.66	7.20	-3.47	0.3	1.8	A	7.5	A	A
285	9.61	0.72	7.45	0.32	0.0	1.9	A	7.7	A	A
286	8.91	0.12	1.35	-6.21	0.6	0.6	N	2.4	A	W
288	9.8	0.2	2.04	3.16	0.3	0.7	A	2.9	A	A
289	9.86	0.26	2.64	3.79	0.4	0.8	A	3.3	A	A
290	10.2	0.5	4.90	7.37	0.7	1.4	A	5.3	A	A
292	8.6	0.5	5.81	-9.47	0.9	1.4	A	6.1	A	A
293	8.6	0.5	5.81	-9.47	0.9	1.4	A	6.1	A	A

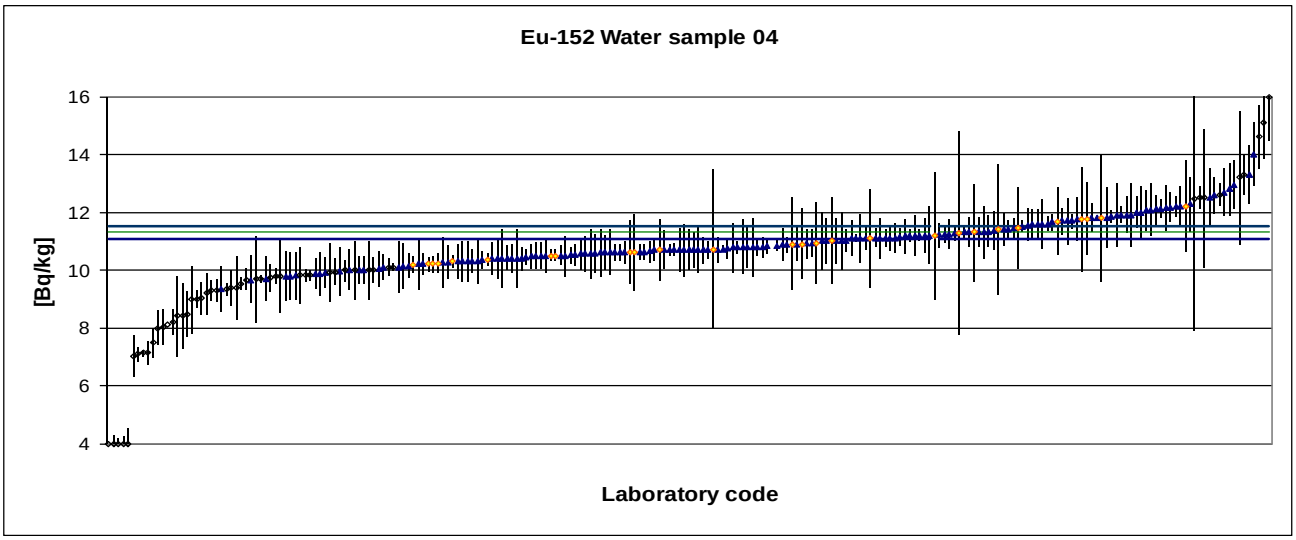
Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
294	10.7	0.2	1.87	12.63	1.2	0.7	N	2.7	A	N
295	9.9	0.24	2.42	4.21	0.4	0.8	A	3.1	A	A
296	9.6	0.3	3.13	1.05	0.1	0.9	A	3.7	A	A
297	9.29	0.46	4.95	-2.21	0.2	1.3	A	5.3	A	A
298	10.197	0.2061	2.02	7.34	0.7	0.7	A	2.8	A	A
299	8.2	1.4	17.07	-13.68	1.3	3.6	A	17.2	N	N
300	9.48	0.76	8.02	-0.21	0.0	2.0	A	8.3	A	A

Performance evaluation of Eu-152 measurement results

Spiked water sample 04

Target Value: 11.3 ± 0.23 [Bq/kg]





Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
1	10.61	1.32	12.44	-6.11	0.7	3.5	A	12.6	N	W
3	11	1	9.09	-2.65	0.3	2.6	A	9.3	A	A
4	11.2	0.7	6.25	-0.88	0.1	1.9	A	6.6	A	A
5	3.48	0.2	5.75	-69.20	7.8	0.8	N	6.1	A	N
6	10.74	0.33	3.07	-4.96	0.6	1.0	A	3.7	A	A
7	10.19	0.29	2.85	-9.82	1.1	0.9	N	3.5	A	W
9	11	0.8	7.27	-2.65	0.3	2.1	A	7.5	A	A
11	11.1	0.6	5.41	-1.77	0.2	1.7	A	5.8	A	A
12	13.3	0.7	5.26	17.70	2.0	1.9	N	5.6	A	N
13	8.98	0.31	3.45	-20.53	2.3	1.0	N	4.0	A	N
14	11.7	0.47	4.02	3.54	0.4	1.3	A	4.5	A	A
15	12.48	4.6	36.86	10.44	1.2	11.9	A	36.9	N	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
16	11.3	0.2	1.77	0.00	0.0	0.8	A	2.7	A	A
17	11.8	0.5	4.24	4.42	0.5	1.4	A	4.7	A	A
18	11.19	0.22	1.97	-0.97	0.1	0.8	A	2.8	A	A
19	10.722	0.127	1.18	-5.12	0.6	0.7	A	2.3	A	A
20	11.14	0.3	2.69	-1.42	0.2	1.0	A	3.4	A	A
21	11	1.5	13.64	-2.65	0.3	3.9	A	13.8	N	W
22	10.85	0.21	1.94	-3.98	0.5	0.8	A	2.8	A	A
23	11.1	0.13	1.17	-1.77	0.2	0.7	A	2.3	A	A
24	11.2	0.2	1.79	-0.88	0.1	0.8	A	2.7	A	A
25	1.42	0.28	19.72	-87.43	9.9	0.9	N	19.8	N	N
26	10.58	0.66	6.24	-6.37	0.7	1.8	A	6.6	A	A
27	9.815	0.9794	9.98	-13.14	1.5	2.6	A	10.2	N	N
29	11.9	1.1	9.24	5.31	0.6	2.9	A	9.5	A	A
30	10	0.7	7.00	-11.50	1.3	1.9	A	7.3	A	A
31	10	1	10.00	-11.50	1.3	2.6	A	10.2	N	N
32	9.93	0.45	4.53	-12.12	1.4	1.3	N	5.0	A	N
34	9.99	0.37	3.70	-11.59	1.3	1.1	N	4.2	A	N
35	11.1	0.85	7.66	-1.77	0.2	2.3	A	7.9	A	A
36	11.5	0.2	1.74	1.77	0.2	0.8	A	2.7	A	A
37	9.03	0.58	6.42	-20.09	2.3	1.6	N	6.7	A	N
38	11.8	0.002	0.02	4.42	0.5	0.6	A	2.0	A	A
39	11.6	0.5	4.31	2.65	0.3	1.4	A	4.8	A	A
40	11	0.8	7.27	-2.65	0.3	2.1	A	7.5	A	A
41	10.4	0.7	6.73	-7.96	0.9	1.9	A	7.0	A	A
42	10	0.5	5.00	-11.50	1.3	1.4	A	5.4	A	A
43	7.13	0.11	1.54	-36.90	4.2	0.6	N	2.5	A	N
44	9.19	0.72	7.83	-18.67	2.1	1.9	N	8.1	A	N
45	11.56	0.56	4.84	2.30	0.3	1.6	A	5.2	A	A
46	9.3	0.37	3.98	-17.70	2.0	1.1	N	4.5	A	N
47	10.81	0.35	3.24	-4.34	0.5	1.1	A	3.8	A	A
50	10.7	1.07	10.00	-5.31	0.6	2.8	A	10.2	N	W
51	14.6	1.1	7.53	29.20	3.3	2.9	N	7.8	A	N
52	9.4	1.1	11.70	-16.81	1.9	2.9	A	11.9	N	N
53	10	0.5	5.00	-11.50	1.3	1.4	A	5.4	A	A
54	11.81	1.06	8.98	4.51	0.5	2.8	A	9.2	A	A
55	10.27	0.57	5.55	-9.12	1.0	1.6	A	5.9	A	A
56	11.2	0.6	5.36	-0.88	0.1	1.7	A	5.7	A	A
57	10.7	0.66	6.17	-5.31	0.6	1.8	A	6.5	A	A
58	11.3	0.5	4.42	0.00	0.0	1.4	A	4.9	A	A
59	10.1	0.3	2.97	-10.62	1.2	1.0	N	3.6	A	N
60	10.7	0.2	1.87	-5.31	0.6	0.8	A	2.7	A	A
61	11.71	0.24	2.05	3.63	0.4	0.9	A	2.9	A	A
62	11.9	0.28	2.35	5.31	0.6	0.9	A	3.1	A	A
63	11.45	0.35	3.06	1.33	0.1	1.1	A	3.7	A	A
64	11.4	2.27	19.91	0.88	0.1	5.9	A	20.0	N	W
65	11.65	0.3	2.58	3.10	0.4	1.0	A	3.3	A	A
68	11.1	0.4	3.60	-1.77	0.2	1.2	A	4.1	A	A
70	11.1	1.7	15.32	-1.77	0.2	4.4	A	15.4	N	W

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
71	9.37	0.61	6.51	-17.08	1.9	1.7	N	6.8	A	N
72	9.71	0.13	1.34	-14.07	1.6	0.7	N	2.4	A	N
73	12.5	0.4	3.20	10.62	1.2	1.2	N	3.8	A	N
75	26	1	3.85	130.09	14.7	2.6	N	4.3	A	N
76	10.39	0.58	5.58	-8.05	0.9	1.6	A	5.9	A	A
77	11.68	1.17	10.02	3.36	0.4	3.1	A	10.2	N	W
78	9.79	0.265	2.71	-13.36	1.5	0.9	N	3.4	A	N
79	13.2	2.3	17.42	16.81	1.9	6.0	A	17.5	N	N
80	10.9	1.6	14.68	-3.54	0.4	4.2	A	14.8	N	W
81	9.87	0.51	5.17	-12.65	1.4	1.4	A	5.5	A	A
82	10.87	0.56	5.15	-3.81	0.4	1.6	A	5.5	A	A
84	12.1	0.5	4.13	7.08	0.8	1.4	A	4.6	A	A
86	8.4	1.4	16.67	-25.66	2.9	3.7	A	16.8	N	N
87	10.6	0.8	7.55	-6.19	0.7	2.1	A	7.8	A	A
88	17.5	1.5	8.57	54.87	6.2	3.9	N	8.8	A	N
89	10.7	0.23	2.15	-5.31	0.6	0.8	A	2.9	A	A
90	9.96	0.84	8.43	-11.86	1.3	2.2	A	8.7	A	A
91	10.4	1	9.62	-7.96	0.9	2.6	A	9.8	A	A
92	10.84	0.56	5.17	-4.07	0.5	1.6	A	5.5	A	A
93	9.3	0.4	4.30	-17.70	2.0	1.2	N	4.7	A	N
94	11.8	2.2	18.64	4.42	0.5	5.7	A	18.8	N	W
95	10.7	0.74	6.92	-5.31	0.6	2.0	A	7.2	A	A
96	10.7	0.9	8.41	-5.31	0.6	2.4	A	8.6	A	A
97	10.43	0.26	2.49	-7.70	0.9	0.9	A	3.2	A	A
98	9.71	0.78	8.03	-14.07	1.6	2.1	A	8.3	A	A
99	10.51	0.28	2.66	-6.99	0.8	0.9	A	3.3	A	A
100	11.3	1.7	15.04	0.00	0.0	4.4	A	15.2	N	W
101	10.6	0.6	5.66	-6.19	0.7	1.7	A	6.0	A	A
105	26.5	1.37	5.17	134.51	15.2	3.6	N	5.5	A	N
106	12.27	0.94	7.66	8.58	1.0	2.5	A	7.9	A	A
107	10.72	2.74	25.56	-5.13	0.6	7.1	A	25.6	N	W
109	10.8	0.94	8.70	-4.42	0.5	2.5	A	8.9	A	A
110	10.6	0.796	7.51	-6.19	0.7	2.1	A	7.8	A	A
111	11.75	0.74	6.30	3.98	0.4	2.0	A	6.6	A	A
112	10.5	0.47	4.48	-7.08	0.8	1.3	A	4.9	A	A
113	20.12	1.13	5.62	78.05	8.8	3.0	N	6.0	A	N
114	12.8	0.9	7.03	13.27	1.5	2.4	A	7.3	A	A
115	32	2.8	8.75	183.19	20.7	7.2	N	9.0	A	N
118	10.4	0.42	4.04	-7.96	0.9	1.2	A	4.5	A	A
119	12.16	0.8	6.58	7.61	0.9	2.1	A	6.9	A	A
120	10.5	0.47	4.48	-7.08	0.8	1.3	A	4.9	A	A
121	11.76	1.81	15.39	4.07	0.5	4.7	A	15.5	N	W
122	11.3	0.5	4.42	0.00	0.0	1.4	A	4.9	A	A
123	9.9	0.52	5.25	-12.39	1.4	1.5	A	5.6	A	A
124	10.14	0.41	4.04	-10.27	1.2	1.2	A	4.5	A	A
125	10.7	0.7	6.54	-5.31	0.6	1.9	A	6.8	A	A
126	10	1	10.00	-11.50	1.3	2.6	A	10.2	N	N
127	10.7	0.6	5.61	-5.31	0.6	1.7	A	6.0	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
128	10.5	0.6	5.71	-7.08	0.8	1.7	A	6.1	A	A
130	10.9	0.6	5.50	-3.54	0.4	1.7	A	5.9	A	A
131	10.23	0.32	3.13	-9.47	1.1	1.0	N	3.7	A	W
132	10.21	0.284	2.78	-9.65	1.1	0.9	N	3.4	A	W
133	11.6	0.5	4.31	2.65	0.3	1.4	A	4.8	A	A
134	11.1	0.33	2.97	-1.77	0.2	1.0	A	3.6	A	A
136	71.9	1.79	2.49	536.28	60.6	4.7	N	3.2	A	N
138	8.97	1.18	13.15	-20.62	2.3	3.1	A	13.3	N	N
139	9.53	0.227	2.38	-15.66	1.8	0.8	N	3.1	A	N
140	12.6	0.4	3.17	11.50	1.3	1.2	N	3.8	A	N
141	12.94	0.85	6.57	14.51	1.6	2.3	A	6.9	A	A
142	8.11	0.0016	0.02	-28.23	3.2	0.6	N	2.0	A	N
143	11.78	1.27	10.78	4.25	0.5	3.3	A	11.0	N	W
144	11.27	3.52	31.23	-0.27	0.0	9.1	A	31.3	N	W
145	8.42	1.16	13.78	-25.49	2.9	3.0	A	13.9	N	N
146	10	0.42	4.20	-11.50	1.3	1.2	N	4.7	A	N
150	7.48	0.5	6.68	-33.81	3.8	1.4	N	7.0	A	N
151	8.02	0.61	7.61	-29.03	3.3	1.7	N	7.9	A	N
152	8	0.6	7.50	-29.20	3.3	1.7	N	7.8	A	N
153	10.253	0.89	8.68	-9.27	1.0	2.4	A	8.9	A	A
154	11.1	0.7	6.31	-1.77	0.2	1.9	A	6.6	A	A
157	10.4	0.5	4.81	-7.96	0.9	1.4	A	5.2	A	A
158	10.06	0.61	6.06	-10.97	1.2	1.7	A	6.4	A	A
159	10.5	0.2	1.90	-7.08	0.8	0.8	N	2.8	A	W
160	11.45	1.42	12.40	1.33	0.1	3.7	A	12.6	N	W
161	9.91	1.01	10.19	-12.30	1.4	2.7	A	10.4	N	N
162	10.51	0.36	3.43	-6.99	0.8	1.1	A	4.0	A	A
163	12.58	0.63	5.01	11.33	1.3	1.7	A	5.4	A	A
164	11.37	0.65	5.72	0.62	0.1	1.8	A	6.1	A	A
165	10.6	0.3	2.83	-6.19	0.7	1.0	A	3.5	A	A
166	10.56	0.62	5.87	-6.55	0.7	1.7	A	6.2	A	A
167	7.15	0.39	5.45	-36.73	4.2	1.2	N	5.8	A	N
168	9.84	0.18	1.83	-12.92	1.5	0.7	N	2.7	A	N
169	10.88	0.28	2.57	-3.72	0.4	0.9	A	3.3	A	A
170	11	1	9.09	-2.65	0.3	2.6	A	9.3	A	A
171	12.18	0.35	2.87	7.79	0.9	1.1	A	3.5	A	A
172	10.7	0.8	7.48	-5.31	0.6	2.1	A	7.7	A	A
173	10.5	0.2	1.90	-7.08	0.8	0.8	N	2.8	A	W
174	12.16	0.51	4.19	7.61	0.9	1.4	A	4.6	A	A
175	11.4	0.58	5.09	0.88	0.1	1.6	A	5.5	A	A
177	12.7	0.8	6.30	12.39	1.4	2.1	A	6.6	A	A
178	11.9	0.637	5.35	5.31	0.6	1.7	A	5.7	A	A
179	8.46	0.8	9.46	-25.13	2.8	2.1	N	9.7	A	N
181	12.12	0.33	2.72	7.26	0.8	1.0	A	3.4	A	A
182	13.3	1	7.52	17.70	2.0	2.6	A	7.8	A	A
183	10.92	0.5	4.58	-3.36	0.4	1.4	A	5.0	A	A
184	11.85	0.22	1.86	4.87	0.5	0.8	A	2.7	A	A
185	10.77	0.86	7.99	-4.69	0.5	2.3	A	8.2	A	A

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
186	11.21	0.41	3.66	-0.80	0.1	1.2	A	4.2	A	A
187	9.7	1.5	15.46	-14.16	1.6	3.9	A	15.6	N	N
188	10.4	1	9.62	-7.96	0.9	2.6	A	9.8	A	A
190	10.93	1.41	12.90	-3.27	0.4	3.7	A	13.1	N	W
191	10.7	0.46	4.30	-5.31	0.6	1.3	A	4.7	A	A
192	11	0.4	3.64	-2.65	0.3	1.2	A	4.2	A	A
193	10.7	0.3	2.80	-5.31	0.6	1.0	A	3.4	A	A
194	11.1	0.3	2.70	-1.77	0.2	1.0	A	3.4	A	A
195	10.5	0.32	3.05	-7.08	0.8	1.0	A	3.6	A	A
197	24.4	2.9	11.89	115.93	13.1	7.5	N	12.1	N	N
199	9.8	1.3	13.27	-13.27	1.5	3.4	A	13.4	N	N
200	10.61	0.27	2.54	-6.11	0.7	0.9	A	3.2	A	A
201	10.78	0.22	2.04	-4.60	0.5	0.8	A	2.9	A	A
202	12.07	0.903	7.48	6.81	0.8	2.4	A	7.7	A	A
207	12.5	2.4	19.20	10.62	1.2	6.2	A	19.3	N	N
208	10.9	1.2	11.01	-3.54	0.4	3.2	A	11.2	N	W
209	15.1	1.24	8.21	33.63	3.8	3.3	N	8.5	A	N
210	10.1	0.13	1.29	-10.62	1.2	0.7	N	2.4	A	N
211	11.34	0.57	5.03	0.35	0.0	1.6	A	5.4	A	A
212	10.72	0.44	4.10	-5.13	0.6	1.3	A	4.6	A	A
213	12.06	0.71	5.89	6.73	0.8	1.9	A	6.2	A	A
214	10.6	0.3	2.83	-6.19	0.7	1.0	A	3.5	A	A
215	10.47	0.42	4.01	-7.35	0.8	1.2	A	4.5	A	A
216	11.6	0.84	7.24	2.65	0.3	2.2	A	7.5	A	A
217	10.35	0.32	3.09	-8.41	1.0	1.0	A	3.7	A	A
218	11.228	0.28	2.49	-0.64	0.1	0.9	A	3.2	A	A
219	10.5	0.7	6.67	-7.08	0.8	1.9	A	7.0	A	A
220	10.09	0.44	4.36	-10.71	1.2	1.3	A	4.8	A	A
221	9.81	0.8	8.15	-13.19	1.5	2.1	A	8.4	A	A
223	7.03	0.74	10.53	-37.79	4.3	2.0	N	10.7	N	N
224	12.2	0.72	5.90	7.96	0.9	1.9	A	6.2	A	A
225	2750	322	11.71	24236	2738.7	830.8	N	11.9	N	N
226	14	1.1	7.86	23.89	2.7	2.9	A	8.1	A	A
227	11.12	0.44	3.96	-1.59	0.2	1.3	A	4.4	A	A
230	37.22	3.64	9.78	229.38	25.9	9.4	N	10.0	A	N
232	9.73	0.48	4.93	-13.89	1.6	1.4	N	5.3	A	N
233	9.36	0.79	8.44	-17.17	1.9	2.1	A	8.7	A	A
235	20.98	3.86	18.40	85.66	9.7	10.0	A	18.5	N	N
236	9.8	0.87	8.88	-13.27	1.5	2.3	A	9.1	A	A
237	10.3	0.6	5.83	-8.85	1.0	1.7	A	6.2	A	A
238	10.63	0.26	2.45	-5.93	0.7	0.9	A	3.2	A	A
239	7.08	0.23	3.25	-37.35	4.2	0.8	N	3.8	A	N
240	12	0.9	7.50	6.19	0.7	2.4	A	7.8	A	A
241	10.2	0.9	8.82	-9.73	1.1	2.4	A	9.0	A	A
242	10.82	0.24	2.22	-4.25	0.5	0.9	A	3.0	A	A
243	11.17	0.6083	5.45	-1.15	0.1	1.7	A	5.8	A	A
244	10.2	0.386	3.78	-9.73	1.1	1.2	A	4.3	A	A
245	9.36	0.22	2.35	-17.17	1.9	0.8	N	3.1	A	N

Lab code	Rep. Value	Rep. Unc.	Unc. [%]	Rel. Bias	A1	A2	True.	P	Prec.	Final Score
246	9.66	0.38	3.93	-14.51	1.6	1.1	N	4.4	A	N
249	10.69	0.4	3.74	-5.40	0.6	1.2	A	4.2	A	A
250	10.65	0.38	3.57	-5.75	0.7	1.1	A	4.1	A	A
251	10.56	0.85	8.05	-6.55	0.7	2.3	A	8.3	A	A
252	10.4	0.4	3.85	-7.96	0.9	1.2	A	4.3	A	A
253	10.1	0.9	8.91	-10.62	1.2	2.4	A	9.1	A	A
254	10.91	0.5	4.58	-3.45	0.4	1.4	A	5.0	A	A
255	10.6	0.4	3.77	-6.19	0.7	1.2	A	4.3	A	A
256	11.9	1.1	9.24	5.31	0.6	2.9	A	9.5	A	A
258	10.55	0.55	5.21	-6.64	0.8	1.5	A	5.6	A	A
259	10.37	0.22	2.12	-8.23	0.9	0.8	N	2.9	A	W
260	8.2	0.45	5.49	-27.43	3.1	1.3	N	5.8	A	N
261	12.5	1	8.00	10.62	1.2	2.6	A	8.2	A	A
263	4	0.5	12.50	-64.60	7.3	1.4	N	12.7	N	N
264	3.48	0.257	7.39	-69.20	7.8	0.9	N	7.7	A	N
265	11.6	0.25	2.16	2.65	0.3	0.9	A	2.9	A	A
267	9.67	0.83	8.58	-14.42	1.6	2.2	A	8.8	A	A
268	11.99	0.56	4.67	6.11	0.7	1.6	A	5.1	A	A
269	12.2	1.6	13.11	7.96	0.9	4.2	A	13.3	N	W
270	10.8	0.73	6.76	-4.42	0.5	2.0	A	7.0	A	A
271	10.29	0.22	2.14	-8.94	1.0	0.8	N	2.9	A	W
272	10.2	0.23	2.25	-9.73	1.1	0.8	N	3.0	A	W
273	1.1		0.00	-90.27	10.2	0.6	N	2.0	A	N
274	9.87	0.76	7.70	-12.65	1.4	2.0	A	8.0	A	A
275	11.25	0.52	4.62	-0.44	0.1	1.5	A	5.0	A	A
276	10.8	1	9.26	-4.42	0.5	2.6	A	9.5	A	A
278	10.6	1.1	10.38	-6.19	0.7	2.9	A	10.6	N	W
279	9.83	0.23	2.34	-13.01	1.5	0.8	N	3.1	A	N
284	10.13	0.79	7.80	-10.35	1.2	2.1	A	8.1	A	A
285	11.5	0.9	7.96	0.00	0.0	2.4	A	8.2	A	A
286	36.67	2.11	5.75	224.51	25.4	5.5	N	6.1	A	N
288	10.8	0.3	2.78	-4.42	0.5	1.0	A	3.4	A	A
289	11.7	0.8	6.84	3.54	0.4	2.1	A	7.1	A	A
290	9.8	0.8	8.16	-13.27	1.5	2.1	A	8.4	A	A
292	10.3	0.7	6.80	-8.85	1.0	1.9	A	7.1	A	A
293	10.3	0.7	6.80	-8.85	1.0	1.9	A	7.1	A	A
294	11.4	0.3	2.63	0.88	0.1	1.0	A	3.3	A	A
295	11.12	0.5	4.50	-1.59	0.2	1.4	A	4.9	A	A
296	10.3	0.4	3.88	-8.85	1.0	1.2	A	4.4	A	A
297	11.2	1	8.93	-0.88	0.1	2.6	A	9.1	A	A
298	11.263	0.267	2.37	-0.33	0.0	0.9	A	3.1	A	A
299	11.2	2.2	19.64	-0.88	0.1	5.7	A	19.7	N	W
300	10.3	0.8	7.77	-8.85	1.0	2.1	A	8.0	A	A

APPENDIX II
LIST OF PARTICIPATING LABORATORIES[1]

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