Mixed Analyte

Program

Soil Sample MAPEP-01-S8
Performance Report

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Radiological and Environmental
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MAPEP-01-S8 Performance Report

Summary

The U.S. Department of Energy's Radiological and Environmental Sciences Laboratory (RESL) administers the Mixed Analyte Performance Evaluation Program (MAPEP). MAPEP is the only PE program that targets radiological and non-radiological constituents (i.e., mixed analytes) from the same sample for quantification and analytical performance evaluation. MAPEP participants can efficiently demonstrate their proficiency in radiological, stable inorganic, and organic analyses from the same single blind MAPEP performance evaluation sample. MAPEP is performance based and does not dictate the analytical methodology.

The MAPEP-01-S8 soil sample was distributed to 79 laboratories in July 2001. The soil sample contained spiked inorganic metals, radiological components, and semi-volatile organic target analytes of interest to DOE facilities. Some analytes on the MAPEP-01-S8 sample description were not added to the soil sample. This allowed MAPEP to determine if any laboratories reported false positive results for these specific analytes. Depleted uranium was also added to alter the expected specific activity for U-238 and modify the expected isotopic ratio for U-234/U-238. These modifications were used to increase sample complexity and provide variation among MAPEP sample distributions. The soil sample contained the following target (including false positive test) analytes:

RADIOLOGICAL:

^{241}Americium ***	^{134}Cesium	^{137}Cesium	^{57}Cobalt	^{60}Cobalt
^{55}Iron	^{54}Manganese	^{63}Nickel	^{238}Plutonium	^{239}Plutonium
^{40}Potassium	^{90}Strontium	^{234}Uranium	^{238}Uranium	^{65}Zinc

STABLE INORGANIC:

Arsenic	Barium	Beryllium	Cadmium ***	Chromium
Lead	Nickel	Selenium ***	Silver	Thallium
Vanadium	Zinc			

ORGANIC:

1,3-Dichlorobenzene	Nitrobenzene	Naphthalene	Hexachlorobuta-diene	2,6-Dichlorophenol
2-Chloronaphthalene	2,6-Dinitrotoluene	2,4-Dinitrotoluene	Fluorene	Diethylphthalate
Anthracene	1,4-Dinitrobenzene	1,3-Dinitrobenzene	1,2-Dinitrobenzene	Di-n-butylphthalate
Pyrene	Benzo(a)-anthracene	Chrysene	Bis(2-ethylhexyl)-phthalate	Di-n-octylphthalate

*** These analytes were not added and/or were used for a false positive test.

Ten (10) of the original 79 laboratories that requested participation did not return data for this study. One of these 10 laboratories returned the sample prior to the end of the reporting period. The remaining nine laboratories did not report results for MAPEP-01-S8 prior to the closing deadline. Four of these nine were U.S. laboratories. Ten (10) of the 16 foreign laboratories that were shipped samples returned analytical results and are part of the data package. Appendix A of this report identifies the MAPEP participants and their reporting status for this test session.

The MAPEP studies have generated sufficient historical data to examine past performance. As a result of historical performance review, 16 laboratories were sent letters of concern pointing out potential quality issues that they may wish to address. These letters were sent to laboratories that demonstrated two consecutive failures or significantly biased (warning level) results for any given analyte.

MAPEP-01-S8 Performance Report

Mixed Analyte Performance Evaluation Program soil sample MAPEP-01-S8 was distributed in July 2001 to 79 analytical laboratories for the determination of radiological, inorganic, and/or semi-volatile organic constituents. Radiological analyses were performed with standard alpha, beta, and gamma detection methods. Inorganic and semi-volatile organic constituents were determined utilizing U.S. EPA SW-846 methods. A total of 69 laboratories reported results. The laboratory data and performance evaluation results are provided in this report.

SAMPLE PREPARATION AND DISTRIBUTION

Participants

MAPEP participants are identified by a unique laboratory code. The cross-references for these laboratory codes are found in Appendix A. Appendix A also lists the laboratories that participated in this performance evaluation study and serves as a list of participants that are consistently requesting MAPEP samples.

Sample Preparation

The Radiological and Environmental Sciences Laboratory (RESL) at the Idaho National Engineering and Environmental Laboratory (INEEL) prepared the base soil and final MAPEP-01-S8 sample. A soil obtained locally from the INEEL site was used as the base soil for MAPEP-01-S8. Forty-three (43) kilograms (kg) of sample were prepared and 135 jars of sample were produced containing approximately 320 grams (g) each.

Radiological, inorganic, and semi-volatile target analytes were blended into the base soil. RESL staff selected the spiking levels for the radionuclides, which were typically well above detection limits. The spiking levels for the inorganic and organic constituents were selected such that the sample could not be defined as a toxic solid waste according to the Code of Federal Regulations, Title 40, Part 261, Section 24. The spiking levels for the inorganic analytes were based on regulatory concentrations. The spiking levels for the semi-volatile organics were selected to be above the contract required quantitation limits listed in the U.S. Environmental Protection Agency's (EPA) Contract Laboratory Program Statement of Work for Organics Analysis OLM01.1 (12/90).

Sample Description - Radiological Analytes

Radionuclide solutions that were traceable to the National Institute of Standards and Technology (NIST) were added to 1 kg of the base soil already screened to 200 mesh. MAPEP routinely adds natural uranium and/or varies the isotopic ratios of the radionuclides, especially for the uranium isotopes. Depleted uranium was spiked in this soil. The activity level for Postassium-40, however, reflects the concentration that naturally occurs in the base soil. The 1-kg plug was reground before blending to the final weight. Experimental determinations were performed to verify homogeneity and the final radionuclide concentrations. A false positive test for Americium-241 was included in this performance evaluation study. The reference date for radioactive decay was January 1, 2001, 12:00 Mountain Standard Time (MST). RESL is directly traceable to NIST through participation in the National Analytical Management Program's Radiological Traceability Program.

Sample Description - Stable Inorganic Analytes

High purity standards of arsenic, barium, beryllium, chromium, lead, nickel, silver, thallium, vanadium, and zinc were purchased from a supplier of inorganic standards. The supplier was required to provide a

certificate of analysis for each compound documenting the element concentration, NIST traceability, and concentration uncertainty. NIST also verified the element concentrations in a mixture of the commercial standards. The element standard solutions were used to prepare a 1-kg plug of concentrated mixed inorganic soil. False positive tests were performed for cadmium and selenium.

Sample Description - Semi-volatile Organic Analytes

Known amounts of high purity semi-volatile organic standards were purchased and added to the MAPEP-01-S8 soil (see Table 1). The supplier of the standards provided gravimetric certification of the weight of each component and their purity. To prepare the semi-volatile organic soil, a 0.5-kg portion of base soil was slurried with methylene chloride in the sample flask of a rotary evaporator system. Measured amounts of the standards were added to the slurry. The sample flask was immersed in a cold-water bath and rotated for 24 hours to mix the analytes with the base soil. The sample flask was then warmed slowly to evaporate the methylene chloride until the soil was free flowing. The methylene chloride collected was recombined with 0.5 kg of clean soil and reslurried for four hours. The sample flask was again slowly warmed to evaporate the methylene chloride. The two 0.5-kg samples of soil were combined in a single wide-mouth 1-liter jar and mixed. The methylene chloride collected in the condensation flask was analyzed for the spiked semi-volatile organics to check for losses from the soil during the evaporation process. The following table details the amount of each target analyte added in the methylene chloride solvent.

Table 1. Amount of semi-volatile organic analytes added to the 1.0-kg soil plug used to prepare the MAPEP-01-S8 soil sample.

Component	Purity	mg Added
1,3-dichlorobenzene	99%	38.0
nitrobenzene	98%	34.0
2,4-dimethylphenol	99%	41.0
naphthalene	97%	30.0
hexachlorobutadiene	99%	34.0
2,6-dichlorophenol	99%	40.0
2-chloronaphthalene	98%	34.4
2,6-dinitrotoluene	99%	38.0
2,4-dinitrotoluene	97%	37.0
fluorene	98%	30.0
diethylphthalate	99%	37.6
anthracene	99%	34.0
1,4-dinitrobenzene	98%	39.2
1,3-dinitrobenzene	99%	30.8
1,2-dinitrobenzene	99%	34.0
pyrene	98%	33.0
benzo(a)anthracene	99%	26.0
chrysene	99%	26.0
di-n-octylphthalate	99%	48.0

The 1-kg semi-volatiles organic soil plug was added to the final MAPEP-01-S8 soil sample. The spiked plugs and base soil were combined in a 5-cubic foot V-blender with pin-intensifier bar and blended for four hours. The sample was dispensed into 0.5-liter size wide-mouth glass jars with Teflon lined lids with each jar containing about 320 grams of soil. The outsides of the jars were wiped clean and labels affixed. Custody seals were applied over the lids. The jar numbers corresponded to the filling sequence of the jars. The jars of sample were stored in a freezer at 4°C in the RESL CFA-690 Building until distribution to the participants.

MAPEP-01-S8 Reference Values

Reference values and uncertainties for this study can be found in Appendix D. The radiological reference values incorporate the total uncertainty of the NIST traceable standard and the sample preparation methodology. The uncertainties are reported at one standard deviation. The inorganic uncertainties were derived from the results of the EPA Methods 3050 and 3051 experimental determinations at one standard deviation. The reference values for the organic target analytes were determined as the Biweight mean of all laboratory data for the analyte. The semi-volatile reference value uncertainties are derived from the data reported by the participating laboratories and represent the 95% confidence interval for the mean of the data (excluding outliers). This calculation is analogous to the classical confidence interval for the mean of a population:

$$T_{bi} \pm \left(t_{(0.95,n-1)}\right) * \frac{S_{bi}}{\sqrt{n}}$$

Where T_{bi} = Biweight mean

S_{bi} = Biweight standard deviation

n = number of observations

$t_{(0.95,n-1)}$ = Students t value at the 95% confidence interval and n-1 degrees of freedom.

LABORATORY RESULTS

Data Treatment

The data received from the laboratories are listed in Appendices B and C. Estimates of the mean and standard deviation are calculated using traditional statistical calculations. The Statistical Summary in Appendix B shows the overall performance of the 69 reporting laboratories for each of the target analytes. In this summary, the 'T(1)'column displays the total number of laboratories reporting data for a particular analyte. The 'A(2)'column displays the total number of laboratories with acceptable data that were used to develop the grand mean and standard deviation in the subsequent columns. The Acceptance Range identifies the values that delineate acceptable performance. The radiological and stable inorganic data that were outside the ±30% acceptance window are not included in the mean and standard deviation calculations. Additionally, the grand mean generated in the Summary Report does not include inorganic results that were determined as the total analyte present. These data were treated separately and evaluated utilizing reference values for the total analyte concentration. The laboratories that used a total analyte methodology received the results of this separate evaluation in their individual laboratory performance report. For the organic target analytes, the grand mean and standard deviation are the Biweight mean and standard deviation respectively.

Performance reports for each laboratory follow the Statistical Summary. These reports are arranged by laboratory code in alphabetical order. The reference value for each analyte, the reported value, and the performance evaluation are presented. The Uncertainty Flag observed in the last column of these reports will be either 'L'for potentially low or 'H'for potentially high. The Uncertainty Flag is utilized in this program for information only. The acceptance criteria used for this performance evaluation are defined in Table 2.

Table 2. Acceptance criteria.

FLAG	MEANING	CRITERIA FOR RADIOLOGICAL AND INORGANIC ANALYTES	CRITERIA FOR ORGANIC ANALYTES
"A"	Acceptable	Bias <= 20%	Absolute value of Z-score <= 2.0
"W"	Acceptable with Warning	20% < Bias <= 30%	Absolute value of Z-score 2.0 < Z-score <= 3.0
"N"	Not Acceptable	Bias > 30%	Absolute value of Z-score > 3.0

Results for this study are graphically presented in Appendix C. The data for each analyte are plotted against the reference value and the grand mean. The laboratory codes are displayed along the X-axis. The error bars associated with each data point are the individual uncertainties for the measurement reported by the laboratory. Laboratories that did not report data for a particular analyte are not plotted or labeled.

Due to analyte concentrations, laboratory uncertainties and data scatter, the Y-axis varies widely throughout the graphs. Utilization of visual data scatter without consideration for the concentration range displayed may lead a reviewer to a false conclusion concerning sample homogeneity or inaccuracy of a data set. In most cases, the graphs have been scaled to present the best visual picture of the data set.

Radiological Analytes

The MAPEP program uses false positive testing on a routine basis to identify laboratory results that indicate the presence of a particular radionuclide in a MAPEP sample when, in fact, the actual activity of the radionuclide is far below the detection limit of the measurement. For this study, a false positive test was performed for Am-241. Acceptable ("A") performance was indicated when the range encompassing the result, plus or minus the total uncertainty at three standard deviations, included zero (e.g., 0.5 +/- 0.2; range of –0.1 to 1.1). Not Acceptable ("N") performance, and hence a false positive result, was indicated when the range encompassing the result, plus or minus the total uncertainty at three standard deviations, did not include zero (e.g., 2.5 +/- 0.2; range of 1.9 to 3.1). Statistically, the probability that a result can exceed its total uncertainty at three standard deviations by chance alone is less than 1%. A three standard deviation criterion was used for the false positive test to maximize confidence in a reported detection. A result that is greater than three times its total uncertainty cannot, by most definitions, be below the detection limit.

Nine (9) of the 28 reporting laboratories (32%) reported a false positive result for Am-241 (Table 3). All of these detections were measured by alpha spectrometry. A false positive return of 32% is alarmingly high. The false positive results for Am-241 ranged from 0.528 +/- 0.0874 Bq/kg to 4.46 +/- 1 Bq/Kg with a mean of 1.76 +/- 1.54 (S.D., n=9) Bq/kg. The number of significant figures used for some of these results appears to be excessive. The false positive results were also greater than their total uncertainty by a mean of 4.7 +/- 0.8 standard deviations (sigma), with a median sigma of 4.5 and a range from 3.6 to 6.0 sigma (Table 3). This suggests that the false positive reports were made with good confidence, especially since the results are typically reported as the mean of replicate measurements. Only the TMAR01 result, at 3.6 sigma, was near the acceptance limit. False positive results such as these frequently initiate costly investigations, necessitate additional sampling and analyses, jeopardize data integrity, needlessly alarm the public and/or erode public confidence, and can activate a host of other unnecessary responses and expenditures. False positive results have a direct impact on the taxpayer cost of site characterization, remediation, closure, and long-term stewardship. Therefore, consistently poor performance on false positive tests is an important quality concern.

Table 3. Laboratories that reported a false positive result for Am-241.

Lab Code	Result	Total Uncertainty	Statistically Positive[1]
ANTE01	0.528	0.0874	6.0
CSTL01	0.69	0.17	4.1
GENE01	0.592	0.148	4.0
LOCK01	3.85	0.91	4.2
MART01	4.46	1	4.5
QUAN01	0.718	0.143	5.0
QUAN03	1.39	0.24	5.8
TMAE01	0.796	0.166	4.8
TMAR01	2.85	0.80	3.6

1) For this study, a statistically positive result is indicated if the (RESULT / UNCERTAINTY) > 3.0

Without further information, the causes for the false positive results are speculative. Some laboratories believe they are reporting an activity below their detection limit, but their reported measurement uncertainty is too small for this to be true. Statistical fluctuation and/or an underestimated total propagated uncertainty may play a small role. Cross contamination or poor chemical separations are other potential scenarios. Reagent blanks can help identify some cross contamination events, but an incomplete chemical separation may be more difficult to determine. Incomplete chemical separations (e.g., Am-241 from Pu-238 or Th-228) produce spectral interferences that can be misinterpreted as Am-241. Since the interference is not a cross contamination event, the reagent blanks may appear normal. Furthermore, the blanks will not reveal the matrix dependent factors that contribute to an inadequate separation. Counts from a spectral interference may tail into or otherwise elevate the counts integrated across a set region of interest. The peak search software may interpret these counts as a real peak and generate a positive result. This result should be rejected upon careful visual inspection of the region of interest, but the computer-generated result is frequently accepted without question. The chemical separation of Pu-238 from Am-241 is especially critical since the alpha particle emission energies for these two nuclides are almost identical and cannot be differentiated by alpha spectrometry. Hypothetically, most of the Am-241 false positive results can be accounted for if only 1% of the Pu-238 activity in the MAPEP-01-S8 soil remained in the Am-241 fraction. These examples illustrate several potential causes for a false positive Am-241 result, but they are only conjecture. What remains certain is that too many laboratories, for whatever reason, reported false positive results for Am-241.

Since verifying the separation of Pu-238 from Am-241 is crucial, MAPEP always requests results for both of these radionuclides. Eleven (11) laboratories returned results for Pu-238 utilizing alpha spectrometry as the detection method but did not report results for Am-241 (Table 4). Many of these laboratories probably did not report results for Am-241 because it was not detectable, but this cannot be verified without the measurement results. The sensitivity of the measurement is also lost without the actual measurement results. The instructions specifically requested that the actual results for all measurements be reported (i.e., do not report an MDA or "Not Detected"). Furthermore, these measurements should be performed for all analytes within the scope of the laboratory's routine function, contractual requirements and/or routine capabilities. If a laboratory routinely reports results for Pu-238 by alpha spectrometry, verifying the chemical separation of Am-241 must be within the routine scope or capability of that laboratory. If not, how were the Pu-238 chemical procedures developed and tested? The laboratories identified in Table 4 are essentially in a "Report Warning" situation. Laboratories that consistently neglect to report all requested results may eventually receive "Not Acceptable" performance evaluations.

Table 4. Laboratories that reported results for Pu-238 with alpha spectrometry but did not report results for Am-241. These laboratories are failing to report requested information.

LAB CODE	LAB CODE
CESL01	OBGL01
EPAL01	OTLI01
FERM01	RSIR99
LAWR02	TELE01
NARL01	WEST03
NESI01	

Once the result and uncertainty are determined, the sensitivity of the measurement can be examined and compared. For example, a result of 4 +/- 1 Bq/kg indicates detection, but it is clearly not as sensitive as a result of 4.12 +/- 0.25 Bq/kg. The first measurement indicates that the radionuclide is positively identified, as defined above, when the specific activity exceeds 3 Bq/kg (i.e., 1 x 3 = 3 Bq/kg). The specific activity must exceed only 0.75 Bq/kg in the second measurement (i.e., 0.25 x 3 = 0.75 Bq/kg). Therefore, as noted by the respective measurement uncertainties, the second measurement is four times more sensitive than the first (3 Bq/kg / 0.75 Bq/kg = 4). The first measurement is also 4 times greater than its uncertainty and significant to 1 Bq/kg, but the second measurement is 16.5 times greater than its uncertainty and significant to 0.01 Bq/kg. Confidence in the detection of the radionuclide is therefore much greater for the second measurement. Likewise, a measurement of 0.05 +/ 0.02 is 100 times more sensitive than a measurement of 5 +/- 2 even though both include zero at three standard deviations. "Zero" is 100 times more narrowly defined by the first measurement. This sensitivity information is, however, lost if a statistically zero result is reported as "Not Detected". Note that the reported result and uncertainty indicate the sensitivity of the measurement, for the exact circumstances and sample dependent variables of that measurement, and not an *a priori* estimate of sensitivity as defined by the traditional minimum detectable activity (MDA). A result and its measurement uncertainty, even when statistically zero, convey important sensitivity information that is lost when a "Not Detected" and/or MDA is substituted for the actual measurement result.

The results for uranium and plutonium isotopes were generally biased low. About 85% of the reported results for Pu-238, Pu-239, U-238, and U-234 exhibited a low bias. Of the individual isotopes, U-234 results appeared to be the most problematic, with 11 out of 37 labs (30%) receiving a "Not Acceptable" or "Warning" performance evaluation. Only three labs received "Not Acceptable" or "Warning" evaluations for U-238. Two laboratories showed "Not Acceptable" performance for Pu-238 determinations, and three received "Warning" evaluations for Pu-238 and Pu-239 analyses. In total, 18% of all actinide results received a "Not Acceptable" or "Warning" flag. A summary of the actinide results is presented in Table 5.

Table 5. Summary of laboratory performance for actinide analyses.

EVALUATION	LABORATORY PERFORMANCE				
	U-234/233	U-238	Pu-238	Pu-239	Am-241 *
ACCEPTABLE	26	35	32	34	19
WARNING	5	1	3	3	
NOT ACCEPTABLE	6	2	2	0	9

* Am-241 was a false positive test.

Gamma analyses were requested for Co-57, Cs-134, Cs-137, Mn-54, Zn-65, Co-60, and K-40. These seven radionuclides together emit gamma rays across the energy spectrum. Laboratory results for Co-57, Cs-134, and Cs-137 showed a negative bias when compared to the reference values, while the results for Mn-54, Zn-65, Co-60, and K-40 showed a positive bias. Unacceptable performance was greatest for Co-57 results. Co-57 is a low energy gamma emitter that may present problems with mass attenuation and comptom background subtraction. The positive bias for the higher energy gamma-emitters can result from the random and coincident summing associated with mixed-gamma efficiency calibration standards (e.g., Y-88 and Co-60 gamma emissions). The negative bias for Cs-134 is most likely due to the coincident summing of the Cs-134 gamma emissions. The sample size used for the gamma analyses was typically greater than 75 grams.

The targeted beta-emitting radionuclides were Sr-90, Fe-55, and Ni-63. Twenty-eight (28) laboratories reported results for Sr-90. Twenty-one (21) labs received "Acceptable" performance evaluations, four were at the "Warning" level, and three were rated as "Not Acceptable". All "Not Acceptable" and "Warning" evaluations were negatively biased. This low bias may be a result of incomplete sample dissolution. Acid leach dissolution was used for most of the Sr-90 soil analyses. The three laboratories that used a total dissolution technique showed "Acceptable" performance. The majority of participants used Gas-flow proportional counting and a sample size of five grams of soil or less.

Twelve (12) laboratories analyzed for Ni-63 with liquid scintillation counting methods. Seven labs showed "Acceptable" performance, one received a "Warning", and four showed "Not Acceptable" performance. Five of the reported results were biased high and seven biased low. Only one of eight reporting laboratories demonstrated "Acceptable" performance for Fe-55 soil analyses. One laboratory received a "Warning" evaluation, but the remaining six showed "Not Acceptable" performance. All but one result was biased low. Four laboratories indicated that Fe-55 was determined with liquid scintillation counting methods and four indicated the use of other counting techniques. The sample size for all Ni-63 and Fe-55 analyses was less than five grams.

Stable Inorganic Analytes

Not all of the inorganic analytes in the Sample Description for MAPEP-01-S8 were spiked into the soil. Cadmium and selenium were not added to the soil. False positive flags were assigned for cadmium or selenium results reported above the lower concentration range of 5 mg/kg, as stated on the Sample Description for MAPEP-01-S8.

The majority of the data reported for this performance evaluation standard originated from two instrumental analytical techniques; radial and axial view Inductively Coupled Plasma Emission Spectrometry (ICPES). The majority of sample preparation techniques for all analytes were EPA SW-846 Method 3051 (microwave assisted) and EPA SW-846 Method 3050 (hot plate digestion). Statistical correlation drawn from the results related to instrumentation indicates that for the analysis of arsenic, radial ICPES has greater variability than axial view ICPES. Axial view ICPES tended to have low recoveries for lead. Inductively Coupled Plasma Mass Spectroscopy (ICPMS) tended to have high recoveries for thallium and zinc. There was high variability

in vanadium results using the ICPMS. Statistical correlation of the sample preparation techniques used indicated that microwave digestion gave high variability for arsenic analysis. Microwave digestion gave higher recoveries and lower variability for thallium results. Five laboratories reported inorganic element results for "total" type digestion or instrumentation. These laboratories were compared to the total results from fusion dissolution analyses. Two laboratories utilized Neutron Activation and two laboratories utilized Inductively Coupled Plasma Mass Spectrometry. One used Flame Atomic Absorption Spectrometry. Three laboratories utilized total dissolution sample preparation techniques.

Six laboratories reported total uranium or the uranium isotopes in the inorganic analytes section. Four laboratories analyzed MAPEP-01-S8 for uranium isotopes by Inductively Coupled Plasma – Mass Spectrometry, one laboratory by Thermal Ionization Mass Spectrometry and one laboratory by an unspecified technique. All uranium results were within acceptable ranges.

Arsenic had the highest percentage of "Not Acceptable" flags in the inorganic analytes section. The biases on all these "Not Acceptable" arsenic results were equally divided between low and high biases. There was no indication of high or low bias trend specific to instrument or sample preparation technique for any of the inorganic analytes. Two (2) of 16 reporting laboratories showed false positive results for selenium and 1 of 18 reporting laboratories showed false positive results for cadmium.

Semi-Volatile Organic Analytes

The statistical treatment of the raw data was conducted following protocols developed by the EPA EMSL-CIN for the WP and WS laboratory proficiency testing programs. Reference values were calculated for each analyte by using EPA EMSL-CIN Biweight computer algorithms to determine the Biweight mean and Biweight standard deviation for each analyte. The lower and upper 95% prediction interval (PI) and the lower and upper 95% confidence interval (CI) were also determined.

Each laboratory was evaluated on an analyte by analyte basis using Z-scores as recommended by the International Standards Organization (ISO), "International Harmonized Protocol for the Proficiency Testing of (Chemical) Analytical Laboratories". The Z-Score was calculated as the laboratory result minus the Biweight mean divided by the Biweight standard deviation. The resulting Z-score may either be positive or negative. A laboratory was considered to be Acceptable ("A") in the analysis of the analyte if the absolute value of the Z-score did not exceed 2.0 (i.e., less than or equal to two standard deviations from the mean). If the absolute value of the Z-score was greater than 2.0, but less than or equal to 3.0, the result was considered acceptable, but flagged as a Warning ("W"). Calculated Z-scores greater than 3.0 were considered Not Acceptable ("N").

Some laboratories may be graded on false negative and false positive data for this study. False negative data are associated with laboratories that did not report analyte values (or reported as less than values) for organic analytes that by consensus were determined to be present in the sample. MAPEP has determined that some analytical laboratories do not calibrate for all the components present in the target analyte list in U.S. EPA SW-846 Method 8270 "Semi-volatile Organic Compounds by Gas Chromatography/Mass Spectrometry (GC/MS) Capillary Technique". For this reason, MAPEP will not flag results as "False Negative" nor assign a performance flag unless there is a clear indication of error in isomer determination/reporting.

A false positive flag was issued to laboratories that reported organic analytes that by consensus were found not to be present in the sample. The value reported by the laboratory was compared to the method specific detection limit. If the reported value was less than or equal to two times this detection limit, the laboratory was given a "Warning" flag (i.e., proficient). If the reported value was greater than two times the detection limit, the reported data were flagged as a false positive result and the laboratory was given a "Not Acceptable" performance evaluation.

Consensus in this context means the number of laboratories (n) that define the 95% Prediction Interval (or acceptance limits). The number of laboratories will exclude those laboratories reporting data considered as

outliers. For MAPEP-01-S8, n = 24. Phthalates were not included in these determinations unless there was conclusive evidence that a false positive value existed.

This sample distribution contained 19 semi-volatile target analytes. Twenty-four (24) laboratories analyzed the sample for semi-volatile organics. Of the 24 laboratories reporting semi-volatile organics results, most reported bis(2-ethylhexyl)phthalate and six reported di-n-butylphthalate. These organic components were not added to the MAPEP standard, but by consensus of the participating laboratories bis(2-ethylhexyl)phthalate has been added to the analyte list. Di-n-butylphthalate was not evaluated for this study.

Only four laboratories reported the target constituent 1,4-dinitrobenzene and three reported the 1,2-dinitrobenzene. These target analytes, although originally added to the soil, were not graded due to insufficient data for statistical calculations. None of the reporting laboratories detected the 2,4-dimethylphenol target analyte. For this reason a reference value for these analytes is not presented in this report, and the laboratories were not graded on their performance for these target analytes. Actual performance data are reflected in both the summary statistics report and in the laboratory individual performance report.

The majority of the laboratories analyzed the soil sample utilizing SW-846 Method 3550 Ultrasonic Extraction, with no sample clean up and quantitated per SW-846 Method 8270. The typical sample size was between 11 and 30 grams of soil. There was no trend identified in the data supplied by the laboratories.

HISTORICAL SUMMARY

Historical data demonstrating laboratory performance were reviewed to ascertain areas of quality concern. To simplify the summary reports for the readers, the performance flags have been utilized directly from the laboratory report. The use of "+" and "-" signs in the summary report is intended only to show the direction of performance bias and not the magnitude. MAPEP also monitors the laboratories' performance concerning proper isomer determination of the semi-volatile organic analytes. As a result of historical performance review, 16 laboratories were sent letters of concern pointing out potential quality issues that they may wish to address. These letters were sent to laboratories that demonstrated two consecutive failures or significantly biased (warning level) results for any given analyte. Laboratories with potential quality issues are identified in Table 6.

Table 6. Laboratories with potential quality issues based on historical performance.

Lab Code	Target Analyte	Quality Issue
ANLA01	Cesium-134	Negative bias in past two test sessions
	Cobalt-57	“Not Acceptable” performance in last two test sessions
	Manganese-54	Varying bias over last three test sessions
BNEL01	Arsenic	Positive bias in last two test sessions
	Selenium & vanadium	Potential quality issue in last two test sessions
CORE01	Zinc-65	“N” and “W” with positive bias in last two test sessions
GENE01	Nickel-63	“N” and “W” with negative bias in last two soil test sessions
HWRL01	Chromium	Positive bias in last two soil test sessions
MART01	Strontium-90	Negative bias in last two soil test sessions
MART03	Cesium-134	Negative bias in last three soil test sessions
NESI01	Iron-55	Consistent “Not Acceptable” performance
	Strontium-90	Potential quality issue in past three soil test sessions
NMLA01	Silver	“Not Acceptable” with negative bias in last two test sessions
OTLI01	Lead	“Not acceptable” last two test sessions
	Silver	“Not Acceptable” with negative bias in last two test sessions
	Plutonium-239/240	Negative bias in last two test sessions
QUAN01	Zinc-65	Negative bias in last two soil test sessions
RSAL01	Uranium-238	“Not Acceptable” performance in last two test sessions
SOUT01	Potassium-40	“Not Acceptable” performance in last two soil test sessions
TELE02	Uranium-234/233	“N” and “W” with negative bias in last two soil test sessions
WEST03	Cesium-134	“N” and “W” with negative bias in last two test sessions
	Uranium-234/233	“Not Acceptable” performance in last two soil test sessions
WEST04	Selenium	“Not Acceptable” performance in last three soil test sessions
	Thallium	“Not Acceptable” performance with in last two soil test sessions
	Iron-55	“Not Acceptable” performance in last two soil test sessions

These laboratories were sent “Letters of Concern” to bring these potential deficiencies to their attention.

APPENDIX

A

Participating Laboratories and Associated Laboratory Code Index for MAPEP-01-S8

MAPEP-01-S8 Reporting Participants

Lab Code	*Laboratory Name*
ACCU01	Accu-Labs Research, Inc.
AK2501	Lockheed Martin Energy Systems, K-25 Site, ASO
ANLA01	Argonne National Laboratory Analytical Chemistry Lab.
ANTE01	Paragon Analytics, Inc.
ARGO01	Argonne National Laboratory West
AY1201	Y-12 Analytical Services Organization
BNEL01	BINAX / NEL
CCEN99	Comision Chilean de Energia Nuclear, Santiago de Chile
CDHS01	California State Department of Health Services
CEEA99	Comision Ecuatoriana de Energia Atomica, Quito, Equador
CESL01	Lawrence Livermore National Laboratory
CNEA99	Comision Nacional de Energia Atomica, Asuncion, Paraguay
CORE01	Core Laboratories
CORE02	Core Laboratories
CSTL01	CST-9, Los Alamos National Laboratory
EPAL01	Office of Radiation and Indoor Air - Radlab
ERCL01	Environmental & Radiation Chemistry, PHL
ERMI01	RMI Environmental Services
FERM01	FERMCO
GENE01	General Engineering Laboratories
GROW01	Fruit Growers Laboratory
HISL99	Hydrometeorological Institute of Slovenia, Ljubljana, Slovenia
HWRL01	Lawrence Livermore National Laboratory
IBTN99	Instituto Boliviana De Ciencia y Technologia Nuclear, La Paz, Bolivia
IPEN99	Instituto Peruano de Energia Nuclear, Lima, Peru
LAWR01	Lawrence Berkeley Laboratory
LAWR02	University of California-LLNL
LOCK01	Lockheed Analytical Chemistry - ICPP
LOCK03	Radiation Measurements Laboratory
LPTO99	SPA Typhoon, Obninsk, Russia
MART01	Lockheed Martin Utility Services
MART02	Lockheed Martin Utility Services Inc.
MART03	Radioactive Materials Analysis Laboratory
MDPH01	MDPH-Radiation Control Program
MOUN01	Mountain States Analytical, Inc.
NARL01	National Air and Radiation Environmental Laboratory
NESI01	B&W NESI - Nuclear Environmental Laboratory
NFSI01	Nuclear Fuel Services, Inc.
NMLA01	Assaiggi Analytical Laboratories
NRCQ01	US Nuclear Regulatory Commission, Region I
NRLL99	National Radiation Laboratory, Christchurch, New Zealand
OBGL01	O'Brien & Gere Laboratories, Inc.
ORIS01	ORISE/ESSAP
OTLI01	Outreach Technologies Laboratory, Inc.
PRAP01	IT WPRAP Laboratory

MAPEP-01-S8 Reporting Participants (cont.)

Lab Code	*Laboratory Name*
QUAN01	Quanterra Incorporated
QUAN02	Quanterra Incorporated, Knoxville Laboratory
QUAN03	Quanterra Environmental Services
RECC01	Environmental Chemical Corp.
ROCK01	Kaiser-Hill Co., Inc.
RSAL01	RSA Laboratories
RSIR99	Instituto de Radioprotecao e Dosimetria, Rio de Janeiro
SAVA01	Savannah River Technology Center/ ADS.
SCAL01	Sanford Cohen and Associates
SNEC01	Saxton Nuclear Experimental Corp.
SNLP01	Sandia National Laboratory ER Project
SOUT01	Southwest Research Institute
SWOL01	Southwest Laboratory of Oklahoma
TELE01	Teledyne Brown Engineering - Environmental Services
TELE02	Teledyne Isotopes Midwest Lab
TMAE01	Thermo Nutech
TMAO01	Thermo Nutech
TMAR01	Thermo Nutech
TNUT01	Thermo-Nutech
UPVL99	Universidad Politechnica de Valencia, Valencia, Spain
WEST01	R.F. Weston
WEST03	Waste Sampling and Characterization Facility
WEST04	Westinghouse Electric Corporation
YAEC01	Yankee Atomic Electric Company

MAPEP-01-S8 Non-Reporting Participants

Lab Code	*Laboratory Name*
ADEM01	Alabama Department of Environmental Management
BIOL99	Bedford Institute of Oceanography, Dartmouth, Nova Scotia
CIRP99	China Institute for Radiation Protection, Shanxi, China
DATA01	DataChem Laboratories, Inc.
EMBW01	B&W Of Ohio, Inc.
IEMA99	Analytical Ecotoxicology Severtzov Institute of Ecology, Russia
IHPH99	Radiation Hygiene Laboratory, Inst. Of Public Health (see note below)
LEPD99	National Institute for Physics and Nuclear Engineering
NRCQ02	U.S. NRC, Region 3
UINP99	University of Istanbul/Nuclear Physics, Istanbul, Turkey

Changes in Laboratory Status

Lab Code	***Laboratory Name***
IHPH99	Laboratory under reconstruction – unable to participate in this study
INST99	Banned by Dept. of Commerce – EAR
RCCI99	Banned by Dept. of Commerce – EAR
NMTL01	Nuclear Materials Technology, Los Alamos National Laboratory All sample distributions on hold until further notice

Other MAPEP Participants

Lab Code	***Laboratory Name***
ERHD99	Fallout and Reactors Section, Ottawa, Canada
IDGR01	Internal Dosimetry Group-Rad. Lab.
WRRI99	Water Resources Research Center

APPENDIX

B

Analytical Data

Mixed Analyte Performance Evaluation Program

Statistical Summary

Sample ID: MAPEP-01-S8

Analyte	T(1)	A(2)	Grand Mean	Std. Dev.	Reference Value	Analyte Text	Acceptance Limits	Units
Arsenic	37	30	24.99	2.79	27		18.73 - 34.79	(mg/kg)
Barium	38	36	236.11	23.56	243		170.10 - 315.90	(mg/kg)
Beryllium	36	36	66.54	6.78	70.3		49.20 - 91.38	(mg/kg)
Cadmium	18	17				False Positive Test		(mg/kg)
Chromium	39	35	65.67	7.75	66		46.43 - 86.23	(mg/kg)
Lead	39	32	23.68	2.85	24		17.03 - 31.63	(mg/kg)
Nickel	39	38	92.42	7.88	95		66.56 - 123.62	(mg/kg)
Selenium	16	14				False Positive Test		(mg/kg)
Silver	35	31	72.99	5.74	74.3		52.00 - 96.56	(mg/kg)
Thallium	34	29	21.30	2.08	21.3		14.88 - 27.64	(mg/kg)
Uranium-Total	6	6	15.10	1.04	15.4		10.79 - 20.03	(mg/kg)
Uranium-235	2	2	0.04	0.00	0.049		0.03 - 0.06	(mg/kg)
Uranium-238	2	2	15.02	0.54	15.4		10.75 - 19.97	(mg/kg)
Vanadium	38	28	36.50	5.04	35		24.50 - 45.50	(mg/kg)
Zinc	37	37	176.77	18.58	179		124.96 - 232.06	(mg/kg)
Americium-241	28	19				False Positive Test		(Bq/kg)
Cesium-134	50	49	83.98	7.99	91.1		63.77 - 118.43	(Bq/kg)
Cesium-137	51	51	1208.38	106.23	1240		868.00 - 1612.00	(Bq/kg)
Cobalt-57	50	46	101.83	10.77	103		72.10 - 133.90	(Bq/kg)
Cobalt-60	51	50	1304.77	102.94	1270		889.00 - 1651.00	(Bq/kg)
Iron-55	8	2	1026.00	48.08	1320		924.00 - 1716.00	(Bq/kg)
Manganese-54	49	47	215.21	18.33	203		142.10 - 263.90	(Bq/kg)
Nickel-63	12	8	523.42	61.79	550		385.00 - 715.00	(Bq/kg)
Plutonium-238	37	35	107.79	8.79	115		80.50 - 149.50	(Bq/kg)
Plutonium-239/240	37	37	78.08	6.34	83.4		58.38 - 108.42	(Bq/kg)
Potassium-40	51	50	684.22	65.47	652		456.40 - 847.60	(Bq/kg)
Strontium-90	28	25	190.52	23.50	209		146.30 - 271.70	(Bq/kg)
Uranium-234/233	37	31	53.89	4.99	60		42.00 - 78.00	(Bq/kg)
Uranium-238	38	36	177.15	12.78	191		133.70 - 248.30	(Bq/kg)
Zinc-65	49	46	416.26	37.40	382		267.40 - 496.60	(Bq/kg)
1,3-Dichlorobenzene	20	20	520.14	174.87	520.1		QL - 1044.57	(ug/kg)
Nitrobenzene	24	23	683.70	203.27	683.7		74.08 - 1293.31	(ug/kg)
Naphthalene	23	21	572.18	137.69	572.2		159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	24	23	585.33	183.64	585.3		34.58 - 1136.08	(ug/kg)

Note:

Outliers are excluded from the statistical summary.
Outliers are defied as laboratory data with a bias greater than 30 percent.
(1) T = Total Number of Laboratories Reporting Analyte.
(2) A = Number of Laboratories with 'Acceptable' Performance.
1. For organic components with absoute value of Z-score < 3
2. Acceptance range minimum labeled as "DL" means from the Detection Limit to the upper range.

Analyte	T(1)	A(2)	Grand Mean	Std. Dev.	Reference Value	Analyte Text	Acceptance Limits	Units
2,6-Dichlorophenol	12	12	306.17	109.95	306.2		QL - 635.91	(ug/kg)
2-Chloronaphthalene	24	23	664.37	192.53	664.4		86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	24	23	839.49	238.73	839.5		123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	23	22	785.46	227.91	785.4		101.96 - 1468.95	(ug/kg)
Fluorene	24	23	522.00	169.32	522		14.22 - 1029.78	(ug/kg)
Diethylphthalate	24	23	858.26	250.14	858.2		108.09 - 1608.43	(ug/kg)
Anthracene	20	20	345.78	170.00	345.8		QL - 855.60	(ug/kg)
1,4-Dinitrobenzene	4	4						(ug/kg)
1,3-Dinitrobenzene	8	8	508.03	396.09	508		QL - 1695.91	(ug/kg)
1,2-Dinitrobenzene	3	3						(ug/kg)
Di-n-butylphthalate	6					Not Evaluated		(ug/kg)
Pyrene	23	22	684.98	184.06	685		132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	24	23	553.51	169.93	553.5		43.89 - 1063.12	(ug/kg)
Chrysene	24	23	598.88	192.00	598.9		23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	22	22	5165.97	3006.90	5166		QL - 14183.67	(ug/kg)
Di-n-octylphthalate	23	23	1139.26	489.89	1139		QL - 2608.46	(ug/kg)

Note:

Outliers are excluded from the statistical summary.
Outliers are defied as laboratory data with a bias greater than 30 percent.
(1) T = Total Number of Laboratories Reporting Analyte.
(2) A = Number of Laboratories with 'Acceptable' Performance.
1. For organic components with absoute value of Z-score < 3
2. Acceptance range minimum labeled as "DL" means from the Detection Limit to the upper range.

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ACCU01

ACCULABS INC
4663 TABLE MOUNTAIN DRIVE
GOLDEN CO 80403

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	27.1	27	A		1.3	18.73 - 34.79			(mg/kg)
Barium	214	243	A		-11.9	170.10 - 315.90			(mg/kg)
Beryllium	65.3	70.3	A		-7.1	49.20 - 91.38			(mg/kg)
Cadmium	< 1.0								(mg/kg)
Chromium	60.7	66	A		-8.5	46.43 - 86.23			(mg/kg)
Lead	21.5	24	A		-11.6	17.03 - 31.63			(mg/kg)
Nickel	89.9	95	A		-5.5	66.56 - 123.62			(mg/kg)
Selenium	< 10								(mg/kg)
Silver	NR	74.3				52.00 - 96.56			
Thallium	20.7	21.3	A		-2.6	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	31.4	35	A		-10.3	24.50 - 45.50			(mg/kg)
Zinc	161	179	A		-9.8	124.96 - 232.06			(mg/kg)
Americium-241	0.472		A				0.228		(Bq/kg)
Cesium-134	88.2	91.1	A		-3.2	63.77 - 118.43	15.1		(Bq/kg)
Cesium-137	1208.6	1240	A		-2.5	868.00 - 1612.00	209.9		(Bq/kg)
Cobalt-57	106.6	103	A		3.5	72.10 - 133.90	18.9		(Bq/kg)
Cobalt-60	1284.0	1270	A		1.1	889.00 - 1651.00	222.9		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	218.9	203	A		7.8	142.10 - 263.90	40.1		(Bq/kg)
Nickel-63	551.3	550	A		0.2	385.00 - 715.00	55.84		(Bq/kg)
Plutonium-238	112.85	115	A		-1.9	80.50 - 149.50	17.02		(Bq/kg)
Plutonium-239/240	81.03	83.4	A		-2.8	58.38 - 108.42	12.4		(Bq/kg)
Potassium-40	678.1	652	A		4.0	456.40 - 847.60	121.6		(Bq/kg)
Strontium-90	182.4	209	A		-12.7	146.30 - 271.70	14.62		(Bq/kg)
Uranium-234/233	51.43	60	A		-14.3	42.00 - 78.00	9.07		(Bq/kg)
Uranium-238	180.00	191	A		-5.8	133.70 - 248.30	27.57		(Bq/kg)
Zinc-65	424.0	382	A		11.0	267.40 - 496.60	74.4		(Bq/kg)

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ACCU01

ACCULABS INC
4663 TABLE MOUNTAIN DRIVE
GOLDEN CO 80403

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	802.33	520.1	A		1.6	QL - 1044.57	(ug/kg)
Benzyl Alcohol	138.33						(ug/kg)
Nitrobenzene	987.00	683.7	A		1.5	74.08 - 1293.31	(ug/kg)
Naphthalene	648.67	572.2	A		0.6	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	802.00	585.3	A		1.2	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	385.33	306.2	A		0.7	QL - 635.91	(ug/kg)
2-Chloronaphthalene	924.33	664.4	A		1.4	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	1050.33	839.5	A		0.9	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	1002.33	785.4	A		1.0	101.96 - 1468.95	(ug/kg)
4-Nitrophenol	112.00		W	False Positive			(ug/kg)
Fluorene	847.33	522	A		1.9	14.22 - 1029.78	(ug/kg)
Diethylphthalate	1015.67	858.2	A		0.6	108.09 - 1608.43	(ug/kg)
2,4,5-Trichlorophenol	37.33		W	False Positive			(ug/kg)
Pentachlorophenol	78.00		W	False Positive			(ug/kg)
Phenanthrene	612.00		W	False Positive			(ug/kg)
Anthracene	597.33	345.8	A		1.5	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	835.33	685	A		0.8	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	658.67	553.5	A		0.6	43.89 - 1063.12	(ug/kg)
Chrysene	705.33	598.9	A		0.6	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	4032	5166	A		-0.4	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1375.67	1139	A		0.5	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

AK2501

LMES ACUnion Valley Laboratory
P. O. Box 2009
Oak Ridge TN 37831

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	0.86		A				0.4		(Bq/kg)
Cesium-134	70.72	91.1	W		-22.4	63.77 - 118.43	3.3		(Bq/kg)
Cesium-137	1038.96	1240	A		-16.2	868.00 - 1612.00	52.6		(Bq/kg)
Cobalt-57	83.19	103	A		-19.2	72.10 - 133.90	4.3		(Bq/kg)
Cobalt-60	1160.04	1270	A		-8.7	889.00 - 1651.00	41.6		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	190.73	203	A		-6.0	142.10 - 263.90	10.7		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	104.24	115	A		-9.4	80.50 - 149.50	7.7		(Bq/kg)
Plutonium-239/240	78.7	83.4	A		-5.6	58.38 - 108.42	6.0		(Bq/kg)
Potassium-40	603.47	652	A		-7.4	456.40 - 847.60	35.1		(Bq/kg)
Strontium-90	207.33	209	A		-0.8	146.30 - 271.70	47.3	H	(Bq/kg)
Uranium-234/233	59.49	60	A		-0.9	42.00 - 78.00	5.2		(Bq/kg)
Uranium-238	192.11	191	A		0.6	133.70 - 248.30	13.5		(Bq/kg)
Zinc-65	365.16	382	A		-4.4	267.40 - 496.60	21.7		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

AK2501

LMES ACUnion Valley Laboratory
P. O. Box 2009
Oak Ridge TN 37831

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ANLA01

Argonne National Laboratory/Analytical Chemistry Lab.
9700 S. Cass Avenue
Argonne IL 60439

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	25.1	27	A		-6.2	18.73 - 34.79			(mg/kg)
Barium	233	243	A		-4.1	170.10 - 315.90			(mg/kg)
Beryllium	67.1	70.3	A		-4.5	49.20 - 91.38			(mg/kg)
Chromium	65.6	66	A		-1.1	46.43 - 86.23			(mg/kg)
Lead	21.9	24	A		-10.0	17.03 - 31.63			(mg/kg)
Nickel	89.0	95	A		-6.4	66.56 - 123.62			(mg/kg)
Silver	68.0	74.3	A		-8.5	52.00 - 96.56			(mg/kg)
Thallium	20.9	21.3	A		-1.7	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	33.9	35	A		-3.1	24.50 - 45.50			(mg/kg)
Zinc	182.	179	A		2.0	124.96 - 232.06			(mg/kg)
Cesium-134	68.8	91.1	W		-24.5	63.77 - 118.43	6.68		(Bq/kg)
Cesium-137	1090	1240	A		-12.1	868.00 - 1612.00	14.3	L	(Bq/kg)
Cobalt-57	53.3	103	N		-48.3	72.10 - 133.90	2.61		(Bq/kg)
Cobalt-60	1250	1270	A		-1.6	889.00 - 1651.00	26.6	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	149	203	W		-26.6	142.10 - 263.90	6.93		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	626	652	A		-4.0	456.40 - 847.60	41.8		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	247	382	N		-35.3	267.40 - 496.60	12.8		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ANLA01
Argonne National Laboratory/Analytical Chemistry Lab.
9700 S. Cass Avenue
Argonne IL 60439

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	457	520.1	A		-0.4	QL - 1044.57	(ug/kg)
Nitrobenzene	985	683.7	A		1.5	74.08 - 1293.31	(ug/kg)
Naphthalene	667	572.2	A		0.7	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	815	585.3	A		1.3	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	210	306.2	A		-0.9	QL - 635.91	(ug/kg)
2-Chloronaphthalene	685	664.4	A		0.1	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	1230	839.5	A		1.6	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	861	785.4	A		0.3	101.96 - 1468.95	(ug/kg)
Fluorene	417	522	A		-0.6	14.22 - 1029.78	(ug/kg)
Diethylphthalate	1070	858.2	A		0.8	108.09 - 1608.43	(ug/kg)
Anthracene	178	345.8	A		-1.0	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	875	685	A		1.0	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	625	553.5	A		0.4	43.89 - 1063.12	(ug/kg)
Chrysene	726	598.9	A		0.7	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	7370	5166	A		0.7	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1890	1139	A		1.5	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ANTE01

Paragon Analytics, Inc.
225 Commerce Drive
Fort Collins CO 80524

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	24.0	27	A		-10.3	18.73 - 34.79			(mg/kg)
Barium	227	243	A		-6.6	170.10 - 315.90			(mg/kg)
Beryllium	63.2	70.3	A		-10.1	49.20 - 91.38			(mg/kg)
Chromium	58.8	66	A		-11.4	46.43 - 86.23			(mg/kg)
Lead	22.4	24	A		-7.9	17.03 - 31.63			(mg/kg)
Nickel	87.1	95	A		-8.4	66.56 - 123.62			(mg/kg)
Silver	73.0	74.3	A		-1.7	52.00 - 96.56			(mg/kg)
Thallium	19.6	21.3	A		-7.8	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	35.8	35	A		2.3	24.50 - 45.50			(mg/kg)
Zinc	152	179	A		-14.9	124.96 - 232.06			(mg/kg)
Americium-241	0.528		N	False Positive			0.0874		(Bq/kg)
Cesium-134	79.2	91.1	A		-13.1	63.77 - 118.43	6.59		(Bq/kg)
Cesium-137	1207	1240	A		-2.7	868.00 - 1612.00	99.8		(Bq/kg)
Cobalt-57	100	103	A		-2.9	72.10 - 133.90	8.32		(Bq/kg)
Cobalt-60	1210	1270	A		-4.7	889.00 - 1651.00	99.8		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	213	203	A		4.9	142.10 - 263.90	17.7		(Bq/kg)
Nickel-63	629	550	A		14.4	385.00 - 715.00	120		(Bq/kg)
Plutonium-238	112	115	A		-2.6	80.50 - 149.50	7.16		(Bq/kg)
Plutonium-239/240	80.7	83.4	A		-3.2	58.38 - 108.42	5.24		(Bq/kg)
Potassium-40	656	652	A		0.6	456.40 - 847.60	55.8		(Bq/kg)
Strontium-90	187	209	A		-10.5	146.30 - 271.70	17.0		(Bq/kg)
Uranium-234/233	60.1	60	A		0.2	42.00 - 78.00	4.00		(Bq/kg)
Uranium-238	190	191	A		-0.5	133.70 - 248.30	11.9		(Bq/kg)
Zinc-65	436	382	A		14.1	267.40 - 496.60	36.6		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ANTE01

Paragon Analytics, Inc.
225 Commerce Drive
Fort Collins CO 80524

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	612	520.1	A		0.5	QL - 1044.57	(ug/kg)
Nitrobenzene	766	683.7	A		0.4	74.08 - 1293.31	(ug/kg)
Naphthalene	699	572.2	A		0.9	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	689	585.3	A		0.6	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	848	664.4	A		1.0	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	1009	839.5	A		0.7	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	1033	785.4	A		1.1	101.96 - 1468.95	(ug/kg)
Fluorene	739	522	A		1.3	14.22 - 1029.78	(ug/kg)
Diethylphthalate	1044	858.2	A		0.7	108.09 - 1608.43	(ug/kg)
Anthracene	524	345.8	A		1.0	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	869	685	A		1.0	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	658	553.5	A		0.6	43.89 - 1063.12	(ug/kg)
Chrysene	704	598.9	A		0.5	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	4756	5166	A		-0.1	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1401	1139	A		0.5	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ARGO01

Argonne National Laboratory West
EBRII-Site
Idaho Falls ID 83403

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	27.5	27	A		2.8	18.73 - 34.79	5.0		(mg/kg)
Barium	253.1	243	A		4.2	170.10 - 315.90	25		(mg/kg)
Beryllium	72.9	70.3	A		3.7	49.20 - 91.38	8.0		(mg/kg)
Chromium	75.6	66	A		14.0	46.43 - 86.23	8.0		(mg/kg)
Lead	24.9	24	A		2.3	17.03 - 31.63	3.0		(mg/kg)
Nickel	104.9	95	A		10.3	66.56 - 123.62	11		(mg/kg)
Silver	81.8	74.3	A		10.1	52.00 - 96.56	9.0		(mg/kg)
Thallium	21.3	21.3	A		0.2	14.88 - 27.64	3.0		(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ARGO01

Argonne National Laboratory West
EBRII-Site
Idaho Falls ID 83403

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

AY1201

LMES ACO Y-12 Building 9995 Laboratory
Y12, Building 9995, Rm 142
Oak Ridge TN 37831

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	24.4	27	A		-8.8	18.73 - 34.79			(mg/kg)
Barium	243	243	A		0.0	170.10 - 315.90			(mg/kg)
Beryllium	63.1	70.3	A		-10.2	49.20 - 91.38			(mg/kg)
Cadmium	0.447								(mg/kg)
Chromium	59.7	66	A		-10.0	46.43 - 86.23			(mg/kg)
Lead	24.0	24	A		-1.4	17.03 - 31.63			(mg/kg)
Nickel	86.6	95	A		-8.9	66.56 - 123.62			(mg/kg)
Selenium	<1.3								(mg/kg)
Silver	69.8	74.3	A		-6.0	52.00 - 96.56			(mg/kg)
Thallium	19.2	21.3	A		-9.7	14.88 - 27.64			(mg/kg)
Uranium-Total	14.68	15.4	A		-4.7	10.79 - 20.03	1.5		(mg/kg)
Uranium-235	0.0442	0.049	A		-9.8	0.03 - 0.06	0.0004		(mg/kg)
Uranium-238	14.634	15.4	A		-4.7	10.75 - 19.97	1.5		(mg/kg)
Vanadium	35.7	35	A		2.0	24.50 - 45.50			(mg/kg)
Zinc	170	179	A		-4.8	124.96 - 232.06			(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:
A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

AY1201

LMES ACO Y-12 Building 9995 Laboratory
Y12, Building 9995, Rm 142
Oak Ridge TN 37831

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	800	520.1	A		1.6	QL - 1044.57	(ug/kg)
Nitrobenzene	800	683.7	A		0.6	74.08 - 1293.31	(ug/kg)
Naphthalene	700	572.2	A		0.9	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	740	585.3	A		0.8	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	330	306.2	A		0.2	QL - 635.91	(ug/kg)
2-Chloronaphthalene	440	664.4	A		-1.2	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	840	839.5	A		0.0	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	610	522	A		0.5	14.22 - 1029.78	(ug/kg)
Diethylphthalate	880	858.2	A		0.1	108.09 - 1608.43	(ug/kg)
Anthracene	430	345.8	A		0.5	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	670	553.5	A		0.7	43.89 - 1063.12	(ug/kg)
Chrysene	670	598.9	A		0.4	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	6900	5166	A		0.6	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1700	1139	A		1.1	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

BNEL01

Northeast Laboratory Services, Inc.
PO Box 788
Waterville ME 04903

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	44.1	27	N		64.8	18.73 - 34.79			(mg/kg)
Barium	215	243	A		-11.5	170.10 - 315.90			(mg/kg)
Beryllium	62.0	70.3	A		-11.8	49.20 - 91.38			(mg/kg)
Cadmium	<5.00								(mg/kg)
Chromium	62.1	66	A		-6.4	46.43 - 86.23			(mg/kg)
Lead	22.2	24	A		-8.8	17.03 - 31.63			(mg/kg)
Nickel	90.1	95	A		-5.2	66.56 - 123.62			(mg/kg)
Selenium	6.98		N	False Positive					(mg/kg)
Silver	65.5	74.3	A		-11.8	52.00 - 96.56			(mg/kg)
Thallium	22.1	21.3	A		4.0	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	25.3	35	W		-27.7	24.50 - 45.50			(mg/kg)
Zinc	166	179	A		-7.0	124.96 - 232.06			(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

BNEL01

Northeast Laboratory Services, Inc.
PO Box 788
Waterville ME 04903

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	620	520.1	A		0.6	QL - 1044.57	(ug/kg)
Nitrobenzene	670	683.7	A		-0.1	74.08 - 1293.31	(ug/kg)
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	610	585.3	A		0.1	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	660	664.4	A		0.0	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	880	839.5	A		0.2	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	810	785.4	A		0.1	101.96 - 1468.95	(ug/kg)
Fluorene	570	522	A		0.3	14.22 - 1029.78	(ug/kg)
Diethylphthalate	960	858.2	A		0.4	108.09 - 1608.43	(ug/kg)
Anthracene	365	345.8	A		0.1	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	740	685	A		0.3	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	584	553.5	A		0.2	43.89 - 1063.12	(ug/kg)
Chrysene	622	598.9	A		0.1	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	4000	5166	A		-0.4	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1180	1139	A		0.1	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CCEN99

ANALISIS POR ACTIVACION
AMUNATEGUI 95
SANTIAGO SANTIA 65006

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	27.4	27	A		2.4	18.73 - 34.79	2.6		(mg/kg)
Barium	925	867	A	Total Metal	6.7	606.90 - 1127.10	83		(mg/kg)
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	114	121.5	A	Total Metal	-6.2	85.05 - 157.95	4.5		(mg/kg)
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	90.6	92.4	A	Total Metal	-1.9	64.68 - 120.12	6.4		(mg/kg)
Zinc	171	209	A	Total Metal	-18.2	146.30 - 271.70	8.4		(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CCEN99

ANALISIS POR ACTIVACION
AMUNATEGUI 95
SANTIAGO SANTIA 65006

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CDHS01

California Department of Health Services
Sanitation & Radiation Lab.
Berkeley CA 94704

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	0.8		A				0.4		(Bq/kg)
Cesium-134	94.9	91.1	A		4.2	63.77 - 118.43	1.4	L	(Bq/kg)
Cesium-137	1295	1240	A		4.4	868.00 - 1612.00	3.5	L	(Bq/kg)
Cobalt-57	115	103	A		11.6	72.10 - 133.90	1.5	L	(Bq/kg)
Cobalt-60	1427	1270	A		12.4	889.00 - 1651.00	4.3	L	(Bq/kg)
Iron-55	909	1320	N		-31.1	924.00 - 1716.00	32.2		(Bq/kg)
Manganese-54	231	203	A		13.8	142.10 - 263.90	3.0	L	(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	119	115	A		3.5	80.50 - 149.50	4.2		(Bq/kg)
Plutonium-239/240	83.6	83.4	A		0.2	58.38 - 108.42	3.1		(Bq/kg)
Potassium-40	741	652	A		13.6	456.40 - 847.60	11	L	(Bq/kg)
Strontium-90	201	209	A		-3.8	146.30 - 271.70	7.2		(Bq/kg)
Uranium-234/233	53.6	60	A		-10.7	42.00 - 78.00	2.1		(Bq/kg)
Uranium-238	181	191	A		-5.2	133.70 - 248.30	6.1		(Bq/kg)
Zinc-65	451	382	A		18.1	267.40 - 496.60	7.7	L	(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CDHS01

California Department of Health Services
Sanitation & Radiation Lab.
Berkeley CA 94704

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CEEA99

Comision Ecuatoriana de Energia Atomica/U.Q.A.
JUAN LARREA 534 Y RIOFRIO
QUITO Pichinch 1

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	215.9	243	A		-11.2	170.10 - 315.90	33.7		(mg/kg)
Beryllium	NR	70.3				49.20 - 91.38			
Cadmium	< 2.75								(mg/kg)
Chromium	52.79	66	W		-20.4	46.43 - 86.23	5.20		(mg/kg)
Lead	19.53	24	A		-19.7	17.03 - 31.63	1.42		(mg/kg)
Nickel	96.20	95	A		1.2	66.56 - 123.62	6.34		(mg/kg)
Selenium	< 0.25								(mg/kg)
Silver	77.01	74.3	A		3.7	52.00 - 96.56	1.69	L	(mg/kg)
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	53.56	35	N		53.0	24.50 - 45.50	6.58		(mg/kg)
Zinc	184.6	179	A		3.4	124.96 - 232.06	17.9		(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CEEA99

Comision Ecuatoriana de Energia Atomica/U.Q.A.
JUAN LARREA 534 Y RIOFRIO
QUITO Pichinch 1

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CESL01

Lawrence Livermore National Laboratory - CES
7000 East Avenue
Livermore CA 94550

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	74.5	91.1	A		-18.2	63.77 - 118.43	3.59		(Bq/kg)
Cesium-137	1170	1240	A		-5.6	868.00 - 1612.00	73.5		(Bq/kg)
Cobalt-57	103	103	A		0.0	72.10 - 133.90	5.45		(Bq/kg)
Cobalt-60	1280	1270	A		0.8	889.00 - 1651.00	48.8		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	219	203	A		7.9	142.10 - 263.90	16.2		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	117	115	A		1.7	80.50 - 149.50	3.71		(Bq/kg)
Plutonium-239/240	82.0	83.4	A		-1.7	58.38 - 108.42	2.71		(Bq/kg)
Potassium-40	740	652	A		13.5	456.40 - 847.60	46.3		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	47.9	60	W		-20.2	42.00 - 78.00	1.97		(Bq/kg)
Uranium-238	161	191	A		-15.7	133.70 - 248.30	6.18		(Bq/kg)
Zinc-65	451	382	A		18.1	267.40 - 496.60	30.0		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CESL01

Lawrence Livermore National Laboratory - CES
7000 East Avenue
Livermore CA 94550

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CNEA99

Comision Nacional de Energia Atomica
Campus Universitario
San Lorenzo Dpto. Ce 3023

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	637.40	867	W	Total Metal	-26.5	606.90 - 1127.10	188.60	H	(mg/kg)
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	273.40	121.5	N	Total Metal	125.0	85.05 - 157.95	30.04		(mg/kg)
Lead	69.70	26.9	N	Total Metal	159.1	18.83 - 34.97	5.64		(mg/kg)
Nickel	96.04	95	A		1.0	66.56 - 123.62	8.84		(mg/kg)
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	173	92.4	N	Total Metal	87.2	64.68 - 120.12	46.67	H	(mg/kg)
Zinc	NR	179				124.96 - 232.06			
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CNEA99

Comision Nacional de Energia Atomica
Campus Universitario
San Lorenzo Dpto. Ce 3023

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CORE01

Enviro-Test Laboratories, LLC
420 WEST 1ST STREET
CASPER WY 82601

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	26	27	A		-2.8	18.73 - 34.79			(mg/kg)
Barium	264	243	A		8.6	170.10 - 315.90			(mg/kg)
Beryllium	82.7	70.3	A		17.7	49.20 - 91.38			(mg/kg)
Cadmium	0.5								(mg/kg)
Chromium	69.9	66	A		5.4	46.43 - 86.23			(mg/kg)
Lead	24.5	24	A		0.7	17.03 - 31.63			(mg/kg)
Nickel	103	95	A		8.3	66.56 - 123.62			(mg/kg)
Selenium	<3.0								(mg/kg)
Silver	18.3	74.3	N		-75.4	52.00 - 96.56			(mg/kg)
Thallium	24	21.3	A		12.9	14.88 - 27.64			(mg/kg)
Uranium-Total	14.0	15.4	A		-9.1	10.79 - 20.03			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	39.1	35	A		11.7	24.50 - 45.50			(mg/kg)
Zinc	198	179	A		10.9	124.96 - 232.06			(mg/kg)
Americium-241	0.0		A				0.9		(Bq/kg)
Cesium-134	85.1	91.1	A		-6.6	63.77 - 118.43	1.6	L	(Bq/kg)
Cesium-137	1312	1240	A		5.8	868.00 - 1612.00	4.0	L	(Bq/kg)
Cobalt-57	116	103	A		12.6	72.10 - 133.90	1.5	L	(Bq/kg)
Cobalt-60	1448	1270	A		14.0	889.00 - 1651.00	3.7	L	(Bq/kg)
Iron-55	1060	1320	A		-19.7	924.00 - 1716.00	96.8		(Bq/kg)
Manganese-54	239	203	A		17.7	142.10 - 263.90	3.6	L	(Bq/kg)
Nickel-63	513	550	A		-6.7	385.00 - 715.00	92		(Bq/kg)
Plutonium-238	247	115	N		114.8	80.50 - 149.50	40.3		(Bq/kg)
Plutonium-239/240	92.7	83.4	A		11.2	58.38 - 108.42	23.9	H	(Bq/kg)
Potassium-40	746	652	A		14.4	456.40 - 847.60	18.0	L	(Bq/kg)
Strontium-90	227	209	A		8.6	146.30 - 271.70	22.2		(Bq/kg)
Uranium-234/233	52.1	60	A		-13.2	42.00 - 78.00	18.7	H	(Bq/kg)
Uranium-238	165	191	A		-13.6	133.70 - 248.30	33.0		(Bq/kg)
Zinc-65	460	382	W		20.4	267.40 - 496.60	9.6	L	(Bq/kg)

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CORE01

Enviro-Test Laboratories, LLC
420 WEST 1ST STREET
CASPER WY 82601

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	662	683.7	A		-0.1	74.08 - 1293.31	(ug/kg)
Naphthalene	531	572.2	A		-0.3	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	534	585.3	A		-0.3	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	672	664.4	A		0.0	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	825	839.5	A		-0.1	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	775	785.4	A		0.0	101.96 - 1468.95	(ug/kg)
Fluorene	472	522	A		-0.3	14.22 - 1029.78	(ug/kg)
Diethylphthalate	922	858.2	A		0.3	108.09 - 1608.43	(ug/kg)
Pentachlorophenol	418		W	False Positive			(ug/kg)
Phenanthrene	290		W	False Positive			(ug/kg)
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Di-n-butylphthalate	1720						(ug/kg)
Pyrene	657	685	A		-0.2	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	413	553.5	A		-0.8	43.89 - 1063.12	(ug/kg)
Chrysene	514	598.9	A		-0.4	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	8910	5166	A		1.2	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CORE02

STL Denver
4955 Yarrow St
Arvada CO 80002

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	23.9	27	A		-10.7	18.73 - 34.79			(mg/kg)
Barium	248	243	A		2.1	170.10 - 315.90			(mg/kg)
Beryllium	63.4	70.3	A		-9.8	49.20 - 91.38			(mg/kg)
Chromium	67.9	66	A		2.4	46.43 - 86.23			(mg/kg)
Lead	22.3	24	A		-8.3	17.03 - 31.63			(mg/kg)
Nickel	90.9	95	A		-4.4	66.56 - 123.62			(mg/kg)
Silver	71.6	74.3	A		-3.6	52.00 - 96.56			(mg/kg)
Thallium	18.7	21.3	A		-12.0	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	44.8	35	W		28.0	24.50 - 45.50			(mg/kg)
Zinc	167	179	A		-6.4	124.96 - 232.06			(mg/kg)
Americium-241	2.58		A				0.88		(Bq/kg)
Cesium-134	93.6	91.1	A		2.7	63.77 - 118.43	9.8		(Bq/kg)
Cesium-137	1305	1240	A		5.2	868.00 - 1612.00	134		(Bq/kg)
Cobalt-57	122	103	A		18.4	72.10 - 133.90	13		(Bq/kg)
Cobalt-60	1377	1270	A		8.4	889.00 - 1651.00	140		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	230	203	A		13.3	142.10 - 263.90	24		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	115	115	A		0.0	80.50 - 149.50	2	L	(Bq/kg)
Plutonium-239/240	81.2	83.4	A		-2.6	58.38 - 108.42	1.4	L	(Bq/kg)
Potassium-40	843	652	W		29.3	456.40 - 847.60	87		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	50.6	60	A		-15.7	42.00 - 78.00	2.3		(Bq/kg)
Uranium-238	178	191	A		-6.8	133.70 - 248.30	4	L	(Bq/kg)
Zinc-65	440	382	A		15.2	267.40 - 496.60	45		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CORE02

STL Denver
4955 Yarrow St
Arvada CO 80002

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	390	520.1	A		-0.7	QL - 1044.57	(ug/kg)
Nitrobenzene	520	683.7	A		-0.8	74.08 - 1293.31	(ug/kg)
Naphthalene	430	572.2	A		-1.0	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	470	585.3	A		-0.6	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	530	664.4	A		-0.7	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	650	839.5	A		-0.8	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	660	785.4	A		-0.6	101.96 - 1468.95	(ug/kg)
Fluorene	480	522	A		-0.2	14.22 - 1029.78	(ug/kg)
Diethylphthalate	720	858.2	A		-0.6	108.09 - 1608.43	(ug/kg)
Anthracene	340	345.8	A		0.0	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	550	685	A		-0.7	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	430	553.5	A		-0.7	43.89 - 1063.12	(ug/kg)
Chrysene	450	598.9	A		-0.8	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	3400	5166	A		-0.6	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	710	1139	A		-0.9	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CSTL01

LOS ALAMOS NATIONAL LABORATORY
SM30, BIKINI ATOLL ROAD
LOS ALAMOS NM 87545

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	0.69		N	False Positive			0.17		(Bq/kg)
Cesium-134	76.00	91.1	A		-16.6	63.77 - 118.43	9.00		(Bq/kg)
Cesium-137	1080.33	1240	A		-12.9	868.00 - 1612.00	120.33		(Bq/kg)
Cobalt-57	88.50	103	A		-14.1	72.10 - 133.90	10.03		(Bq/kg)
Cobalt-60	1153.67	1270	A		-9.2	889.00 - 1651.00	128.33		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	190.67	203	A		-6.1	142.10 - 263.90	21.67		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	106.58	115	A		-7.3	80.50 - 149.50	3.42		(Bq/kg)
Plutonium-239/240	77.02	83.4	A		-7.7	58.38 - 108.42	2.51		(Bq/kg)
Potassium-40	592.67	652	A		-9.1	456.40 - 847.60	68.00		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	50.30	60	A		-16.2	42.00 - 78.00	2.09		(Bq/kg)
Uranium-238	177.75	191	A		-6.9	133.70 - 248.30	6.05		(Bq/kg)
Zinc-65	369.00	382	A		-3.4	267.40 - 496.60	42.00		(Bq/kg)

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

CSTL01

LOS ALAMOS NATIONAL LABORATORY
SM30, BIKINI ATOLL ROAD
LOS ALAMOS NM 87545

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

EPAL01

U. S. EPA Office of Radiation and Indoor Air
944 E. Harmon Ave.
Las Vegas NV 89119

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	112.4	115	A		-2.3	80.50 - 149.50	8.7		(Bq/kg)
Plutonium-239/240	80.2	83.4	A		-3.8	58.38 - 108.42	6.2		(Bq/kg)
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

EPAL01

U. S. EPA Office of Radiation and Indoor Air
944 E. Harmon Ave.
Las Vegas NV 89119

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ERCL01

Public Health Laboratories
1610 N.E. 150 th Srteet
Shoreline WA 98155

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	0.39		A				0.19		(Bq/kg)
Cesium-134	87.0	91.1	A		-4.5	63.77 - 118.43	4.1		(Bq/kg)
Cesium-137	1220	1240	A		-1.6	868.00 - 1612.00	60		(Bq/kg)
Cobalt-57	104	103	A		1.0	72.10 - 133.90	5		(Bq/kg)
Cobalt-60	1380	1270	A		8.7	889.00 - 1651.00	20	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	225	203	A		10.8	142.10 - 263.90	17		(Bq/kg)
Nickel-63	540	550	A		-1.8	385.00 - 715.00	54		(Bq/kg)
Plutonium-238	97.7	115	A		-15.0	80.50 - 149.50	2.4	L	(Bq/kg)
Plutonium-239/240	67.7	83.4	A		-18.8	58.38 - 108.42	2.0	L	(Bq/kg)
Potassium-40	736	652	A		12.9	456.40 - 847.60	33		(Bq/kg)
Strontium-90	213	209	A		1.9	146.30 - 271.70	3	L	(Bq/kg)
Uranium-234/233	60.3	60	A		0.5	42.00 - 78.00	4.8		(Bq/kg)
Uranium-238	175	191	A		-8.4	133.70 - 248.30	8		(Bq/kg)
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ERCL01

Public Health Laboratories
1610 N.E. 150 th Srteet
Shoreline WA 98155

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ERMI01

Earthline Technologies
1601 East 21st Street
Ashtabula OH 44004

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	227.4	243	A		-6.4	170.10 - 315.90	11.4		(mg/kg)
Beryllium	51.6	70.3	W		-26.6	49.20 - 91.38	2.6		(mg/kg)
Cadmium	<2.5								(mg/kg)
Chromium	62.0	66	A		-6.5	46.43 - 86.23	3.1		(mg/kg)
Lead	21.0	24	A		-13.7	17.03 - 31.63	1.0		(mg/kg)
Nickel	76.3	95	A		-19.8	66.56 - 123.62	3.8		(mg/kg)
Selenium	<15								(mg/kg)
Silver	70.2	74.3	A		-5.5	52.00 - 96.56	3.5		(mg/kg)
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	37.6	35	A		7.4	24.50 - 45.50	1.9		(mg/kg)
Zinc	208.6	179	A		16.9	124.96 - 232.06	10.4		(mg/kg)
Cesium-134	85	91.1	A		-6.7	63.77 - 118.43	6		(Bq/kg)
Cesium-137	1230	1240	A		-0.8	868.00 - 1612.00	70		(Bq/kg)
Cobalt-57	99	103	A		-3.9	72.10 - 133.90	6		(Bq/kg)
Cobalt-60	1260	1270	A		-0.8	889.00 - 1651.00	70		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	221	203	A		8.9	142.10 - 263.90	15		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	690	652	A		5.8	456.40 - 847.60	60		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	420	382	A		9.9	267.40 - 496.60	30		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ERMI01

Earthline Technologies
1601 East 21st Street
Ashtabula OH 44004

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

FERM01

Fluor Fernald
P.O. Box 538704
Cincinnati OH 45253

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	23.90667	27	A		-10.7	18.73 - 34.79	0.379710	L	(mg/kg)
Barium	217.4	243	A		-10.5	170.10 - 315.90	1.304190	L	(mg/kg)
Beryllium	63.237	70.3	A		-10.0	49.20 - 91.38	0.64546	L	(mg/kg)
Cadmium	<5								(mg/kg)
Chromium	60.510	66	A		-8.8	46.43 - 86.23	0.781430	L	(mg/kg)
Lead	28.72	24	A		18.0	17.03 - 31.63	0.151070	L	(mg/kg)
Nickel	86.827	95	A		-8.7	66.56 - 123.62	0.41642	L	(mg/kg)
Selenium	<5								(mg/kg)
Silver	70.743	74.3	A		-4.8	52.00 - 96.56	0.876010	L	(mg/kg)
Thallium	14.7	21.3	N		-30.9	14.88 - 27.64	0.06555	L	(mg/kg)
Uranium-Total	14.3	15.4	A		-7.2	10.79 - 20.03	0.2		(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	36.15	35	A		3.3	24.50 - 45.50	0.42006	L	(mg/kg)
Zinc	152.83	179	A		-14.4	124.96 - 232.06	13.15561		(mg/kg)
Cesium-134	78.9	91.1	A		-13.4	63.77 - 118.43	3.4		(Bq/kg)
Cesium-137	1203	1240	A		-3.0	868.00 - 1612.00	60		(Bq/kg)
Cobalt-57	95.4	103	A		-7.4	72.10 - 133.90	5.3		(Bq/kg)
Cobalt-60	1263	1270	A		-0.6	889.00 - 1651.00	45		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	214	203	A		5.4	142.10 - 263.90	11		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	99.5	115	A		-13.5	80.50 - 149.50	11.4		(Bq/kg)
Plutonium-239/240	72.5	83.4	A		-13.1	58.38 - 108.42	8.3		(Bq/kg)
Potassium-40	689	652	A		5.7	456.40 - 847.60	38		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	61.5	60	A		2.5	42.00 - 78.00	7.5		(Bq/kg)
Uranium-238	186	191	A		-2.6	133.70 - 248.30	22		(Bq/kg)
Zinc-65	410	382	A		7.3	267.40 - 496.60	23		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

FERM01

Fluor Fernald
P.O. Box 538704
Cincinnati OH 45253

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

GENE01

General Engineering Laboratories Inc.
2040 Savage Road
Charleston SC 29417

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	23.1	27	A		-13.7	18.73 - 34.79			(mg/kg)
Barium	249	243	A		2.5	170.10 - 315.90			(mg/kg)
Beryllium	60.7	70.3	A		-13.6	49.20 - 91.38			(mg/kg)
Cadmium	<5								(mg/kg)
Chromium	65.5	66	A		-1.3	46.43 - 86.23			(mg/kg)
Lead	20.9	24	A		-14.1	17.03 - 31.63			(mg/kg)
Nickel	85.5	95	A		-10.1	66.56 - 123.62			(mg/kg)
Selenium	<5								(mg/kg)
Silver	74.2	74.3	A		-0.1	52.00 - 96.56			(mg/kg)
Thallium	20.5	21.3	A		-3.6	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	42.3	35	W		20.9	24.50 - 45.50			(mg/kg)
Zinc	146	179	A		-18.2	124.96 - 232.06			(mg/kg)
Americium-241	0.592		N	False Positive			0.148		(Bq/kg)
Cesium-134	85.8	91.1	A		-5.8	63.77 - 118.43	4.05		(Bq/kg)
Cesium-137	1304	1240	A		5.2	868.00 - 1612.00	52.6		(Bq/kg)
Cobalt-57	115.8	103	A		12.4	72.10 - 133.90	5.35		(Bq/kg)
Cobalt-60	1397	1270	A		10.0	889.00 - 1651.00	52.8		(Bq/kg)
Iron-55	992	1320	W		-24.8	924.00 - 1716.00	45.0		(Bq/kg)
Manganese-54	233	203	A		14.8	142.10 - 263.90	11.4		(Bq/kg)
Nickel-63	437	550	W		-20.5	385.00 - 715.00	27.5		(Bq/kg)
Plutonium-238	112	115	A		-2.6	80.50 - 149.50	6.78		(Bq/kg)
Plutonium-239/240	82.8	83.4	A		-0.7	58.38 - 108.42	5.30		(Bq/kg)
Potassium-40	744	652	A		14.1	456.40 - 847.60	35		(Bq/kg)
Strontium-90	236	209	A		12.9	146.30 - 271.70	4.88	L	(Bq/kg)
Uranium-234/233	46.7	60	W		-22.2	42.00 - 78.00	4.05		(Bq/kg)
Uranium-238	169	191	A		-11.5	133.70 - 248.30	10.4		(Bq/kg)
Zinc-65	448	382	A		17.3	267.40 - 496.60	23.0		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

GENE01

General Engineering Laboratories Inc.
2040 Savage Road
Charleston SC 29417

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1	N	False Negative		QL - 1044.57	
1,4-Dichlorobenzene	332		N	False Positive			(ug/kg)
Nitrobenzene	552	683.7	A		-0.6	74.08 - 1293.31	(ug/kg)
Naphthalene	453	572.2	A		-0.9	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	504	585.3	A		-0.4	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	517	664.4	A		-0.8	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	616	839.5	A		-0.9	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	520	785.4	A		-1.2	101.96 - 1468.95	(ug/kg)
Fluorene	437	522	A		-0.5	14.22 - 1029.78	(ug/kg)
Diethylphthalate	451	858.2	A		-1.6	108.09 - 1608.43	(ug/kg)
Phenanthrene	269		N	False Positive			(ug/kg)
Anthracene	NR	345.8	N	False Negative		QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	569	685	A		-0.6	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	428	553.5	A		-0.7	43.89 - 1063.12	(ug/kg)
Chrysene	463	598.9	A		-0.7	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	791	1139	A		-0.7	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

GROW01

FGL Environmental
853 Corporation St.
Santa Paula CA 93060

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	19.7	27	W		-26.4	18.73 - 34.79			(mg/kg)
Barium	197	243	A		-18.9	170.10 - 315.90			(mg/kg)
Beryllium	58.5	70.3	A		-16.8	49.20 - 91.38			(mg/kg)
Chromium	54.5	66	A		-17.8	46.43 - 86.23			(mg/kg)
Lead	19.9	24	A		-18.2	17.03 - 31.63			(mg/kg)
Nickel	79.8	95	A		-16.1	66.56 - 123.62			(mg/kg)
Silver	65.1	74.3	A		-12.4	52.00 - 96.56			(mg/kg)
Thallium	16.4	21.3	W		-22.9	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	31.2	35	A		-10.9	24.50 - 45.50			(mg/kg)
Zinc	148	179	A		-17.1	124.96 - 232.06			(mg/kg)
Cesium-134	92.87	91.1	A		1.9	63.77 - 118.43	19.73	H	(Bq/kg)
Cesium-137	1309.44	1240	A		5.6	868.00 - 1612.00	248.03		(Bq/kg)
Cobalt-57	101.08	103	A		-1.9	72.10 - 133.90	10.69		(Bq/kg)
Cobalt-60	1389	1270	A		9.4	889.00 - 1651.00	340	H	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	229.20	203	A		12.9	142.10 - 263.90	50.89	H	(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	701.17	652	A		7.5	456.40 - 847.60	183.02	H	(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	342.25	382	A		-10.4	267.40 - 496.60	88.63	H	(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

GROW01

FGL Environmental
853 Corporation St.
Santa Paula CA 93060

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

HISL99

Hydrometeorological Institute of Slovenia
Vojkova 1b
Ljubljana 1000 Slovenia 1000

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	28.1	27	A		5.0	18.73 - 34.79	2.0		(mg/kg)
Barium	NR	243				170.10 - 315.90			
Beryllium	73.7	70.3	A		4.9	49.20 - 91.38	2.1	L	(mg/kg)
Chromium	113	66	N		70.4	46.43 - 86.23	10		(mg/kg)
Lead	27.9	24	A		14.7	17.03 - 31.63	1.9		(mg/kg)
Nickel	105	95	A		10.4	66.56 - 123.62	6		(mg/kg)
Silver	79.6	74.3	A		7.2	52.00 - 96.56	5.1		(mg/kg)
Thallium	22.4	21.3	A		5.4	14.88 - 27.64	1.5		(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	97.5	35	N		178.6	24.50 - 45.50	4.5		(mg/kg)
Zinc	206	179	A		15.4	124.96 - 232.06	18		(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

HISL99

Hydrometeorological Institute of Slovenia
Vojkova 1b
Ljubljana 1000 Slovenia 1000

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

HWRL01

Lawrence Livermore National Laboratory - CES
7000 East Avenue
Livermore CA 94550

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	15.7	27	N		-41.3	18.73 - 34.79			(mg/kg)
Barium	294.	243	W		21.0	170.10 - 315.90			(mg/kg)
Beryllium	89.8	70.3	W		27.8	49.20 - 91.38			(mg/kg)
Cadmium	<5								(mg/kg)
Chromium	81.3	66	W		22.6	46.43 - 86.23			(mg/kg)
Lead	39.2	24	N		61.1	17.03 - 31.63			(mg/kg)
Nickel	101	95	A		6.2	66.56 - 123.62			(mg/kg)
Selenium	<5								(mg/kg)
Silver	72.5	74.3	A		-2.4	52.00 - 96.56			(mg/kg)
Thallium	<10	21.3	N	False Negative		14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	52.7	35	N		50.6	24.50 - 45.50			(mg/kg)
Zinc	213	179	A		19.3	124.96 - 232.06			(mg/kg)
Americium-241	.633		A				.633		(Bq/kg)
Cesium-134	76.3	91.1	A		-16.2	63.77 - 118.43	3.02		(Bq/kg)
Cesium-137	1064	1240	A		-14.2	868.00 - 1612.00	42.06		(Bq/kg)
Cobalt-57	85.4	103	A		-17.1	72.10 - 133.90	3.38		(Bq/kg)
Cobalt-60	1138	1270	A		-10.4	889.00 - 1651.00	44.99		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	191.5	203	A		-5.7	142.10 - 263.90	7.57		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	105	115	A		-8.7	80.50 - 149.50	6.00		(Bq/kg)
Plutonium-239/240	79.35	83.4	A		-4.9	58.38 - 108.42	4.80		(Bq/kg)
Potassium-40	660.3	652	A		1.3	456.40 - 847.60	26.10		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	51.8	60	A		-13.7	42.00 - 78.00	1.07	L	(Bq/kg)
Uranium-238	179	191	A		-6.3	133.70 - 248.30	6.70		(Bq/kg)
Zinc-65	371	382	A		-2.9	267.40 - 496.60	14.67		(Bq/kg)

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

HWRL01

Lawrence Livermore National Laboratory - CES
7000 East Avenue
Livermore CA 94550

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

IBTN99

Instituto Boliviano de Ciencia y Tech. Nuclear
Avenida 6 de Agosto 2905
La Paz

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	16.805	27	N		-37.2	18.73 - 34.79	1.462		(mg/kg)
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	66.566	66	A		0.4	46.43 - 86.23	4.327		(mg/kg)
Lead	32.938	24	N		35.4	17.03 - 31.63	1.721		(mg/kg)
Nickel	58.116	95	N		-38.9	66.56 - 123.62	3.225		(mg/kg)
Silver	73.778	74.3	A		-0.7	52.00 - 96.56	3.791		(mg/kg)
Thallium	25.155	21.3	A		18.3	14.88 - 27.64	1.306		(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	173.693	179	A		-2.7	124.96 - 232.06	9.327		(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

IBTN99

Instituto Boliviano de Ciencia y Tech. Nuclear
Avenida 6 de Agosto 2905
La Paz

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

IPEN99

Instituto Peruano de Energia Nuclear
Av. Canada # 1470
Lima - 41 Lima -

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	126.92	91.1	N		39.3	63.77 - 118.43	3.81		(Bq/kg)
Cesium-137	1560.64	1240	W		25.9	868.00 - 1612.00	46.48	L	(Bq/kg)
Cobalt-57	161.39	103	N		56.7	72.10 - 133.90	4.84	L	(Bq/kg)
Cobalt-60	1654.54	1270	N		30.3	889.00 - 1651.00	49.64		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	244.54	203	W		20.5	142.10 - 263.90	7.34		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	790.58	652	W		21.3	456.40 - 847.60	23.72		(Bq/kg)
Strontium-90	513.67	209	N		145.8	146.30 - 271.70	31.41		(Bq/kg)
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	642.95	382	N		68.3	267.40 - 496.60	19.29		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

IPEN99

Instituto Peruano de Energia Nuclear
Av. Canada # 1470
Lima - 41 Lima -

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

LAWR01

LAWRENCE BERKELEY NATIONAL LABORATORY
1 CYCLOTRON DR.
BERKELEY CA 94720

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	67	91.1	W		-26.5	63.77 - 118.43	7		(Bq/kg)
Cesium-137	1173	1240	A		-5.4	868.00 - 1612.00	85		(Bq/kg)
Cobalt-57	48	103	N		-53.4	72.10 - 133.90	4		(Bq/kg)
Cobalt-60	1144	1270	A		-9.9	889.00 - 1651.00	74		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	106	203	N		-47.8	142.10 - 263.90	8		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	603	652	A		-7.5	456.40 - 847.60	53		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	176	382	N		-53.9	267.40 - 496.60	13		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

LAWR01

LAWRENCE BERKELEY NATIONAL LABORATORY
1 CYCLOTRON DR.
BERKELEY CA 94720

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

LAWR02

Lawrence Livermore National Laboratory
7000 East Avenue
Livermore CA 94550

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	85.9	91.1	A		-5.7	63.77 - 118.43	1.2	L	(Bq/kg)
Cesium-137	1174.8	1240	A		-5.3	868.00 - 1612.00	3.6	L	(Bq/kg)
Cobalt-57	99.7	103	A		-3.2	72.10 - 133.90	1.6	L	(Bq/kg)
Cobalt-60	1278.9	1270	A		0.7	889.00 - 1651.00	3.1	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	204.6	203	A		0.8	142.10 - 263.90	3.3	L	(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	113.6	115	A		-1.2	80.50 - 149.50	5.5		(Bq/kg)
Plutonium-239/240	81.5	83.4	A		-2.3	58.38 - 108.42	4.0		(Bq/kg)
Potassium-40	644.1	652	A		-1.2	456.40 - 847.60	11.7	L	(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	389.5	382	A		2.0	267.40 - 496.60	8.5	L	(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

LAWR02

Lawrence Livermore National Laboratory
7000 East Avenue
Livermore CA 94550

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

LOCK01

BBWI Analytical Laboratories Department
P.O. Box 1625
Idaho Falls ID 83415

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	23.4	27	A		-12.6	18.73 - 34.79	4.7	H	(mg/kg)
Barium	213	243	A		-12.3	170.10 - 315.90	43	H	(mg/kg)
Beryllium	64.9	70.3	A		-7.7	49.20 - 91.38	13.0	H	(mg/kg)
Chromium	56.1	66	A		-15.4	46.43 - 86.23	11.2		(mg/kg)
Lead	22.8	24	A		-6.3	17.03 - 31.63	4.6	H	(mg/kg)
Nickel	86.6	95	A		-8.9	66.56 - 123.62	17.3		(mg/kg)
Silver	71.7	74.3	A		-3.5	52.00 - 96.56	14.3		(mg/kg)
Thallium	17.6	21.3	A		-17.2	14.88 - 27.64	3.5		(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	29.4	35	A		-16.0	24.50 - 45.50	5.9	H	(mg/kg)
Zinc	161	179	A		-9.8	124.96 - 232.06	32		(mg/kg)
Americium-241	3.85		N	False Positive			0.91		(Bq/kg)
Cesium-134	79	91.1	A		-13.3	63.77 - 118.43	3		(Bq/kg)
Cesium-137	1140	1240	A		-8.1	868.00 - 1612.00	38		(Bq/kg)
Cobalt-57	91	103	A		-11.6	72.10 - 133.90	4		(Bq/kg)
Cobalt-60	1230	1270	A		-3.2	889.00 - 1651.00	44		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	202	203	A		-0.5	142.10 - 263.90	8		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	111	115	A		-3.5	80.50 - 149.50	12		(Bq/kg)
Plutonium-239/240	81.8	83.4	A		-1.9	58.38 - 108.42	9.0		(Bq/kg)
Potassium-40	645	652	A		-1.1	456.40 - 847.60	53		(Bq/kg)
Strontium-90	230	209	A		10.0	146.30 - 271.70	38		(Bq/kg)
Uranium-234/233	168	60	N		180.0	42.00 - 78.00	26		(Bq/kg)
Uranium-238	171	191	A		-10.5	133.70 - 248.30	29		(Bq/kg)
Zinc-65	403	382	A		5.5	267.40 - 496.60	21		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

LOCK01

BBWI Analytical Laboratories Department
P.O. Box 1625
Idaho Falls ID 83415

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	250	520.1	A		-1.5	QL - 1044.57	(ug/kg)
Nitrobenzene	490	683.7	A		-1.0	74.08 - 1293.31	(ug/kg)
Naphthalene	550	572.2	A		-0.2	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	440	585.3	A		-0.8	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	560	664.4	A		-0.5	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	690	839.5	A		-0.6	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	650	785.4	A		-0.6	101.96 - 1468.95	(ug/kg)
Fluorene	260	522	A		-1.5	14.22 - 1029.78	(ug/kg)
Diethylphthalate	690	858.2	A		-0.7	108.09 - 1608.43	(ug/kg)
Anthracene	150	345.8	A		-1.2	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	540	685	A		-0.8	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	430	553.5	A		-0.7	43.89 - 1063.12	(ug/kg)
Chrysene	480	598.9	A		-0.6	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	880	1139	A		-0.5	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

LOCK03

RADIATION MEASUREMENTS LABORATORY/AEDL
INEEL
Idaho Falls ID 83415

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	.52		A				.18		(Bq/kg)
Cesium-134	91	91.1	A		-0.1	63.77 - 118.43	7		(Bq/kg)
Cesium-137	1200	1240	A		-3.2	868.00 - 1612.00	100		(Bq/kg)
Cobalt-57	103	103	A		0.0	72.10 - 133.90	10		(Bq/kg)
Cobalt-60	1340	1270	A		5.5	889.00 - 1651.00	100		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	210	203	A		3.4	142.10 - 263.90	20		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	110	115	A		-4.3	80.50 - 149.50	6		(Bq/kg)
Plutonium-239/240	76.8	83.4	A		-7.9	58.38 - 108.42	4.5		(Bq/kg)
Potassium-40	660	652	A		1.2	456.40 - 847.60	60		(Bq/kg)
Strontium-90	208	209	A		-0.5	146.30 - 271.70	9		(Bq/kg)
Uranium-234/233	60.0	60	A		0.0	42.00 - 78.00	4.0		(Bq/kg)
Uranium-238	185	191	A		-3.1	133.70 - 248.30	12		(Bq/kg)
Zinc-65	400	382	A		4.7	267.40 - 496.60	30		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

LOCK03

RADIATION MEASUREMENTS LABORATORY/AEDL
INEEL
Idaho Falls ID 83415

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

LPTO99

Center for Environmental Chemistry SPA "Typhoon"
Lenin av. 82
Obninsk Kaluga re 24902

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	25.5	27	A		-4.7	18.73 - 34.79			(mg/kg)
Barium	880	243	N		262.1	170.10 - 315.90	80		(mg/kg)
Beryllium	67.4	70.3	A		-4.1	49.20 - 91.38			(mg/kg)
Chromium	99.7	66	N		50.3	46.43 - 86.23			(mg/kg)
Lead	29.2	24	W		20.0	17.03 - 31.63			(mg/kg)
Nickel	92.1	95	A		-3.1	66.56 - 123.62			(mg/kg)
Silver	33.7	74.3	N		-54.6	52.00 - 96.56			(mg/kg)
Thallium	21.9	21.3	A		3.0	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	135	35	N		285.7	24.50 - 45.50			(mg/kg)
Zinc	221	179	W		23.8	124.96 - 232.06			(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

LPTO99

Center for Environmental Chemistry SPA "Typhoon"
Lenin av. 82
Obninsk Kaluga re 24902

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	670	520.1	A		0.9	QL - 1044.57	(ug/kg)
Nitrobenzene	770	683.7	A		0.4	74.08 - 1293.31	(ug/kg)
Naphthalene	720	572.2	A		1.1	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	820	585.3	A		1.3	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	220	306.2	A		-0.8	QL - 635.91	(ug/kg)
2-Chloronaphthalene	860	664.4	A		1.0	86.98 - 1241.75	(ug/kg)
2-Nitroanaline	27		W	False Positive			(ug/kg)
2,6-Dinitrotoluene	750	839.5	A		-0.4	123.53 - 1555.44	(ug/kg)
3-Nitroanaline	83		W	False Positive			(ug/kg)
2,4-Dinitrotoluene	650	785.4	A		-0.6	101.96 - 1468.95	(ug/kg)
Fluorene	445	522	A		-0.5	14.22 - 1029.78	(ug/kg)
Diethylphthalate	840	858.2	A		-0.1	108.09 - 1608.43	(ug/kg)
4-Nitroanaline	95		W	False Positive			(ug/kg)
Anthracene	273	345.8	A		-0.4	QL - 855.60	(ug/kg)
1,4-Dinitrobenzene	260			Not Evaluated			(ug/kg)
1,3-Dinitrobenzene	305	508	A		-0.5	QL - 1695.91	(ug/kg)
1,2-Dinitrobenzene	296			Not Evaluated			(ug/kg)
Pyrene	660	685	A		-0.1	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	770	553.5	A		1.3	43.89 - 1063.12	(ug/kg)
Chrysene	870	598.9	A		1.4	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	1100	5166	A		-1.4	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	600	1139	A		-1.1	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

MART01

USEC, Inc.
Lab COC, Bldg. X-710, Rm 222
Piketon OH 45661

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	23.8	27	A		-11.1	18.73 - 34.79			(mg/kg)
Barium	217	243	A		-10.7	170.10 - 315.90			(mg/kg)
Beryllium	62.5	70.3	A		-11.1	49.20 - 91.38			(mg/kg)
Chromium	61.9	66	A		-6.7	46.43 - 86.23			(mg/kg)
Lead	22.7	24	A		-6.7	17.03 - 31.63			(mg/kg)
Nickel	87.7	95	A		-7.8	66.56 - 123.62			(mg/kg)
Silver	NR	74.3				52.00 - 96.56			
Thallium	23.1	21.3	A		8.7	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	39.5	35	A		12.9	24.50 - 45.50			(mg/kg)
Zinc	169	179	A		-5.3	124.96 - 232.06			(mg/kg)
Americium-241	4.46		N	False Positive			1		(Bq/kg)
Cesium-134	79	91.1	A		-13.3	63.77 - 118.43	6		(Bq/kg)
Cesium-137	1114	1240	A		-10.2	868.00 - 1612.00	28	L	(Bq/kg)
Cobalt-57	92	103	A		-10.7	72.10 - 133.90	3		(Bq/kg)
Cobalt-60	1224	1270	A		-3.6	889.00 - 1651.00	16	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	207	203	A		2.0	142.10 - 263.90	18		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	124	115	A		7.8	80.50 - 149.50	14		(Bq/kg)
Plutonium-239/240	86.5	83.4	A		3.7	58.38 - 108.42	10		(Bq/kg)
Potassium-40	620	652	A		-4.9	456.40 - 847.60	38		(Bq/kg)
Strontium-90	161	209	W		-23.0	146.30 - 271.70	8.5		(Bq/kg)
Uranium-234/233	50.2	60	A		-16.3	42.00 - 78.00	3.5		(Bq/kg)
Uranium-238	171	191	A		-10.5	133.70 - 248.30	13.3		(Bq/kg)
Zinc-65	394	382	A		3.1	267.40 - 496.60	27		(Bq/kg)

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

MART01

USEC, Inc.
Lab COC, Bldg. X-710, Rm 222
Piketon OH 45661

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	910	683.7	A		1.1	74.08 - 1293.31	(ug/kg)
Naphthalene	600	572.2	A		0.2	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	550	585.3	A		-0.2	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	890	664.4	A		1.2	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	1200	839.5	A		1.5	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	1100	785.4	A		1.4	101.96 - 1468.95	(ug/kg)
Fluorene	570	522	A		0.3	14.22 - 1029.78	(ug/kg)
Diethylphthalate	1400	858.2	W		2.2	108.09 - 1608.43	(ug/kg)
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Di-n-butylphthalate	700						(ug/kg)
Pyrene	870	685	A		1.0	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	690	553.5	A		0.8	43.89 - 1063.12	(ug/kg)
Chrysene	760	598.9	A		0.8	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	6300	5166	A		0.4	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1400	1139	A		0.5	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

MART02

United States Enrichment Corporation
5600 Hobbs Road
Paducah KY 42001

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	42.5	27	N		58.8	18.73 - 34.79			(mg/kg)
Barium	229	243	A		-5.8	170.10 - 315.90			(mg/kg)
Beryllium	63.2	70.3	A		-10.1	49.20 - 91.38			(mg/kg)
Chromium	72.1	66	A		8.7	46.43 - 86.23			(mg/kg)
Lead	23.3	24	A		-4.2	17.03 - 31.63			(mg/kg)
Nickel	108	95	A		13.6	66.56 - 123.62			(mg/kg)
Silver	75.1	74.3	A		1.1	52.00 - 96.56			(mg/kg)
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	41.6	35	A		18.9	24.50 - 45.50			(mg/kg)
Zinc	181	179	A		1.4	124.96 - 232.06			(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	1300	1240	A		4.8	868.00 - 1612.00	56.0		(Bq/kg)
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	1420	1270	A		11.8	889.00 - 1651.00	24.5	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	731.0	652	A		12.1	456.40 - 847.60	31.3		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

MART02

United States Enrichment Corporation
5600 Hobbs Road
Paducah KY 42001

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

MART03

Radioactive Material Analysis Laboratory
ORNL
Oak Ridge TN 37831

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	30.5	27	A		14.0	18.73 - 34.79	3.1		(mg/kg)
Barium	289	243	A		18.9	170.10 - 315.90	29		(mg/kg)
Beryllium	68.7	70.3	A		-2.3	49.20 - 91.38	6.9		(mg/kg)
Cadmium	<3.36								(mg/kg)
Chromium	83.1	66	W		25.3	46.43 - 86.23	8.3		(mg/kg)
Lead	24.7	24	A		1.5	17.03 - 31.63	2.5		(mg/kg)
Nickel	98.2	95	A		3.3	66.56 - 123.62	9.8		(mg/kg)
Selenium	2.74						0.27		(mg/kg)
Silver	NR	74.3				52.00 - 96.56			
Thallium	23.3	21.3	A		9.6	14.88 - 27.64	2.3		(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	51.7	35	N		47.7	24.50 - 45.50	5.2		(mg/kg)
Zinc	NR	179				124.96 - 232.06			
Americium-241	0.66		A				0.36		(Bq/kg)
Cesium-134	72	91.1	W		-21.0	63.77 - 118.43	3		(Bq/kg)
Cesium-137	1090	1240	A		-12.1	868.00 - 1612.00	100		(Bq/kg)
Cobalt-57	88	103	A		-14.6	72.10 - 133.90	3		(Bq/kg)
Cobalt-60	1170	1270	A		-7.9	889.00 - 1651.00	100		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	190	203	A		-6.4	142.10 - 263.90	10		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	100	115	A		-13.0	80.50 - 149.50	10		(Bq/kg)
Plutonium-239/240	77	83.4	A		-7.7	58.38 - 108.42	7		(Bq/kg)
Potassium-40	620	652	A		-4.9	456.40 - 847.60	30		(Bq/kg)
Strontium-90	1530	209	N		632.1	146.30 - 271.70	100		(Bq/kg)
Uranium-234/233	55	60	A		-8.3	42.00 - 78.00	3		(Bq/kg)
Uranium-238	180	191	A		-5.8	133.70 - 248.30	10		(Bq/kg)
Zinc-65	380	382	A		-0.5	267.40 - 496.60	20		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

MART03

Radioactive Material Analysis Laboratory
ORNL
Oak Ridge TN 37831

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

MDPH01

MDPH-Radiation Control Program
MERL-Room 002
Jamaica Plain MA 02130

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	83	91.1	A		-8.9	63.77 - 118.43	2	L	(Bq/kg)
Cesium-137	1136	1240	A		-8.4	868.00 - 1612.00	28	L	(Bq/kg)
Cobalt-57	93	103	A		-9.7	72.10 - 133.90	3		(Bq/kg)
Cobalt-60	1261	1270	A		-0.7	889.00 - 1651.00	21	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	198	203	A		-2.5	142.10 - 263.90	6		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	622	652	A		-4.6	456.40 - 847.60	26		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	33	60	N		-45.0	42.00 - 78.00	3		(Bq/kg)
Uranium-238	158	191	A		-17.3	133.70 - 248.30	9		(Bq/kg)
Zinc-65	409	382	A		7.1	267.40 - 496.60	13		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

MDPH01

MDPH-Radiation Control Program
MERL-Room 002
Jamaica Plain MA 02130

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

MOUN01

Mountain States Analytical, Inc.
1645 West 2200 South
Salt Lake City UT 84119

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	28.3	27	A		5.8	18.73 - 34.79	1.8		(mg/kg)
Barium	272	243	A		11.9	170.10 - 315.90	4	L	(mg/kg)
Beryllium	75.2	70.3	A		7.0	49.20 - 91.38	0.8	L	(mg/kg)
Cadmium	0.34						0.28		(mg/kg)
Chromium	73.6	66	A		11.0	46.43 - 86.23	0.9	L	(mg/kg)
Lead	24	24	A		-1.4	17.03 - 31.63	3		(mg/kg)
Nickel	99.9	95	A		5.1	66.56 - 123.62	1.6	L	(mg/kg)
Silver	79.7	74.3	A		7.3	52.00 - 96.56	1.3	L	(mg/kg)
Thallium	21	21.3	A		-1.2	14.88 - 27.64	2		(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	51.5	35	N		47.1	24.50 - 45.50	0.5	L	(mg/kg)
Zinc	182	179	A		2.0	124.96 - 232.06	5	L	(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

MOUN01

Mountain States Analytical, Inc.
1645 West 2200 South
Salt Lake City UT 84119

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	545	520.1	A		0.1	QL - 1044.57	(ug/kg)
Nitrobenzene	804	683.7	A		0.6	74.08 - 1293.31	(ug/kg)
Naphthalene	674	572.2	A		0.7	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	721	585.3	A		0.7	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	356	306.2	A		0.5	QL - 635.91	(ug/kg)
2-Chloronaphthalene	862	664.4	A		1.0	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	1060	839.5	A		0.9	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	984	785.4	A		0.9	101.96 - 1468.95	(ug/kg)
Fluorene	726	522	A		1.2	14.22 - 1029.78	(ug/kg)
Diethylphthalate	1080	858.2	A		0.9	108.09 - 1608.43	(ug/kg)
Anthracene	427	345.8	A		0.5	QL - 855.60	(ug/kg)
1,4-Dinitrobenzene	1100			Not Evaluated			(ug/kg)
1,3-Dinitrobenzene	954	508	A		1.1	QL - 1695.91	(ug/kg)
Pyrene	715	685	A		0.2	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	665	553.5	A		0.7	43.89 - 1063.12	(ug/kg)
Chrysene	758	598.9	A		0.8	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	5960	5166	A		0.3	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1750	1139	A		1.2	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NARL01

National Air and Radiation Environmental Laboratory
540 S. Morris Ave.
Montgomery AL 36115

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	15.5	27	N		-42.1	18.73 - 34.79			(mg/kg)
Barium	253	243	A		4.1	170.10 - 315.90			(mg/kg)
Beryllium	70.3	70.3	A		0.0	49.20 - 91.38			(mg/kg)
Chromium	72.1	66	A		8.7	46.43 - 86.23			(mg/kg)
Lead	27.5	24	A		13.0	17.03 - 31.63			(mg/kg)
Nickel	101	95	A		6.2	66.56 - 123.62			(mg/kg)
Silver	76.3	74.3	A		2.7	52.00 - 96.56			(mg/kg)
Thallium	23.5	21.3	A		10.5	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	43.3	35	W		23.7	24.50 - 45.50			(mg/kg)
Zinc	188	179	A		5.3	124.96 - 232.06			(mg/kg)
Cesium-134	88.5	91.1	A		-2.9	63.77 - 118.43	2.7		(Bq/kg)
Cesium-137	1304	1240	A		5.2	868.00 - 1612.00	37	L	(Bq/kg)
Cobalt-57	103.7	103	A		0.7	72.10 - 133.90	3.2		(Bq/kg)
Cobalt-60	1352	1270	A		6.5	889.00 - 1651.00	3.2	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	224.4	203	A		10.5	142.10 - 263.90	6.8		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	109	115	A		-5.2	80.50 - 149.50	5.8		(Bq/kg)
Plutonium-239/240	78.2	83.4	A		-6.2	58.38 - 108.42	4.5		(Bq/kg)
Potassium-40	697	652	A		6.9	456.40 - 847.60	22		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	53.6	60	A		-10.7	42.00 - 78.00	3.6		(Bq/kg)
Uranium-238	168.6	191	A		-11.7	133.70 - 248.30	7.4		(Bq/kg)
Zinc-65	436	382	A		14.1	267.40 - 496.60	14		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NARL01

National Air and Radiation Environmental Laboratory
540 S. Morris Ave.
Montgomery AL 36115

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	404	520.1	A		-0.7	QL - 1044.57	(ug/kg)
Nitrobenzene	656	683.7	A		-0.1	74.08 - 1293.31	(ug/kg)
Naphthalene	498	572.2	A		-0.5	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	586	585.3	A		0.0	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	267	306.2	A		-0.4	QL - 635.91	(ug/kg)
2-Chloronaphthalene	467	664.4	A		-1.0	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	479	839.5	A		-1.5	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	568	785.4	A		-1.0	101.96 - 1468.95	(ug/kg)
Fluorene	433	522	A		-0.5	14.22 - 1029.78	(ug/kg)
Diethylphthalate	687	858.2	A		-0.7	108.09 - 1608.43	(ug/kg)
Anthracene	175	345.8	A		-1.0	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Di-n-butylphthalate	334						(ug/kg)
Pyrene	472	685	A		-1.2	132.99 - 1236.97	(ug/kg)
Butylbenzylphthalate	325						(ug/kg)
Benzo(a)anthracene	395	553.5	A		-0.9	43.89 - 1063.12	(ug/kg)
Chrysene	448	598.9	A		-0.8	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	10900	5166	A		1.9	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	860	1139	A		-0.6	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NESI01

BWXT Services-Nuclear Environmental Laboratory Servi
Lynchburg Technology Center
Lynchburg VA 24504

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	20.1	27	W		-24.9	18.73 - 34.79			(mg/kg)
Barium	232	243	A		-4.5	170.10 - 315.90			(mg/kg)
Beryllium	60.0	70.3	A		-14.6	49.20 - 91.38			(mg/kg)
Chromium	71.3	66	A		7.5	46.43 - 86.23			(mg/kg)
Lead	42.1	24	N		73.0	17.03 - 31.63			(mg/kg)
Nickel	92.1	95	A		-3.1	66.56 - 123.62			(mg/kg)
Silver	58.1	74.3	W		-21.8	52.00 - 96.56			(mg/kg)
Thallium	22.1	21.3	A		4.0	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	47.5	35	N		35.7	24.50 - 45.50			(mg/kg)
Zinc	176	179	A		-1.4	124.96 - 232.06			(mg/kg)
Cesium-134	84.4	91.1	A		-7.4	63.77 - 118.43	8.6		(Bq/kg)
Cesium-137	1230	1240	A		-0.8	868.00 - 1612.00	122		(Bq/kg)
Cobalt-57	101	103	A		-1.9	72.10 - 133.90	9		(Bq/kg)
Cobalt-60	1390	1270	A		9.4	889.00 - 1651.00	147		(Bq/kg)
Iron-55	609	1320	N		-53.9	924.00 - 1716.00	73		(Bq/kg)
Manganese-54	215	203	A		5.9	142.10 - 263.90	26		(Bq/kg)
Nickel-63	349	550	N		-36.5	385.00 - 715.00	67		(Bq/kg)
Plutonium-238	86.4	115	W		-24.9	80.50 - 149.50	22.6	H	(Bq/kg)
Plutonium-239/240	74.1	83.4	A		-11.2	58.38 - 108.42	20.9	H	(Bq/kg)
Potassium-40	684	652	A		4.9	456.40 - 847.60	75		(Bq/kg)
Strontium-90	151	209	W		-27.8	146.30 - 271.70	15		(Bq/kg)
Uranium-234/233	59.2	60	A		-1.3	42.00 - 78.00	6.8		(Bq/kg)
Uranium-238	212	191	A		11.0	133.70 - 248.30	19		(Bq/kg)
Zinc-65	448	382	A		17.3	267.40 - 496.60	46		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NESI01

BWXT Services-Nuclear Environmental Laboratory Servi
Lynchburg Technology Center
Lynchburg VA 24504

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	530	520.1	A		0.1	QL - 1044.57	(ug/kg)
Nitrobenzene	702	683.7	A		0.1	74.08 - 1293.31	(ug/kg)
Naphthalene	613	572.2	A		0.3	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	576	585.3	A		-0.1	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	286	306.2	A		-0.2	QL - 635.91	(ug/kg)
2-Chloronaphthalene	770	664.4	A		0.5	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	957	839.5	A		0.5	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	840	785.4	A		0.2	101.96 - 1468.95	(ug/kg)
Fluorene	600	522	A		0.5	14.22 - 1029.78	(ug/kg)
Diethylphthalate	961	858.2	A		0.4	108.09 - 1608.43	(ug/kg)
Anthracene	424	345.8	A		0.5	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	840	508	A		0.8	QL - 1695.91	(ug/kg)
Pyrene	850	685	A		0.9	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	712	553.5	A		0.9	43.89 - 1063.12	(ug/kg)
Chrysene	795	598.9	A		1.0	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	10600	5166	A		1.8	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1460	1139	A		0.7	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NFSI01

Nuclear Fuel Services, Inc
1205 Banner Hill Rd
Erwin TN 37560

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	-2.800		A				32.40		(Bq/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	9.069E+04	60	N		151050.0	42.00 - 78.00	9.109E+03		(Bq/kg)
Uranium-238	68.00	191	N		-64.4	133.70 - 248.30	900.2	H	(Bq/kg)
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NFSI01

Nuclear Fuel Services, Inc
1205 Banner Hill Rd
Erwin TN 37560

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NMLA01

Assaiggi Analytical Laboratories
7300 Jefferson NE
Albuquerque NM 87109

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	22.9	27	A		-14.4	18.73 - 34.79			(mg/kg)
Barium	266	243	A		9.5	170.10 - 315.90			(mg/kg)
Beryllium	68	70.3	A		-3.3	49.20 - 91.38			(mg/kg)
Cadmium	0.620								(mg/kg)
Chromium	55.0	66	A		-17.1	46.43 - 86.23			(mg/kg)
Lead	23.4	24	A		-3.8	17.03 - 31.63			(mg/kg)
Nickel	83.1	95	A		-12.6	66.56 - 123.62			(mg/kg)
Selenium	0.709								(mg/kg)
Silver	43.5	74.3	N		-41.4	52.00 - 96.56			(mg/kg)
Thallium	21.4	21.3	A		0.7	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	28.7	35	A		-18.0	24.50 - 45.50			(mg/kg)
Zinc	208	179	A		16.5	124.96 - 232.06			(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NMLA01

Assaiggi Analytical Laboratories
7300 Jefferson NE
Albuquerque NM 87109

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	550	520.1	A		0.2	QL - 1044.57	(ug/kg)
Nitrobenzene	710	683.7	A		0.1	74.08 - 1293.31	(ug/kg)
Naphthalene	630	572.2	A		0.4	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	490	585.3	A		-0.5	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	700	664.4	A		0.2	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	900	839.5	A		0.3	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	780	785.4	A		0.0	101.96 - 1468.95	(ug/kg)
Fluorene	530	522	A		0.0	14.22 - 1029.78	(ug/kg)
Diethylphthalate	760	858.2	A		-0.4	108.09 - 1608.43	(ug/kg)
Anthracene	360	345.8	A		0.1	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	610	685	A		-0.4	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	500	553.5	A		-0.3	43.89 - 1063.12	(ug/kg)
Chrysene	530	598.9	A		-0.4	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	3600	5166	A		-0.5	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	950	1139	A		-0.4	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NRCQ01

NRC Region I
475 Allendale Road
King of Prussia PA 19406

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	97	91.1	A		6.5	63.77 - 118.43	6		(Bq/kg)
Cesium-137	1200	1240	A		-3.2	868.00 - 1612.00	70		(Bq/kg)
Cobalt-57	105	103	A		1.9	72.10 - 133.90	6		(Bq/kg)
Cobalt-60	1360	1270	A		7.1	889.00 - 1651.00	80		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	227	203	A		11.8	142.10 - 263.90	14		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	720	652	A		10.4	456.40 - 847.60	50		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	410	382	A		7.3	267.40 - 496.60	30		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NRCQ01

NRC Region I
475 Allendale Road
King of Prussia PA 19406

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NRLL99

National Radiation Laboratory
108 Victoria St
Christchurch Christchu 8000

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	75.9	91.1	A		-16.7	63.77 - 118.43	3.0		(Bq/kg)
Cesium-137	1222	1240	A		-1.5	868.00 - 1612.00	20	L	(Bq/kg)
Cobalt-57	104.8	103	A		1.7	72.10 - 133.90	3.5		(Bq/kg)
Cobalt-60	1300	1270	A		2.4	889.00 - 1651.00	23	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	212.2	203	A		4.5	142.10 - 263.90	4.4	L	(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	631	652	A		-3.2	456.40 - 847.60	14	L	(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	403	382	A		5.5	267.40 - 496.60	14		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

NRLL99

National Radiation Laboratory
108 Victoria St
Christchurch Christchu 8000

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

OBGL01

O'Brien & Gere Laboratories, Inc.
PO Box 4942
East Syracuse NY 13221

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	26.9	27	A		0.5	18.73 - 34.79	0.6	L	(mg/kg)
Barium	234	243	A		-3.7	170.10 - 315.90	0.6	L	(mg/kg)
Beryllium	69.6	70.3	A		-1.0	49.20 - 91.38	0.6	L	(mg/kg)
Cadmium	<0.5						0.6		(mg/kg)
Chromium	68.8	66	A		3.7	46.43 - 86.23	0.6	L	(mg/kg)
Lead	23.8	24	A		-2.2	17.03 - 31.63	0.6	L	(mg/kg)
Nickel	99.1	95	A		4.2	66.56 - 123.62	0.6	L	(mg/kg)
Selenium	<0.5						0.8		(mg/kg)
Silver	78.8	74.3	A		6.1	52.00 - 96.56	0.1	L	(mg/kg)
Thallium	22.8	21.3	A		7.2	14.88 - 27.64	0.6	L	(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	40.6	35	A		16.0	24.50 - 45.50	0.6	L	(mg/kg)
Zinc	185	179	A		3.6	124.96 - 232.06	0.6	L	(mg/kg)
Cesium-134	8.86E+01	91.1	A		-2.7	63.77 - 118.43	1.14E+01		(Bq/kg)
Cesium-137	1.14E+03	1240	A		-8.1	868.00 - 1612.00	2.11E+02		(Bq/kg)
Cobalt-57	1.17E+02	103	A		13.6	72.10 - 133.90	1.79E+01		(Bq/kg)
Cobalt-60	1.22E+03	1270	A		-3.9	889.00 - 1651.00	1.59E+02		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	2.40E+02	203	A		18.2	142.10 - 263.90	4.03E+01		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	1.14E+02	115	A		-0.9	80.50 - 149.50	3.42E+01	H	(Bq/kg)
Plutonium-239/240	8.05E+01	83.4	A		-3.5	58.38 - 108.42	2.47E+01	H	(Bq/kg)
Potassium-40	7.14E+02	652	A		9.5	456.40 - 847.60	1.39E+02		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	6.51E+01	60	A		8.5	42.00 - 78.00	2.06E+01	H	(Bq/kg)
Uranium-238	1.78E+02	191	A		-6.8	133.70 - 248.30	5.39E+01	H	(Bq/kg)
Zinc-65	4.51E+02	382	A		18.1	267.40 - 496.60	8.44E+01		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

OBGL01

O'Brien & Gere Laboratories, Inc.
PO Box 4942
East Syracuse NY 13221

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	440	683.7	A		-1.2	74.08 - 1293.31	(ug/kg)
Naphthalene	410	572.2	A		-1.2	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	360	585.3	A		-1.2	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	490	664.4	A		-0.9	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	600	839.5	A		-1.0	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	610	785.4	A		-0.8	101.96 - 1468.95	(ug/kg)
Fluorene	410	522	A		-0.7	14.22 - 1029.78	(ug/kg)
Diethylphthalate	650	858.2	A		-0.8	108.09 - 1608.43	(ug/kg)
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	490	685	A		-1.1	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	380	553.5	A		-1.0	43.89 - 1063.12	(ug/kg)
Chrysene	470	598.9	A		-0.7	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	9000	5166	A		1.3	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	920	1139	A		-0.4	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ORIS01

ORISE/ESSAP
PO Box 117
Oak Ridge TN 37831

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	1.37		A				0.57		(Bq/kg)
Cesium-134	86.4	91.1	A		-5.2	63.77 - 118.43	4.9		(Bq/kg)
Cesium-137	1143	1240	A		-7.8	868.00 - 1612.00	14	L	(Bq/kg)
Cobalt-57	95.9	103	A		-6.9	72.10 - 133.90	3.7		(Bq/kg)
Cobalt-60	1274	1270	A		0.3	889.00 - 1651.00	41		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	204.7	203	A		0.8	142.10 - 263.90	7.9		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	110.2	115	A		-4.2	80.50 - 149.50	9.6		(Bq/kg)
Plutonium-239/240	76.4	83.4	A		-8.4	58.38 - 108.42	7.1		(Bq/kg)
Potassium-40	614	652	A		-5.8	456.40 - 847.60	33		(Bq/kg)
Strontium-90	184	209	A		-12.0	146.30 - 271.70	18		(Bq/kg)
Uranium-234/233	56.2	60	A		-6.3	42.00 - 78.00	5.4		(Bq/kg)
Uranium-238	180	191	A		-5.8	133.70 - 248.30	16		(Bq/kg)
Zinc-65	379	382	A		-0.8	267.40 - 496.60	19		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ORIS01

ORISE/ESSAP
PO Box 117
Oak Ridge TN 37831

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

OTLI01

Outreach Technologies, Inc.
311 N. Aspen
Broken Arrow OK 74012

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	23.6	27	A		-11.8	18.73 - 34.79			(mg/kg)
Barium	224	243	A		-7.8	170.10 - 315.90			(mg/kg)
Beryllium	68.0	70.3	A		-3.3	49.20 - 91.38			(mg/kg)
Cadmium	1.2								(mg/kg)
Chromium	89.9	66	N		35.5	46.43 - 86.23			(mg/kg)
Lead	16.9	24	N		-30.5	17.03 - 31.63			(mg/kg)
Nickel	90.3	95	A		-5.0	66.56 - 123.62			(mg/kg)
Selenium	< 0.8								(mg/kg)
Silver	46.8	74.3	N		-37.0	52.00 - 96.56			(mg/kg)
Thallium	47.7	21.3	N		124.4	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	35.5	35	A		1.4	24.50 - 45.50			(mg/kg)
Zinc	190	179	A		6.4	124.96 - 232.06			(mg/kg)
Cesium-134	76.3	91.1	A		-16.2	63.77 - 118.43	6.8		(Bq/kg)
Cesium-137	1230	1240	A		-0.8	868.00 - 1612.00	42.6		(Bq/kg)
Cobalt-57	62.9	103	N		-38.9	72.10 - 133.90	6.6		(Bq/kg)
Cobalt-60	1420	1270	A		11.8	889.00 - 1651.00	28.9	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	198	203	A		-2.5	142.10 - 263.90	23.8		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	80.0	115	N		-30.4	80.50 - 149.50	3.7		(Bq/kg)
Plutonium-239/240	65.9	83.4	W		-21.0	58.38 - 108.42	6.9		(Bq/kg)
Potassium-40	673	652	A		3.2	456.40 - 847.60	63.6		(Bq/kg)
Strontium-90	204	209	A		-2.4	146.30 - 271.70	20		(Bq/kg)
Uranium-234/233	52.97	60	A		-11.7	42.00 - 78.00	3.95		(Bq/kg)
Uranium-238	171	191	A		-10.5	133.70 - 248.30	6.83		(Bq/kg)
Zinc-65	447	382	A		17.0	267.40 - 496.60	44.6		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

OTLI01

Outreach Technologies, Inc.
311 N. Aspen
Broken Arrow OK 74012

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

PRAP01

IT WPRAP Laboratory
Fernald WPRAP Field Office
Ross Ohio 45061

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	91.6	91.1	A		0.5	63.77 - 118.43	5.8		(Bq/kg)
Cesium-137	1299.9	1240	A		4.8	868.00 - 1612.00	82.7		(Bq/kg)
Cobalt-57	124.6	103	W		21.0	72.10 - 133.90	7.4		(Bq/kg)
Cobalt-60	1419.6	1270	A		11.8	889.00 - 1651.00	80.8		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	241.1	203	A		18.8	142.10 - 263.90	17.9		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	698.7	652	A		7.2	456.40 - 847.60	53.7		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	487.2	382	W		27.5	267.40 - 496.60	38.1		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

PRAP01

IT WPRAP Laboratory
Fernald WPRAP Field Office
Ross Ohio 45061

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

QUAN01

Severn Trent Laboratories St. Louis
13715 Rider Trail North
Earth City MO 63045

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	25.1	27	A		-6.2	18.73 - 34.79			(mg/kg)
Barium	231	243	A		-4.9	170.10 - 315.90			(mg/kg)
Beryllium	70.6	70.3	A		0.4	49.20 - 91.38			(mg/kg)
Chromium	60.1	66	A		-9.4	46.43 - 86.23			(mg/kg)
Lead	20.4	24	A		-16.2	17.03 - 31.63			(mg/kg)
Nickel	87.7	95	A		-7.8	66.56 - 123.62			(mg/kg)
Silver	78.7	74.3	A		5.9	52.00 - 96.56			(mg/kg)
Thallium	18.9	21.3	A		-11.1	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	36.7	35	A		4.9	24.50 - 45.50			(mg/kg)
Zinc	168	179	A		-5.9	124.96 - 232.06			(mg/kg)
Americium-241	0.718		N	False Positive			0.143		(Bq/kg)
Cesium-134	92.2	91.1	A		1.2	63.77 - 118.43	6.6		(Bq/kg)
Cesium-137	1340	1240	A		8.1	868.00 - 1612.00	90		(Bq/kg)
Cobalt-57	115	103	A		11.6	72.10 - 133.90	7		(Bq/kg)
Cobalt-60	1410	1270	A		11.0	889.00 - 1651.00	76		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	241	203	A		18.7	142.10 - 263.90	16		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	105	115	A		-8.7	80.50 - 149.50	10		(Bq/kg)
Plutonium-239/240	76.1	83.4	A		-8.8	58.38 - 108.42	7.3		(Bq/kg)
Potassium-40	742	652	A		13.8	456.40 - 847.60	45		(Bq/kg)
Strontium-90	177	209	A		-15.3	146.30 - 271.70	20		(Bq/kg)
Uranium-234/233	52.4	60	A		-12.7	42.00 - 78.00	5.6		(Bq/kg)
Uranium-238	181	191	A		-5.2	133.70 - 248.30	18		(Bq/kg)
Zinc-65	459	382	W		20.2	267.40 - 496.60	27		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

QUAN01

Severn Trent Laboratories St. Louis
13715 Rider Trail North
Earth City MO 63045

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	274	520.1	A		-1.4	QL - 1044.57	(ug/kg)
Nitrobenzene	437	683.7	A		-1.2	74.08 - 1293.31	(ug/kg)
Naphthalene	351	572.2	A		-1.6	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	350	585.3	A		-1.3	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	215	306.2	A		-0.8	QL - 635.91	(ug/kg)
2-Chloronaphthalene	444	664.4	A		-1.1	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	538	839.5	A		-1.3	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	447	785.4	A		-1.5	101.96 - 1468.95	(ug/kg)
Fluorene	333	522	A		-1.1	14.22 - 1029.78	(ug/kg)
Diethylphthalate	529	858.2	A		-1.3	108.09 - 1608.43	(ug/kg)
Anthracene	190	345.8	A		-0.9	QL - 855.60	(ug/kg)
1,4-Dinitrobenzene	367			Not Evaluated			(ug/kg)
1,3-Dinitrobenzene	331	508	A		-0.4	QL - 1695.91	(ug/kg)
1,2-Dinitrobenzene	782			Not Evaluated			(ug/kg)
Pyrene	445	685	A		-1.3	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	315	553.5	A		-1.4	43.89 - 1063.12	(ug/kg)
Chrysene	341	598.9	A		-1.3	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	3060	5166	A		-0.7	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	608	1139	A		-1.1	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

QUAN02

STL Knoxville
5815 Middlebrook Pike
Knoxville TN 37921

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	22.9	27	A		-14.4	18.73 - 34.79			(mg/kg)
Barium	201	243	A		-17.3	170.10 - 315.90			(mg/kg)
Beryllium	62.4	70.3	A		-11.2	49.20 - 91.38			(mg/kg)
Cadmium	0.259								(mg/kg)
Chromium	55.4	66	A		-16.5	46.43 - 86.23			(mg/kg)
Lead	20.6	24	A		-15.3	17.03 - 31.63			(mg/kg)
Nickel	84.6	95	A		-11.0	66.56 - 123.62			(mg/kg)
Silver	69.9	74.3	A		-5.9	52.00 - 96.56			(mg/kg)
Thallium	19.5	21.3	A		-8.3	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	29.4	35	A		-16.0	24.50 - 45.50			(mg/kg)
Zinc	159	179	A		-10.9	124.96 - 232.06			(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

QUAN02

STL Knoxville
5815 Middlebrook Pike
Knoxville TN 37921

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	497	520.1	A		-0.1	QL - 1044.57	(ug/kg)
Nitrobenzene	533	683.7	A		-0.7	74.08 - 1293.31	(ug/kg)
Naphthalene	471	572.2	A		-0.7	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	528	585.3	A		-0.3	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	357	306.2	A		0.5	QL - 635.91	(ug/kg)
2-Chloronaphthalene	645	664.4	A		-0.1	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	795	839.5	A		-0.2	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	761	785.4	A		-0.1	101.96 - 1468.95	(ug/kg)
Fluorene	516	522	A		0.0	14.22 - 1029.78	(ug/kg)
Diethylphthalate	784	858.2	A		-0.3	108.09 - 1608.43	(ug/kg)
Anthracene	349	345.8	A		0.0	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	724	508	A		0.5	QL - 1695.91	(ug/kg)
Pyrene	646	685	A		-0.2	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	501	553.5	A		-0.3	43.89 - 1063.12	(ug/kg)
Chrysene	540	598.9	A		-0.3	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	3810	5166	A		-0.5	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1210	1139	A		0.1	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

QUAN03

SEVERN TRENT LABORATORIES - RICHLAND
2800 GEORGE WASHINGTON WAY
RICHLAND WA 99352

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	1.39		N	False Positive			0.24		(Bq/kg)
Cesium-134	98	91.1	A		7.6	63.77 - 118.43	6		(Bq/kg)
Cesium-137	1302	1240	A		5.0	868.00 - 1612.00	77		(Bq/kg)
Cobalt-57	96	103	A		-6.8	72.10 - 133.90	11		(Bq/kg)
Cobalt-60	1425	1270	A		12.2	889.00 - 1651.00	85		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	243	203	A		19.7	142.10 - 263.90	15		(Bq/kg)
Nickel-63	721	550	N		31.1	385.00 - 715.00	84		(Bq/kg)
Plutonium-238	111	115	A		-3.5	80.50 - 149.50	8		(Bq/kg)
Plutonium-239/240	77	83.4	A		-7.7	58.38 - 108.42	6		(Bq/kg)
Potassium-40	734	652	A		12.6	456.40 - 847.60	45		(Bq/kg)
Strontium-90	221	209	A		5.7	146.30 - 271.70	25		(Bq/kg)
Uranium-234/233	54	60	A		-10.0	42.00 - 78.00	5		(Bq/kg)
Uranium-238	180	191	A		-5.8	133.70 - 248.30	16		(Bq/kg)
Zinc-65	445	382	A		16.5	267.40 - 496.60	28		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

QUAN03

SEVERN TRENT LABORATORIES - RICHLAND
2800 GEORGE WASHINGTON WAY
RICHLAND WA 99352

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

RECC01

Environmental Chemical Corp.
6954 Cornell Rd. Suite 300
Cincinnati OH 45242

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	22.6	27	A		-15.5	18.73 - 34.79			(mg/kg)
Barium	236	243	A		-2.9	170.10 - 315.90			(mg/kg)
Beryllium	60.9	70.3	A		-13.4	49.20 - 91.38			(mg/kg)
Chromium	67.1	66	A		1.2	46.43 - 86.23			(mg/kg)
Lead	15.9	24	N		-34.6	17.03 - 31.63			(mg/kg)
Nickel	86.6	95	A		-8.9	66.56 - 123.62			(mg/kg)
Silver	62.6	74.3	A		-15.7	52.00 - 96.56			(mg/kg)
Thallium	9.8	21.3	N		-53.9	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	40.7	35	A		16.3	24.50 - 45.50			(mg/kg)
Zinc	176	179	A		-1.4	124.96 - 232.06			(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

RECC01

Environmental Chemical Corp.
6954 Cornell Rd. Suite 300
Cincinnati OH 45242

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	588	520.1	A		0.4	QL - 1044.57	(ug/kg)
Nitrobenzene	721	683.7	A		0.2	74.08 - 1293.31	(ug/kg)
Naphthalene	603	572.2	A		0.2	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	631	585.3	A		0.2	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	706	664.4	A		0.2	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	948	839.5	A		0.5	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	1220	785.4	A		1.9	101.96 - 1468.95	(ug/kg)
Fluorene	673	522	A		0.9	14.22 - 1029.78	(ug/kg)
Diethylphthalate	1090	858.2	A		0.9	108.09 - 1608.43	(ug/kg)
Anthracene	528	345.8	A		1.1	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Di-n-butylphthalate	157						(ug/kg)
Pyrene	851	685	A		0.9	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	736	553.5	A		1.1	43.89 - 1063.12	(ug/kg)
Chrysene	773	598.9	A		0.9	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	5290	5166	A		0.0	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1580	1139	A		0.9	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ROCK01

RFETS SSOC Radiological Labs
10808 Hwy 93 Unit B
Golden CO 80403

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	20.3	27	W		-24.1	18.73 - 34.79			(mg/kg)
Barium	235.4	243	A		-3.1	170.10 - 315.90			(mg/kg)
Beryllium	67.6	70.3	A		-3.8	49.20 - 91.38			(mg/kg)
Chromium	63.6	66	A		-4.1	46.43 - 86.23			(mg/kg)
Lead	26.4	24	A		8.5	17.03 - 31.63			(mg/kg)
Nickel	98.6	95	A		3.7	66.56 - 123.62			(mg/kg)
Silver	74.8	74.3	A		0.7	52.00 - 96.56			(mg/kg)
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	34.4	35	A		-1.7	24.50 - 45.50			(mg/kg)
Zinc	180.9	179	A		1.3	124.96 - 232.06			(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

ROCK01

RFETS SSOC Radiological Labs
10808 Hwy 93 Unit B
Golden CO 80403

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

RSAL01

RSA Laboratories, Inc.
PO Box 61
Hebron CT 06248

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	2.86		A				1.0		(Bq/kg)
Cesium-134	93.64	91.1	A		2.8	63.77 - 118.43	1.95	L	(Bq/kg)
Cesium-137	1227.06	1240	A		-1.0	868.00 - 1612.00	10.30	L	(Bq/kg)
Cobalt-57	121.25	103	A		17.7	72.10 - 133.90	3.06	L	(Bq/kg)
Cobalt-60	1337.23	1270	A		5.3	889.00 - 1651.00	3.36	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	172.91	203	A		-14.8	142.10 - 263.90	4.00	L	(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	722.45	652	A		10.8	456.40 - 847.60	22.62		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	94.35	60	N		57.3	42.00 - 78.00	15.91		(Bq/kg)
Uranium-238	331.9	191	N		73.8	133.70 - 248.30	31.82		(Bq/kg)
Zinc-65	347.33	382	A		-9.1	267.40 - 496.60	7.71	L	(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

RSAL01

RSA Laboratories, Inc.
PO Box 61
Hebron CT 06248

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

RSIR99

Instituto de Radioprotecao e Dosimetria
Avenida Salvador Allende S/no.
Rio de Janeiro Rio de Ja 22780

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	32.084	27	A		19.9	18.73 - 34.79	0.364	L	(mg/kg)
Barium	943.131	867	A	Total Metal	8.8	606.90 - 1127.10	5.621	L	(mg/kg)
Beryllium	68.637	70.3	A		-2.4	49.20 - 91.38	1.840	L	(mg/kg)
Chromium	126.326	121.5	A	Total Metal	4.0	85.05 - 157.95	2.323	L	(mg/kg)
Lead	31.612	26.9	A	Total Metal	17.5	18.83 - 34.97	0.708	L	(mg/kg)
Nickel	110.696	95	A		16.4	66.56 - 123.62	1.562	L	(mg/kg)
Silver	81.371	74.3	A		9.5	52.00 - 96.56	0.912	L	(mg/kg)
Thallium	24.475	21.3	A		15.1	14.88 - 27.64	0.404	L	(mg/kg)
Uranium-Total	15.004	15.4	A		-2.6	10.79 - 20.03	0.269		(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	106.707	92.4	A	Total Metal	15.5	64.68 - 120.12	1.472	L	(mg/kg)
Zinc	225.196	209	A	Total Metal	7.7	146.30 - 271.70	3.614	L	(mg/kg)
Cesium-134	80.823	91.1	A		-11.3	63.77 - 118.43	5.625		(Bq/kg)
Cesium-137	997.513	1240	A		-19.6	868.00 - 1612.00	58.933		(Bq/kg)
Cobalt-57	69.920	103	N		-32.1	72.10 - 133.90	4.473		(Bq/kg)
Cobalt-60	1173.147	1270	A		-7.6	889.00 - 1651.00	69.138		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	170.283	203	A		-16.1	142.10 - 263.90	8.568		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	94.257	115	A		-18.0	80.50 - 149.50	5.402		(Bq/kg)
Plutonium-239/240	67.883	83.4	A		-18.6	58.38 - 108.42	4.358		(Bq/kg)
Potassium-40	536.360	652	A		-17.7	456.40 - 847.60	37.025		(Bq/kg)
Strontium-90	171.400	209	A		-18.0	146.30 - 271.70	11.526		(Bq/kg)
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	326.773	382	A		-14.5	267.40 - 496.60	21.365		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

RSIR99

Instituto de Radioprotecao e Dosimetria
Avenida Salvador Allende S/no.
Rio de Janeiro Rio de Ja 22780

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SAVA01

WSRC/SAVANNAH RIVER TECHNOLOGY CENTER/A
773-A, room B125
AIKEN SC 29802

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	8.29E+01	91.1	A		-9.0	63.77 - 118.43	1.65E+00	L	(Bq/kg)
Cesium-137	1.13E+03	1240	A		-8.9	868.00 - 1612.00	1.71E+01	L	(Bq/kg)
Cobalt-57	8.74E+01	103	A		-15.1	72.10 - 133.90	3.06E+00		(Bq/kg)
Cobalt-60	1.25E+03	1270	A		-1.6	889.00 - 1651.00	1.09E+01	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	2.02E+02	203	A		-0.5	142.10 - 263.90	5.93E+00	L	(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	6.29E+02	652	A		-3.5	456.40 - 847.60	2.01E+01		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	3.78E+02	382	A		-1.0	267.40 - 496.60	1.03E+01	L	(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SAVA01

WSRC/SAVANNAH RIVER TECHNOLOGY CENTER/A
773-A, room B125
AIKEN SC 29802

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SCAL01

Sanford Cohen and Associates, Inc.
1000 Monticello Court
Montgomery AL 36117

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	1.19		A				0.471		(Bq/kg)
Cesium-134	78.3	91.1	A		-14.1	63.77 - 118.43	5.98		(Bq/kg)
Cesium-137	1150	1240	A		-7.3	868.00 - 1612.00	81		(Bq/kg)
Cobalt-57	106	103	A		2.9	72.10 - 133.90	7.7		(Bq/kg)
Cobalt-60	1331	1270	A		4.8	889.00 - 1651.00	95		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	223	203	A		9.9	142.10 - 263.90	16		(Bq/kg)
Nickel-63	1198	550	N		117.8	385.00 - 715.00	202		(Bq/kg)
Plutonium-238	114.1	115	A		-0.8	80.50 - 149.50	13.1		(Bq/kg)
Plutonium-239/240	82.3	83.4	A		-1.3	58.38 - 108.42	9.6		(Bq/kg)
Potassium-40	761	652	A		16.7	456.40 - 847.60	59		(Bq/kg)
Strontium-90	191.2	209	A		-8.5	146.30 - 271.70	19.7		(Bq/kg)
Uranium-234/233	53.6	60	A		-10.7	42.00 - 78.00	6.25		(Bq/kg)
Uranium-238	180.9	191	A		-5.3	133.70 - 248.30	19.8		(Bq/kg)
Zinc-65	443	382	A		16.0	267.40 - 496.60	35		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SCAL01

Sanford Cohen and Associates, Inc.
1000 Monticello Court
Montgomery AL 36117

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SNEC01

Saxton Nuclear Experimental Corp
165 Power Plant Road
Saxton PA 16678

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	81.320	91.1	A		-10.7	63.77 - 118.43	3.097		(Bq/kg)
Cesium-137	1269.655	1240	A		2.4	868.00 - 1612.00	71.065		(Bq/kg)
Cobalt-57	105.339	103	A		2.3	72.10 - 133.90	4.666		(Bq/kg)
Cobalt-60	1403.077	1270	A		10.5	889.00 - 1651.00	54.520		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	228.549	203	A		12.6	142.10 - 263.90	15.969		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	746.179	652	A		14.4	456.40 - 847.60	45.566		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-235	10.882						1.807		(Bq/kg)
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	463.370	382	W		21.3	267.40 - 496.60	28.425		(Bq/kg)

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SNEC01

Saxton Nuclear Experimental Corp
165 Power Plant Road
Saxton PA 16678

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SNLP01

SNL Environmental Restoration Chemistry Laboratory
Sandia National Laboratories
Albuquerque NM 87185

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	25.6	27	A		-4.3	18.73 - 34.79			(mg/kg)
Barium	338	243	N		39.1	170.10 - 315.90			(mg/kg)
Beryllium	71.4	70.3	A		1.6	49.20 - 91.38			(mg/kg)
Chromium	78.6	66	A		18.5	46.43 - 86.23			(mg/kg)
Lead	25.2	24	A		3.6	17.03 - 31.63			(mg/kg)
Nickel	90.6	95	A		-4.7	66.56 - 123.62			(mg/kg)
Silver	72.7	74.3	A		-2.1	52.00 - 96.56			(mg/kg)
Thallium	23.2	21.3	A		9.1	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	66.1	35	N		88.9	24.50 - 45.50			(mg/kg)
Zinc	161	179	A		-9.8	124.96 - 232.06			(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SNLP01

SNL Environmental Restoration Chemistry Laboratory
Sandia National Laboratories
Albuquerque NM 87185

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	3.01	520.1	W		-3.0	QL - 1044.57	(ug/kg)
Nitrobenzene	3.15	683.7	N		-3.3	74.08 - 1293.31	(ug/kg)
Naphthalene	2.86	572.2	N		-4.1	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	2.81	585.3	N		-3.2	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	1.57	306.2	W		-2.8	QL - 635.91	(ug/kg)
2-Chloronaphthalene	3.70	664.4	N		-3.4	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	4.53	839.5	N		-3.5	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	4.24	785.4	N		-3.4	101.96 - 1468.95	(ug/kg)
Fluorene	2.64	522	N		-3.1	14.22 - 1029.78	(ug/kg)
Diethylphthalate	4.72	858.2	N		-3.4	108.09 - 1608.43	(ug/kg)
Anthracene	2.02	345.8	W		-2.0	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	3.74	508	A		-1.3	QL - 1695.91	(ug/kg)
Pyrene	3.85	685	N		-3.7	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	2.96	553.5	N		-3.2	43.89 - 1063.12	(ug/kg)
Chrysene	3.54	598.9	N		-3.1	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	12.9	5166	A		-1.7	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	6.67	1139	W		-2.3	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SOUT01

Southwest Research Institute
6220 Culebra Rd.
San Antonio TX 78228

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	26.1	27	A		-2.5	18.73 - 34.79	1.4		(mg/kg)
Barium	262	243	A		7.8	170.10 - 315.90	14		(mg/kg)
Beryllium	65.8	70.3	A		-6.4	49.20 - 91.38	3.4		(mg/kg)
Chromium	73.3	66	A		10.5	46.43 - 86.23	3.8		(mg/kg)
Lead	23.4	24	A		-3.8	17.03 - 31.63	1.2		(mg/kg)
Nickel	95.2	95	A		0.1	66.56 - 123.62	4.9		(mg/kg)
Silver	77.8	74.3	A		4.7	52.00 - 96.56	4.0		(mg/kg)
Thallium	21.2	21.3	A		-0.3	14.88 - 27.64	1.1		(mg/kg)
Uranium-Total	15.4	15.4	A		-0.1	10.79 - 20.03	0.8		(mg/kg)
Uranium-235	0.0448	0.049	A		-8.6	0.03 - 0.06	0.0023		(mg/kg)
Uranium-238	15.4	15.4	A		0.3	10.75 - 19.97	0.8		(mg/kg)
Vanadium	51.7	35	N		47.7	24.50 - 45.50	2.7		(mg/kg)
Zinc	174	179	A		-2.5	124.96 - 232.06	9		(mg/kg)
Cesium-134	91.95	91.1	A		0.9	63.77 - 118.43	19.24	H	(Bq/kg)
Cesium-137	1395	1240	A		12.5	868.00 - 1612.00	131		(Bq/kg)
Cobalt-57	109.8	103	A		6.6	72.10 - 133.90	40.8	H	(Bq/kg)
Cobalt-60	1545	1270	W		21.7	889.00 - 1651.00	154		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	266.6	203	N		31.3	142.10 - 263.90	27.9		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	851.1	652	N		30.5	456.40 - 847.60	93		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	514.5	382	N		34.7	267.40 - 496.60	50.3		(Bq/kg)

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SOUT01

Southwest Research Institute
6220 Culebra Rd.
San Antonio TX 78228

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	430	520.1	A		-0.5	QL - 1044.57	(ug/kg)
Nitrobenzene	440	683.7	A		-1.2	74.08 - 1293.31	(ug/kg)
Naphthalene	423	572.2	A		-1.1	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	390	585.3	A		-1.1	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	470	664.4	A		-1.0	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	630	839.5	A		-0.9	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	670	785.4	A		-0.5	101.96 - 1468.95	(ug/kg)
Fluorene	440	522	A		-0.5	14.22 - 1029.78	(ug/kg)
Diethylphthalate	840	858.2	A		-0.1	108.09 - 1608.43	(ug/kg)
Anthracene	310	345.8	A		-0.2	QL - 855.60	(ug/kg)
1,4-Dinitrobenzene	230			Not Evaluated			(ug/kg)
1,3-Dinitrobenzene	240	508	A		-0.7	QL - 1695.91	(ug/kg)
1,2-Dinitrobenzene	190			Not Evaluated			(ug/kg)
Di-n-butylphthalate	230						(ug/kg)
Pyrene	650	685	A		-0.2	132.99 - 1236.97	(ug/kg)
Butylbenzylphthalate	54						(ug/kg)
Benzo(a)anthracene	500	553.5	A		-0.3	43.89 - 1063.12	(ug/kg)
Chrysene	410	598.9	A		-1.0	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	3700	5166	A		-0.5	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	920	1139	A		-0.4	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SWOL01

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 WEST ALBANY
BROKEN ARROW OK 74012

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	25.4	27	A		-5.1	18.73 - 34.79			(mg/kg)
Barium	242	243	A		-0.4	170.10 - 315.90			(mg/kg)
Beryllium	65.3	70.3	A		-7.1	49.20 - 91.38			(mg/kg)
Cadmium	0.832								(mg/kg)
Chromium	62.5	66	A		-5.8	46.43 - 86.23			(mg/kg)
Lead	22.2	24	A		-8.8	17.03 - 31.63			(mg/kg)
Nickel	89.2	95	A		-6.2	66.56 - 123.62			(mg/kg)
Selenium	0.721								(mg/kg)
Silver	74.5	74.3	A		0.3	52.00 - 96.56			(mg/kg)
Thallium	20.3	21.3	A		-4.5	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	36.5	35	A		4.3	24.50 - 45.50			(mg/kg)
Zinc	168	179	A		-5.9	124.96 - 232.06			(mg/kg)
Americium-241	0.74		A				0.5		(Bq/kg)
Cesium-134	82.7	91.1	A		-9.2	63.77 - 118.43	3		(Bq/kg)
Cesium-137	1200	1240	A		-3.2	868.00 - 1612.00	32	L	(Bq/kg)
Cobalt-57	99.5	103	A		-3.4	72.10 - 133.90	3		(Bq/kg)
Cobalt-60	1310	1270	A		3.2	889.00 - 1651.00	18	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	210	203	A		3.4	142.10 - 263.90	6	L	(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	106.93	115	A		-7.0	80.50 - 149.50	9.62		(Bq/kg)
Plutonium-239/240	78.07	83.4	A		-6.4	58.38 - 108.42	7.21		(Bq/kg)
Potassium-40	700	652	A		7.4	456.40 - 847.60	20	L	(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	46.99	60	W		-21.7	42.00 - 78.00	4.23		(Bq/kg)
Uranium-238	174.64	191	A		-8.6	133.70 - 248.30	15.7		(Bq/kg)
Zinc-65	418	382	A		9.4	267.40 - 496.60	13		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

SWOL01

SOUTHWEST LABORATORY OF OKLAHOMA, INC.
1700 WEST ALBANY
BROKEN ARROW OK 74012

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	467	520.1	A		-0.3	QL - 1044.57	(ug/kg)
Nitrobenzene	644	683.7	A		-0.2	74.08 - 1293.31	(ug/kg)
Naphthalene	463	572.2	A		-0.8	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	516	585.3	A		-0.4	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	594	664.4	A		-0.4	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	807	839.5	A		-0.1	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	741	785.4	A		-0.2	101.96 - 1468.95	(ug/kg)
Fluorene	388	522	A		-0.8	14.22 - 1029.78	(ug/kg)
Diethylphthalate	768	858.2	A		-0.4	108.09 - 1608.43	(ug/kg)
Anthracene	240	345.8	A		-0.6	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Di-n-butylphthalate	19.8						(ug/kg)
Pyrene	493	685	A		-1.0	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	378	553.5	A		-1.0	43.89 - 1063.12	(ug/kg)
Chrysene	396	598.9	A		-1.1	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	3240	5166	A		-0.6	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1030	1139	A		-0.2	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TELE01

TELEDYNE BROWN ENGINEERING - ENVIRONMENT
2508 Quality Lane
Knoxville TN 37931

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	87.4	91.1	A		-4.1	63.77 - 118.43	3.9		(Bq/kg)
Cesium-137	1233	1240	A		-0.6	868.00 - 1612.00	147		(Bq/kg)
Cobalt-57	97.2	103	A		-5.6	72.10 - 133.90	8.4		(Bq/kg)
Cobalt-60	1280	1270	A		0.8	889.00 - 1651.00	34.6	L	(Bq/kg)
Iron-55	458	1320	N		-65.3	924.00 - 1716.00	55		(Bq/kg)
Manganese-54	217	203	A		6.9	142.10 - 263.90	9.5		(Bq/kg)
Nickel-63	569	550	A		3.5	385.00 - 715.00	31		(Bq/kg)
Plutonium-238	108.3	115	A		-5.8	80.50 - 149.50	14.2		(Bq/kg)
Plutonium-239/240	81.1	83.4	A		-2.8	58.38 - 108.42	6.5		(Bq/kg)
Potassium-40	686	652	A		5.2	456.40 - 847.60	46		(Bq/kg)
Strontium-90	170	209	A		-18.7	146.30 - 271.70	20		(Bq/kg)
Uranium-234/233	34.3	60	N		-42.8	42.00 - 78.00	0.6	L	(Bq/kg)
Uranium-238	158.3	191	A		-17.1	133.70 - 248.30	10.3		(Bq/kg)
Zinc-65	408.3	382	A		6.9	267.40 - 496.60	39.3		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TELE01

TELEDYNE BROWN ENGINEERING - ENVIRONMENT
2508 Quality Lane
Knoxville TN 37931

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TELE02

Environmental, Inc., Midwest Lab
700 Landwehr Road
Northbrook IL 60062

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	0.8		A				2.6		(Bq/kg)
Cesium-134	81.1	91.1	A		-11.0	63.77 - 118.43	1.8	L	(Bq/kg)
Cesium-137	1210.6	1240	A		-2.4	868.00 - 1612.00	6.6	L	(Bq/kg)
Cobalt-57	100.2	103	A		-2.7	72.10 - 133.90	3.5		(Bq/kg)
Cobalt-60	1285.1	1270	A		1.2	889.00 - 1651.00	5.3	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	212.6	203	A		4.7	142.10 - 263.90	6.7		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	110.7	115	A		-3.7	80.50 - 149.50	7.2		(Bq/kg)
Plutonium-239/240	79.6	83.4	A		-4.6	58.38 - 108.42	5.9		(Bq/kg)
Potassium-40	732.6	652	A		12.4	456.40 - 847.60	21.2	L	(Bq/kg)
Strontium-90	159.8	209	W		-23.5	146.30 - 271.70	9.5		(Bq/kg)
Uranium-234/233	45.0	60	W		-25.0	42.00 - 78.00	3.9		(Bq/kg)
Uranium-238	165.6	191	A		-13.3	133.70 - 248.30	7.4		(Bq/kg)
Zinc-65	428.5	382	A		12.2	267.40 - 496.60	10.9	L	(Bq/kg)

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TELE02

Environmental, Inc., Midwest Lab
700 Landwehr Road
Northbrook IL 60062

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TMAE01

Eberline Services
7021 Pan American N.E.
Albuquerque NM 87109

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-Total	17.2	15.4	A		11.6	10.79 - 20.03	0.9		(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	0.796		N	False Positive			0.166		(Bq/kg)
Cesium-134	90.0	91.1	A		-1.2	63.77 - 118.43	3.7		(Bq/kg)
Cesium-137	1290	1240	A		4.0	868.00 - 1612.00	40		(Bq/kg)
Cobalt-57	110	103	A		6.8	72.10 - 133.90	4		(Bq/kg)
Cobalt-60	1430	1270	A		12.6	889.00 - 1651.00	30	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	226	203	A		11.3	142.10 - 263.90	8		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	112	115	A		-2.6	80.50 - 149.50	5		(Bq/kg)
Plutonium-239/240	79.7	83.4	A		-4.4	58.38 - 108.42	3.9		(Bq/kg)
Potassium-40	734	652	A		12.6	456.40 - 847.60	39		(Bq/kg)
Strontium-90	174	209	A		-16.7	146.30 - 271.70	16		(Bq/kg)
Uranium-234/233	51.5	60	A		-14.2	42.00 - 78.00	2.4		(Bq/kg)
Uranium-238	183	191	A		-4.2	133.70 - 248.30	6		(Bq/kg)
Zinc-65	440	382	A		15.2	267.40 - 496.60	18		(Bq/kg)

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TMAE01

Eberline Services
7021 Pan American N.E.
Albuquerque NM 87109

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TMAO01

EBERLINE SERVICES OAK RIDGE LABORATORY
601 SCARBORO RD
OAK RIDGE TN 37830

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	1.942		A				0.79		(Bq/kg)
Cesium-134	72.222	91.1	W		-20.7	63.77 - 118.43	8.481		(Bq/kg)
Cesium-137	996.296	1240	A		-19.7	868.00 - 1612.00	101.556		(Bq/kg)
Cobalt-57	107.096	103	A		4.0	72.10 - 133.90	13.444		(Bq/kg)
Cobalt-60	1061.481	1270	A		-16.4	889.00 - 1651.00	75.148		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	177.482	203	A		-12.6	142.10 - 263.90	23.552		(Bq/kg)
Nickel-63	343.691	550	N		-37.5	385.00 - 715.00	31.748		(Bq/kg)
Plutonium-238	101.222	115	A		-12.0	80.50 - 149.50	21.928	H	(Bq/kg)
Plutonium-239/240	76.778	83.4	A		-7.9	58.38 - 108.42	17.148	H	(Bq/kg)
Potassium-40	522.222	652	A		-19.9	456.40 - 847.60	74.593		(Bq/kg)
Strontium-90	170.716	209	A		-18.3	146.30 - 271.70	5.611		(Bq/kg)
Uranium-234/233	56.085	60	A		-6.5	42.00 - 78.00	11.226	H	(Bq/kg)
Uranium-238	182.356	191	A		-4.5	133.70 - 248.30	34.044		(Bq/kg)
Zinc-65	347.556	382	A		-9.0	267.40 - 496.60	56.0		(Bq/kg)

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TMAO01

EBERLINE SERVICES OAK RIDGE LABORATORY
601 SCARBORO RD
OAK RIDGE TN 37830

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TMAR01

Eberline Services
2030 Wright Ave
Richmond CA 94804

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	2.85		N	False Positive			0.80		(Bq/kg)
Cesium-134	78.5	91.1	A		-13.8	63.77 - 118.43	7.5		(Bq/kg)
Cesium-137	971.5	1240	W		-21.7	868.00 - 1612.00	8.3	L	(Bq/kg)
Cobalt-57	82.0	103	W		-20.4	72.10 - 133.90	3.1		(Bq/kg)
Cobalt-60	1086	1270	A		-14.5	889.00 - 1651.00	11	L	(Bq/kg)
Iron-55	0.0011	1320	N		-100.0	924.00 - 1716.00	0.0007	H	(Bq/kg)
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	474.0	550	A		-13.8	385.00 - 715.00	61.5		(Bq/kg)
Plutonium-238	88.1	115	W		-23.4	80.50 - 149.50	8.2		(Bq/kg)
Plutonium-239/240	65.8	83.4	W		-21.1	58.38 - 108.42	6.5		(Bq/kg)
Potassium-40	550.9	652	A		-15.5	456.40 - 847.60	29.1		(Bq/kg)
Strontium-90	135.7	209	N		-35.1	146.30 - 271.70	5.5		(Bq/kg)
Uranium-234/233	44.9	60	W		-25.2	42.00 - 78.00	3.1		(Bq/kg)
Uranium-238	147.8	191	W		-22.6	133.70 - 248.30	6.7		(Bq/kg)
Zinc-65	394.0	382	A		3.1	267.40 - 496.60	32.6		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TMAR01

Eberline Services
2030 Wright Ave
Richmond CA 94804

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TNUT01

FUSRAP
8945 LATTY AVE
BERKELEY MO 63134

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Cesium-134	80.62	91.1	A		-11.5	63.77 - 118.43	3.50		(Bq/kg)
Cesium-137	1249.0	1240	A		0.7	868.00 - 1612.00	85.09		(Bq/kg)
Cobalt-57	104.93	103	A		1.9	72.10 - 133.90	4.90		(Bq/kg)
Cobalt-60	1342.60	1270	A		5.7	889.00 - 1651.00	50.53		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	224.90	203	A		10.8	142.10 - 263.90	14.27		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	724.40	652	A		11.1	456.40 - 847.60	40.75		(Bq/kg)
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	54.26	60	A		-9.6	42.00 - 78.00	5.77		(Bq/kg)
Uranium-238	173.86	191	A		-9.0	133.70 - 248.30	14.58		(Bq/kg)
Zinc-65	439.74	382	A		15.1	267.40 - 496.60	25.98		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

TNUT01

FUSRAP
8945 LATTY AVE
BERKELEY MO 63134

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

UPVL99

LAB.RADIACTIVIDAD AMBIENTAL. UNIV. POLITECNIC
CAMINO DE VERA, 14
VALENCIA VALENCI 46071

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	0.28		A				0.21		(Bq/kg)
Cesium-134	92	91.1	A		1.0	63.77 - 118.43	2	L	(Bq/kg)
Cesium-137	1320	1240	A		6.5	868.00 - 1612.00	17	L	(Bq/kg)
Cobalt-57	110	103	A		6.8	72.10 - 133.90	2	L	(Bq/kg)
Cobalt-60	1393	1270	A		9.7	889.00 - 1651.00	18	L	(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	221	203	A		8.9	142.10 - 263.90	4	L	(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	88	115	W		-23.5	80.50 - 149.50	1	L	(Bq/kg)
Plutonium-239/240	59	83.4	W		-29.3	58.38 - 108.42	1	L	(Bq/kg)
Potassium-40	751	652	A		15.2	456.40 - 847.60	17	L	(Bq/kg)
Strontium-90	200	209	A		-4.3	146.30 - 271.70	2	L	(Bq/kg)
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	202	191	A		5.8	133.70 - 248.30	21		(Bq/kg)
Zinc-65	461	382	W		20.7	267.40 - 496.60	9	L	(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

UPVL99

LAB.RADIACTIVIDAD AMBIENTAL. UNIV. POLITECNIC
CAMINO DE VERA, 14
VALENCIA VALENCI 46071

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

WEST01

Lionville Laboratory Incorporated
208 Welsh Pool Road
Lionville PA 19341

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	24.4	27	A		-8.8	18.73 - 34.79			(mg/kg)
Barium	235	243	A		-3.3	170.10 - 315.90			(mg/kg)
Beryllium	62.0	70.3	A		-11.8	49.20 - 91.38			(mg/kg)
Cadmium	0.37								(mg/kg)
Chromium	66.9	66	A		0.9	46.43 - 86.23			(mg/kg)
Lead	21.8	24	A		-10.4	17.03 - 31.63			(mg/kg)
Nickel	89.0	95	A		-6.4	66.56 - 123.62			(mg/kg)
Selenium	<0.32								(mg/kg)
Silver	81.1	74.3	A		9.2	52.00 - 96.56			(mg/kg)
Thallium	19.7	21.3	A		-7.3	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	43.3	35	W		23.7	24.50 - 45.50			(mg/kg)
Zinc	169	179	A		-5.3	124.96 - 232.06			(mg/kg)
Cesium-134	NR	91.1				63.77 - 118.43			
Cesium-137	NR	1240				868.00 - 1612.00			
Cobalt-57	NR	103				72.10 - 133.90			
Cobalt-60	NR	1270				889.00 - 1651.00			
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	NR	203				142.10 - 263.90			
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	NR	115				80.50 - 149.50			
Plutonium-239/240	NR	83.4				58.38 - 108.42			
Potassium-40	NR	652				456.40 - 847.60			
Strontium-90	NR	209				146.30 - 271.70			
Uranium-234/233	NR	60				42.00 - 78.00			
Uranium-238	NR	191				133.70 - 248.30			
Zinc-65	NR	382				267.40 - 496.60			

Flags:

A = Result acceptable — Bias <= 20%
W = Result acceptable with warning — 20% < Bias <= 30%
N = Result not acceptable — Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

WEST01

Lionville Laboratory Incorporated
208 Welsh Pool Road
Lionville PA 19341

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	490	520.1	A		-0.2	QL - 1044.57	(ug/kg)
Nitrobenzene	700	683.7	A		0.1	74.08 - 1293.31	(ug/kg)
Naphthalene	630	572.2	A		0.4	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	640	585.3	A		0.3	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	390	306.2	A		0.8	QL - 635.91	(ug/kg)
2-Chloronaphthalene	730	664.4	A		0.3	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	890	839.5	A		0.2	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	800	785.4	A		0.1	101.96 - 1468.95	(ug/kg)
Fluorene	620	522	A		0.6	14.22 - 1029.78	(ug/kg)
Diethylphthalate	710	858.2	A		-0.6	108.09 - 1608.43	(ug/kg)
Anthracene	430	345.8	A		0.5	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	650	508	A		0.4	QL - 1695.91	(ug/kg)
Pyrene	790	685	A		0.6	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	660	553.5	A		0.6	43.89 - 1063.12	(ug/kg)
Chrysene	710	598.9	A		0.6	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	5100	5166	A		0.0	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1000	1139	A		-0.3	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

WEST03

Waste Sampling and Characterization Facility
PO Box 1000, T6-04
Richland WA 99352

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	41.5	27	N		55.1	18.73 - 34.79	8.3		(mg/kg)
Barium	214	243	A		-11.9	170.10 - 315.90	42.8		(mg/kg)
Beryllium	62.1	70.3	A		-11.7	49.20 - 91.38	12.4		(mg/kg)
Chromium	62.1	66	A		-6.4	46.43 - 86.23	12.4		(mg/kg)
Lead	23.2	24	A		-4.6	17.03 - 31.63	4.6		(mg/kg)
Nickel	86.0	95	A		-9.6	66.56 - 123.62	17.2		(mg/kg)
Silver	70.1	74.3	A		-5.6	52.00 - 96.56	14		(mg/kg)
Thallium	22.8	21.3	A		7.2	14.88 - 27.64	4.6	H	(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	36.9	35	A		5.4	24.50 - 45.50	7.4	H	(mg/kg)
Zinc	172	179	A		-3.6	124.96 - 232.06	34.4		(mg/kg)
Cesium-134	65.9	91.1	W		-27.7	63.77 - 118.43	3.2		(Bq/kg)
Cesium-137	1190	1240	A		-4.0	868.00 - 1612.00	89.1		(Bq/kg)
Cobalt-57	97.6	103	A		-5.2	72.10 - 133.90	4.9		(Bq/kg)
Cobalt-60	1270	1270	A		0.0	889.00 - 1651.00	49.4		(Bq/kg)
Iron-55	NR	1320				924.00 - 1716.00			
Manganese-54	219	203	A		7.9	142.10 - 263.90	16.6		(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	111	115	A		-3.5	80.50 - 149.50	1.96	L	(Bq/kg)
Plutonium-239/240	81.8	83.4	A		-1.9	58.38 - 108.42	7.2		(Bq/kg)
Potassium-40	752	652	A		15.3	456.40 - 847.60	44.6		(Bq/kg)
Strontium-90	180	209	A		-13.9	146.30 - 271.70	13.6		(Bq/kg)
Uranium-234/233	38.5	60	N		-35.8	42.00 - 78.00	3.9		(Bq/kg)
Uranium-238	158	191	A		-17.3	133.70 - 248.30	15.2		(Bq/kg)
Zinc-65	457	382	A		19.6	267.40 - 496.60	28.0		(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

WEST03

Waste Sampling and Characterization Facility
PO Box 1000, T6-04
Richland WA 99352

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	661	520.1	A		0.8	QL - 1044.57	(ug/kg)
Nitrobenzene	1000	683.7	A		1.6	74.08 - 1293.31	(ug/kg)
Naphthalene	794	572.2	A		1.6	159.24 - 985.13	(ug/kg)
Hexachlorobutadiene	926	585.3	A		1.9	34.58 - 1136.08	(ug/kg)
2,6-Dichlorophenol	458	306.2	A		1.4	QL - 635.91	(ug/kg)
2-Chloronaphthalene	926	664.4	A		1.4	86.98 - 1241.75	(ug/kg)
2,6-Dinitrotoluene	1060	839.5	A		0.9	123.53 - 1555.44	(ug/kg)
2,4-Dinitrotoluene	1020	785.4	A		1.0	101.96 - 1468.95	(ug/kg)
Fluorene	706	522	A		1.1	14.22 - 1029.78	(ug/kg)
Diethylphthalate	1520	858.2	W		2.6	108.09 - 1608.43	(ug/kg)
Anthracene	520	345.8	A		1.0	QL - 855.60	(ug/kg)
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	898	685	A		1.2	132.99 - 1236.97	(ug/kg)
Benzo(a)anthracene	674	553.5	A		0.7	43.89 - 1063.12	(ug/kg)
Chrysene	746	598.9	A		0.8	23.06 - 1174.69	(ug/kg)
Bis(2-ethylhexyl)phthalat	5520	5166	A		0.1	QL - 14183.67	(ug/kg)
Di-n-octylphthalate	1660	1139	A		1.1	QL - 2608.46	(ug/kg)

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

WEST04

ANTECH LTD WALTZ MILL SITE
P.O. BOX 158
MADISON PA 15663

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	55.03	27	N		105.6	18.73 - 34.79			(mg/kg)
Barium	208.5	243	A		-14.2	170.10 - 315.90			(mg/kg)
Beryllium	63.84	70.3	A		-9.2	49.20 - 91.38			(mg/kg)
Cadmium	8.55		N	False Positive					(mg/kg)
Chromium	NR	66				46.43 - 86.23			
Lead	51.76	24	N		112.7	17.03 - 31.63			(mg/kg)
Nickel	87.64	95	A		-7.8	66.56 - 123.62			(mg/kg)
Selenium	69.98		N	False Positive					(mg/kg)
Silver	66.69	74.3	A		-10.2	52.00 - 96.56			(mg/kg)
Thallium	60.95	21.3	N		186.7	14.88 - 27.64			(mg/kg)
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	39.36	35	A		12.5	24.50 - 45.50			(mg/kg)
Zinc	169.4	179	A		-5.1	124.96 - 232.06			(mg/kg)
Americium-241	5.55		A				5.44		(Bq/kg)
Cesium-134	81.3	91.1	A		-10.8	63.77 - 118.43	2.3	L	(Bq/kg)
Cesium-137	1189	1240	A		-4.1	868.00 - 1612.00	41.1		(Bq/kg)
Cobalt-57	97.21	103	A		-5.6	72.10 - 133.90	2.62	L	(Bq/kg)
Cobalt-60	1279	1270	A		0.7	889.00 - 1651.00	11.29	L	(Bq/kg)
Iron-55	3042	1320	N		130.5	924.00 - 1716.00	1055	H	(Bq/kg)
Manganese-54	210	203	A		3.4	142.10 - 263.90	6.2	L	(Bq/kg)
Nickel-63	NR	550				385.00 - 715.00			
Plutonium-238	116	115	A		0.9	80.50 - 149.50	11.7		(Bq/kg)
Plutonium-239/240	84.4	83.4	A		1.2	58.38 - 108.42	8.9		(Bq/kg)
Potassium-40	674	652	A		3.4	456.40 - 847.60	15.4	L	(Bq/kg)
Strontium-90	165	209	W		-21.1	146.30 - 271.70	11.2		(Bq/kg)
Uranium-234/233	57.6	60	A		-4.0	42.00 - 78.00	7.6		(Bq/kg)
Uranium-238	197	191	A		3.1	133.70 - 248.30	24.5		(Bq/kg)
Zinc-65	413	382	A		8.1	267.40 - 496.60	7.7	L	(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

WEST04

ANTECH LTD WALTZ MILL SITE
P.O. BOX 158
MADISON PA 15663

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

Flags:

A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

YAEC01

DUKE ENGINEERING & SERVICES ENVIRONMENTAL
29 Research Drive
Marlborough MA 01581

Analyte	Result	Ref Value	Flag	Flag Text	Bias (%)	Acceptance Range	Unc Value	Unc. Flag	Units
Arsenic	NR	27				18.73 - 34.79			
Barium	NR	243				170.10 - 315.90			
Beryllium	NR	70.3				49.20 - 91.38			
Chromium	NR	66				46.43 - 86.23			
Lead	NR	24				17.03 - 31.63			
Nickel	NR	95				66.56 - 123.62			
Silver	NR	74.3				52.00 - 96.56			
Thallium	NR	21.3				14.88 - 27.64			
Uranium-238	NR	15.4				10.75 - 19.97			
Vanadium	NR	35				24.50 - 45.50			
Zinc	NR	179				124.96 - 232.06			
Americium-241	-0.2		A				0.09		(Bq/kg)
Cesium-134	97.347	91.1	A		6.9	63.77 - 118.43	2.23	L	(Bq/kg)
Cesium-137	1252.08	1240	A		1.0	868.00 - 1612.00	4.32	L	(Bq/kg)
Cobalt-57	105.191	103	A		2.1	72.10 - 133.90	1.41	L	(Bq/kg)
Cobalt-60	1346.4	1270	A		6.0	889.00 - 1651.00	3.65	L	(Bq/kg)
Iron-55	812.77	1320	N		-38.4	924.00 - 1716.00	148		(Bq/kg)
Manganese-54	214.8	203	A		5.8	142.10 - 263.90	5.67	L	(Bq/kg)
Nickel-63	474.09	550	A		-13.8	385.00 - 715.00	12.46	L	(Bq/kg)
Plutonium-238	114.60	115	A		-0.3	80.50 - 149.50	1.85	L	(Bq/kg)
Plutonium-239/240	81.375	83.4	A		-2.4	58.38 - 108.42	1.37	L	(Bq/kg)
Potassium-40	698.68	652	A		7.2	456.40 - 847.60	12.95	L	(Bq/kg)
Strontium-90	191.04	209	A		-8.6	146.30 - 271.70	7.52		(Bq/kg)
Uranium-234/233	56.178	60	A		-6.4	42.00 - 78.00	3.35		(Bq/kg)
Uranium-238	184.49	191	A		-3.4	133.70 - 248.30	10.73		(Bq/kg)
Zinc-65	408.23	382	A		6.9	267.40 - 496.60	8.02	L	(Bq/kg)

Flags:

A = Result acceptable Bias <= 20%
W = Result acceptable with warning 20% < Bias <= 30%
N = Result not acceptable Bias > 30%
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

Mixed Analyte Performance Evaluation Program

Laboratory Results

Sample ID: MAPEP-01-S8

YAEC01

DUKE ENGINEERING & SERVICES ENVIRONMENTAL
29 Research Drive
Marlborough MA 01581

Analyte	Result	Ref Value	Flag	Flag Text	Z Score	Acceptance Range	Units
1,3-Dichlorobenzene	NR	520.1				QL - 1044.57	
Nitrobenzene	NR	683.7				74.08 - 1293.31	
Naphthalene	NR	572.2				159.24 - 985.13	
Hexachlorobutadiene	NR	585.3				34.58 - 1136.08	
2,6-Dichlorophenol	NR	306.2				QL - 635.91	
2-Chloronaphthalene	NR	664.4				86.98 - 1241.75	
2,6-Dinitrotoluene	NR	839.5				123.53 - 1555.44	
2,4-Dinitrotoluene	NR	785.4				101.96 - 1468.95	
Fluorene	NR	522				14.22 - 1029.78	
Diethylphthalate	NR	858.2				108.09 - 1608.43	
Anthracene	NR	345.8				QL - 855.60	
1,3-Dinitrobenzene	NR	508				QL - 1695.91	
Pyrene	NR	685				132.99 - 1236.97	
Benzo(a)anthracene	NR	553.5				43.89 - 1063.12	
Chrysene	NR	598.9				23.06 - 1174.69	
Bis(2-ethylhexyl)phthalat	NR	5166				QL - 14183.67	
Di-n-octylphthalate	NR	1139				QL - 2608.46	

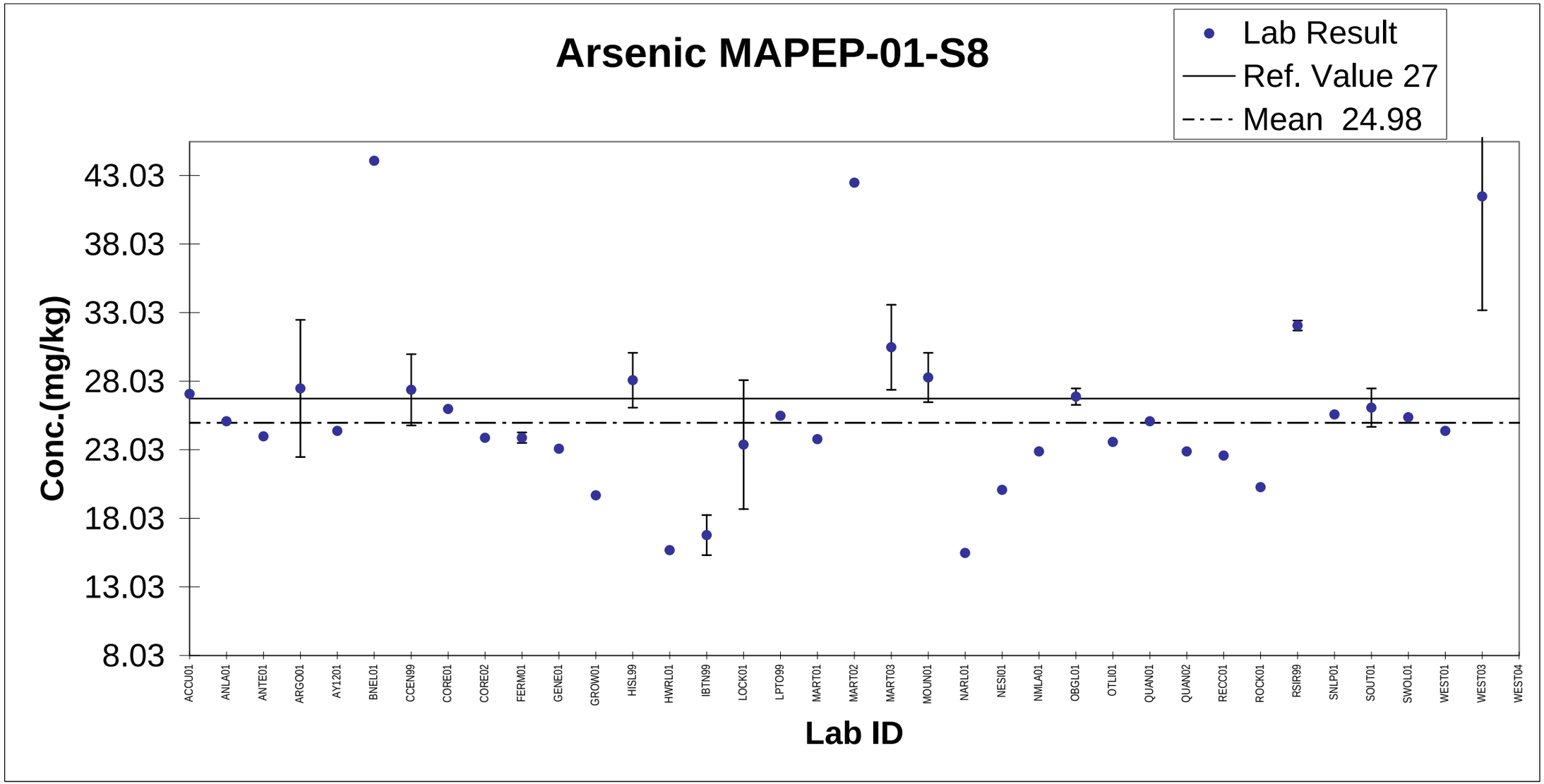
Flags:

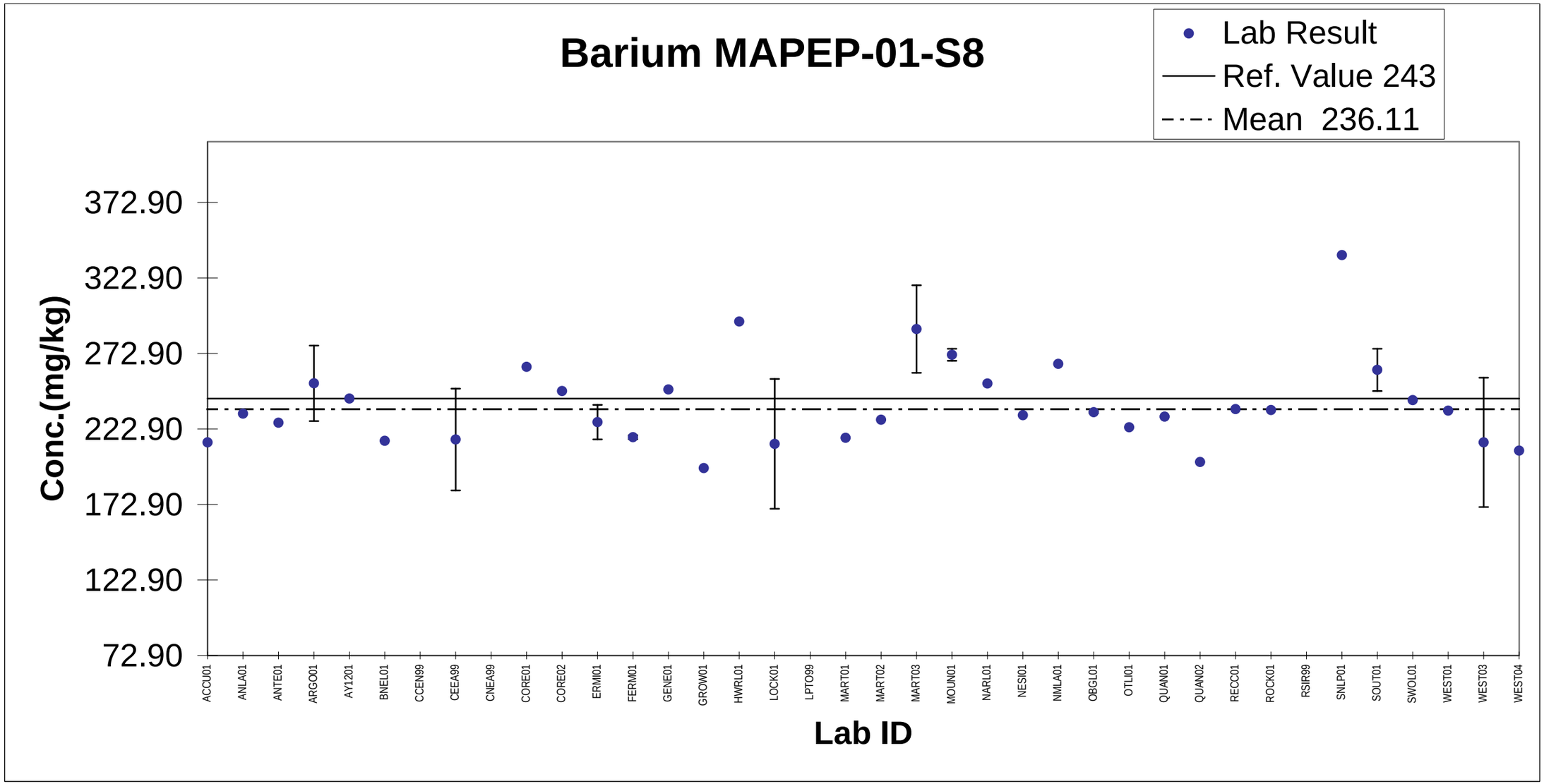
A = Result acceptable Z-score <=2.0)
W = Result acceptable with warning 2.0 < Z-score <=3.0)
N = Result not acceptable Z-score > 3.0)
L = Uncertainty potentially too low (for infomation purposes only)
H = Uncertainty potentially too high (for information purposes only)
QL = Detection Limit
RW = Report Warning
NR = Not Reported

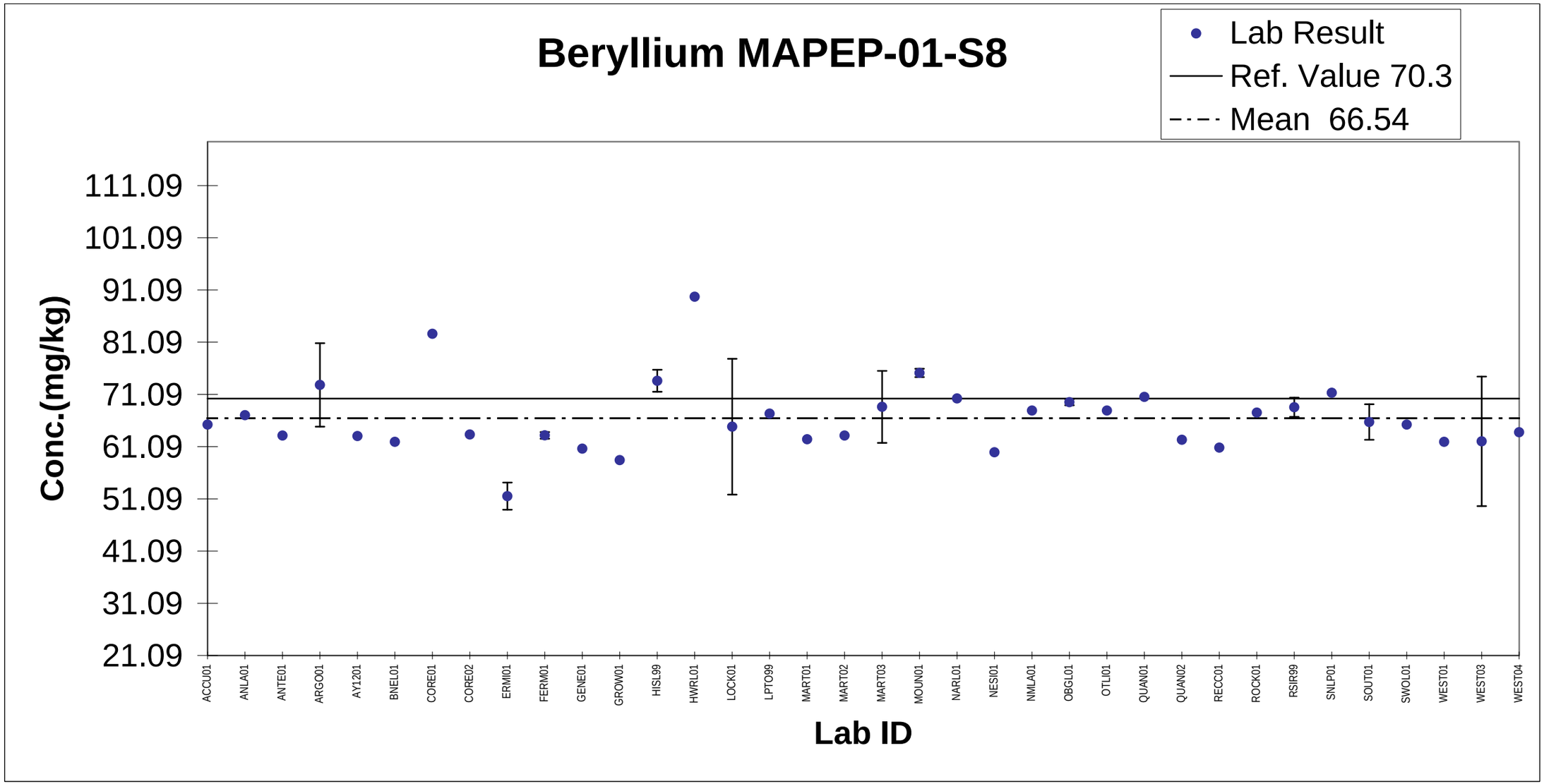
APPENDIX

C

Graphics of Data Gathered from Soil Sample MAPEP-01-S8


Arsenic MAPEP-01-S8
Lab Result
Ref. Value 27
Mean 24.98
Conc.(mg/kg)
43.03
38.03
33.03
28.03
23.03
18.03
13.03
8.03
ACCU01
ANLA01
ANTE01
ARGO01
AY1201
BNEL01
CCEN99
CORE01
CORE02
FERM01
GENE01
GROW01
HISL99
HWRL01
IBTN99
LOCK01
LPTO99
MART01
MART02
MART03
MOUN01
NARL01
NESI01
NMLA01
OBGL01
OTLI01
QUAN01
QUAN02
RECC01
ROCK01
RSIR99
SNLP01
SOUT01
SWOL01
WEST01
WEST03
WEST04
Lab ID


Barium MAPEP-01-S8
Lab Result
Ref. Value 243
Mean 236.11
Conc.(mg/kg)
372.90
322.90
272.90
222.90
172.90
122.90
72.90
ACCU01
ANLA01
ANTE01
ARGO01
AY1201
BNEL01
CCEN99
CEEA99
CNEA99
CORE01
CORE02
ERMI01
FERM01
GENE01
GROW01
HWRL01
LOCK01
LPTO99
MART01
MART02
MART03
MOUN01
NARL01
NESI01
NMLA01
OBGL01
OTLI01
QUAN01
QUAN02
RECC01
ROCK01
RSIR99
SNLP01
SOUT01
SWOL01
WEST01
WEST03
WEST04
Lab ID


Beryllium MAPEP-01-S8
Lab Result
Ref. Value 70.3
Mean 66.54
Conc.(mg/kg)
111.09
101.09
91.09
81.09
71.09
61.09
51.09
41.09
31.09
21.09
ACCU01
ANLA01
ANTE01
ARGO01
AY1201
BNEL01
CORE01
CORE02
ERMI01
FERM01
GENE01
GROW01
HISL99
HWRL01
LOCK01
LPTO99
MART01
MART02
MART03
MOUN01
NARL01
NESI01
NMLA01
OBGL01
OTLI01
QUAN01
QUAN02
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SOUT01
SWOL01
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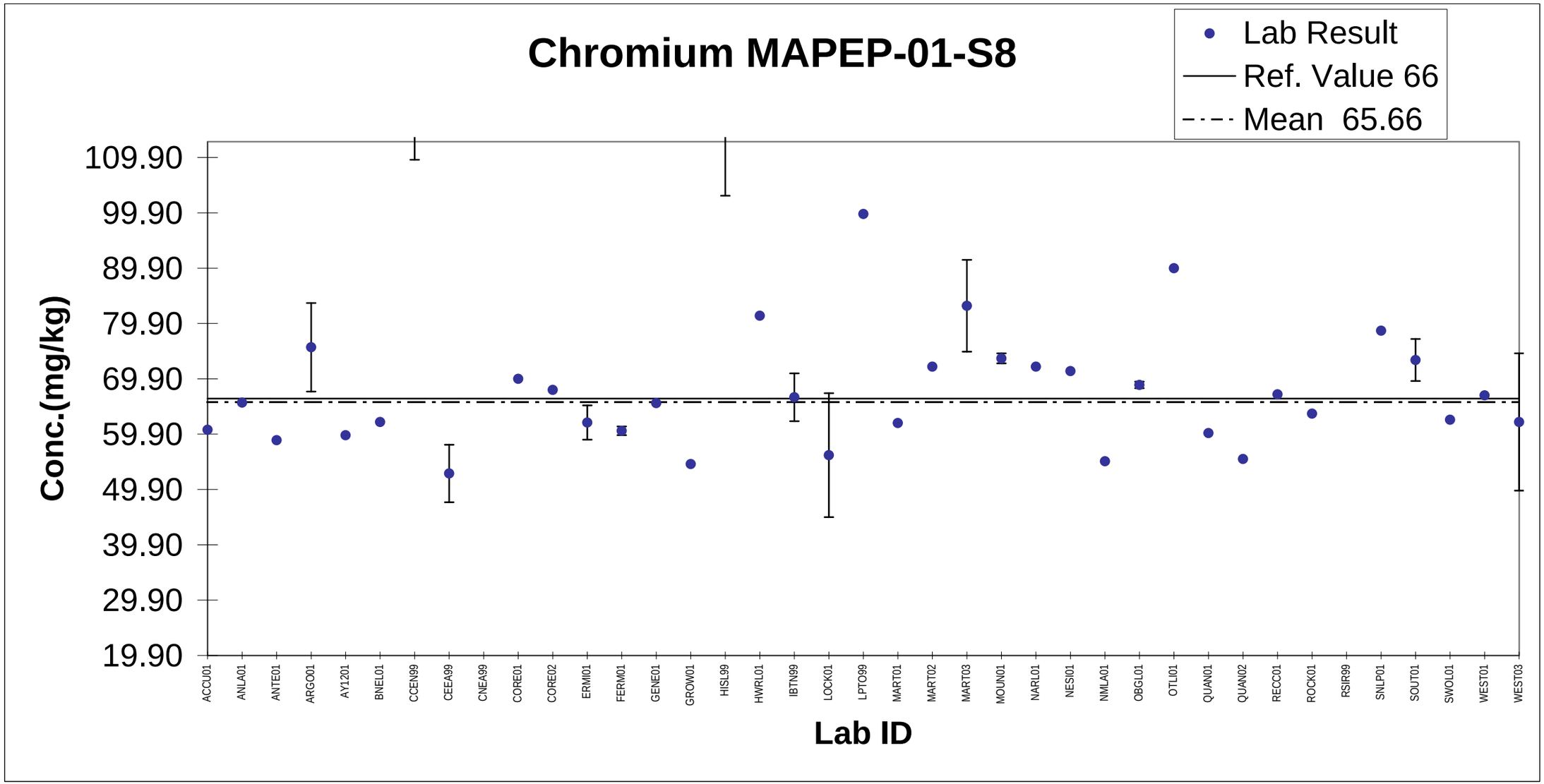
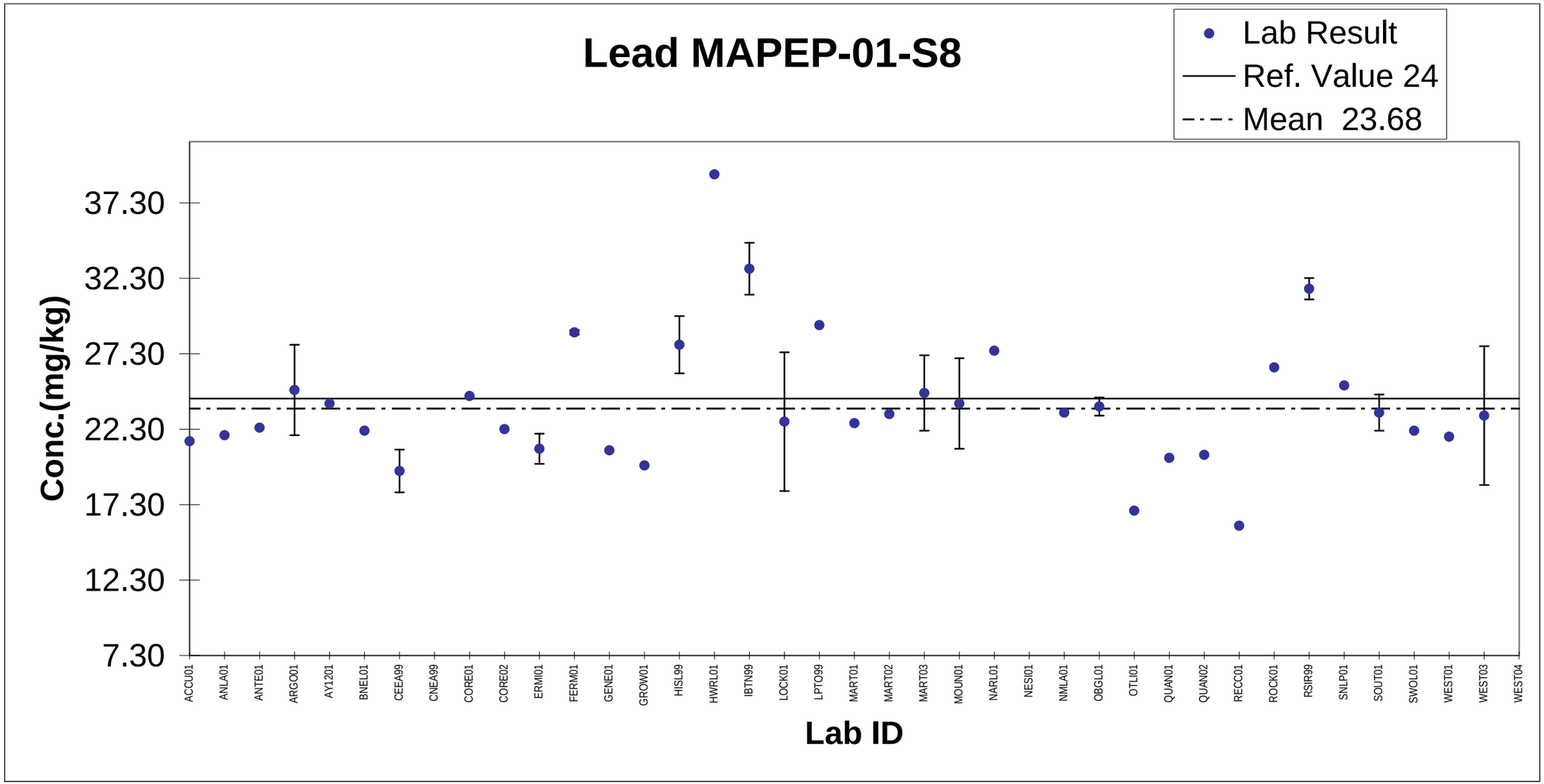
WEST03
WEST04
Lab ID


Chromium MAPEP-01-S8
Lab Result
Ref. Value 66
Mean 65.66
Conc.(mg/kg)
109.90
99.90
89.90
79.90
69.90
59.90
49.90
39.90
29.90
19.90
ACCU01
ANLA01
ANTE01
ARGO01
AY1201
BNEL01
CCEN99
CEEA99
CNEA99
CORE01
CORE02
ERMI01
FERM01
GENE01
GROW01
HISL99
HWRL01
IBTN99
LOCK01
LPTO99
MART01
MART02
MART03
MOUN01
NARL01
NESI01
NMLA01
OBGL01
OTLI01
QUAN01
QUAN02
RECC01
ROCK01
RSIR99
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID


Lead MAPEP-01-S8
Lab Result
Ref. Value 24
Mean 23.68
Conc.(mg/kg)
37.30
32.30
27.30
22.30
17.30
12.30
7.30
ACCU01
ANLA01
ANTE01
ARGO01
AY1201
BNEL01
CEEA99
CNEA99
CORE01
CORE02
ERMI01
FERM01
GENE01
GROW01
HISL99
HWRL01
IBTN99
LOCK01
LPTO99
MART01
MART02
MART03
MOUN01
NARL01
NESI01
NMLA01
OBGL01
OTLI01
QUAN01
QUAN02
RECC01
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SNLP01
SOUT01
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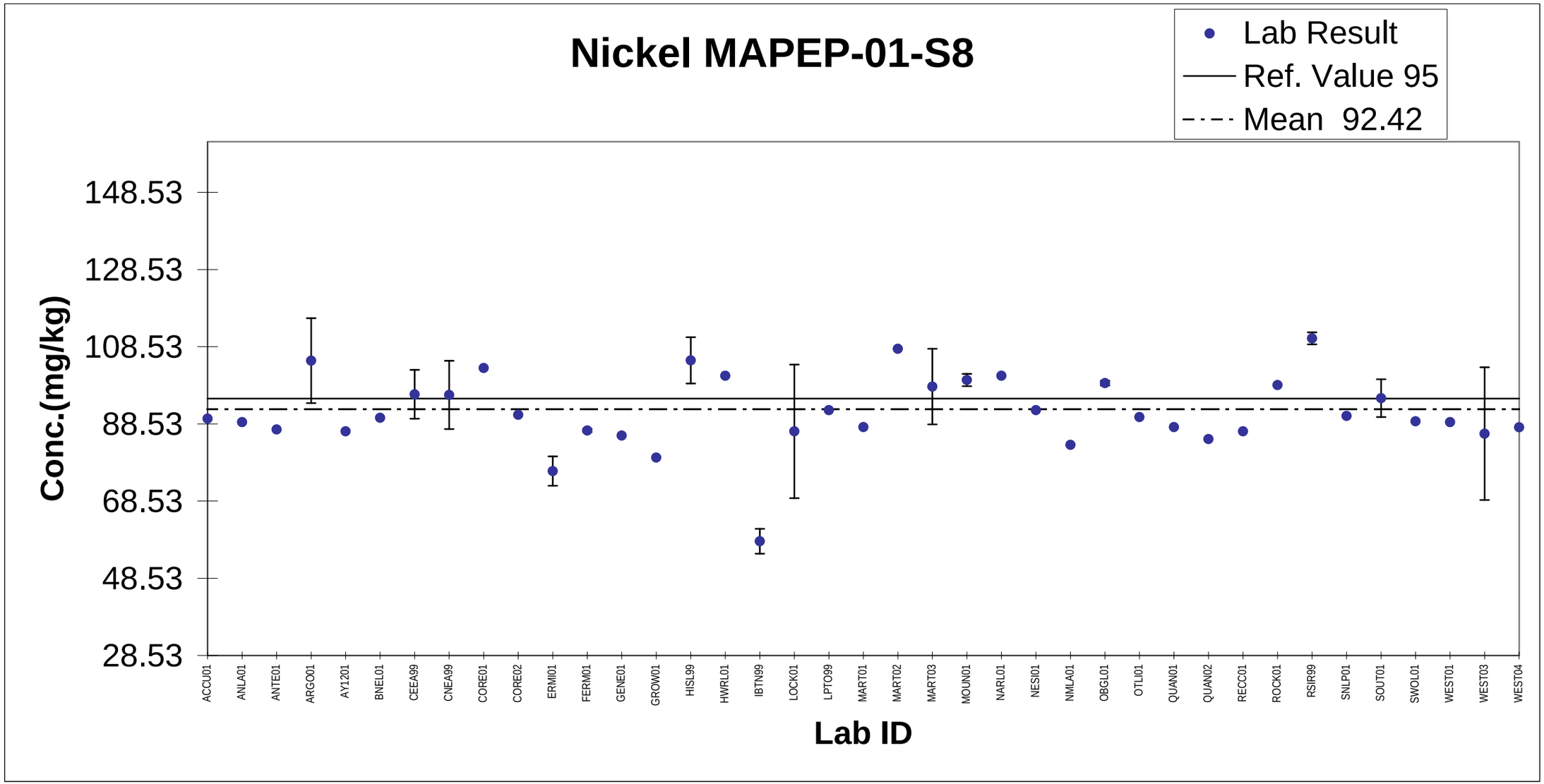
WEST01
WEST03
WEST04
Lab ID


Nickel MAPEP-01-S8
Lab Result
Ref. Value 95
Mean 92.42
Conc.(mg/kg)
148.53
128.53
108.53
88.53
68.53
48.53
28.53
ACCU01
ANLA01
ANTE01
ARGO01
AY1201
BNEL01
CEEA99
CNEA99
CORE01
CORE02
ERMI01
FERM01
GENE01
GROW01
HISL99
HWRL01
IBTN99
LOCK01
LPTO99
MART01
MART02
MART03
MOUN01
NARL01
NESI01
NMLA01
OBGL01
OTLI01
QUAN01
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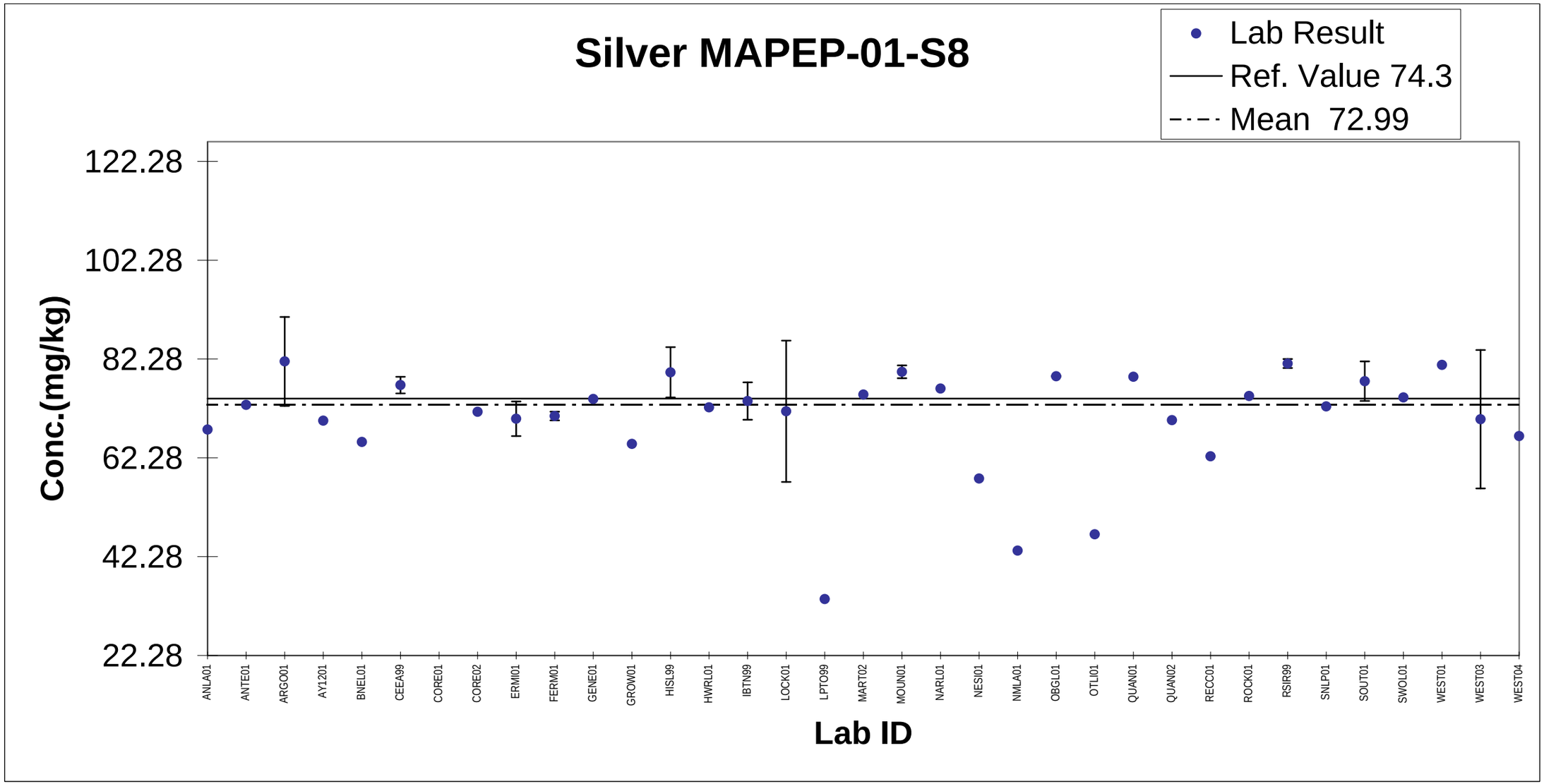
RECC01
ROCK01
RSIR99
SNLP01
SOUT01
SWOL01
WEST01
WEST03
WEST04
Lab ID


Silver MAPEP-01-S8
Lab Result
Ref. Value 74.3
Mean 72.99
Conc.(mg/kg)
122.28
102.28
82.28
62.28
42.28
22.28
ANLA01
ANTE01
ARGO01
AY1201
BNEL01
CEEA99
CORE01
CORE02
ERMI01
FERM01
GENE01
GROW01
HISL99
HWRL01
IBTN99
LOCK01
LPTO99
MART02
MOUN01
NARL01
NESI01
NMLA01
OBGL01
OTLI01
QUAN01
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ROCK01
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SWOL01
WEST01
WEST03
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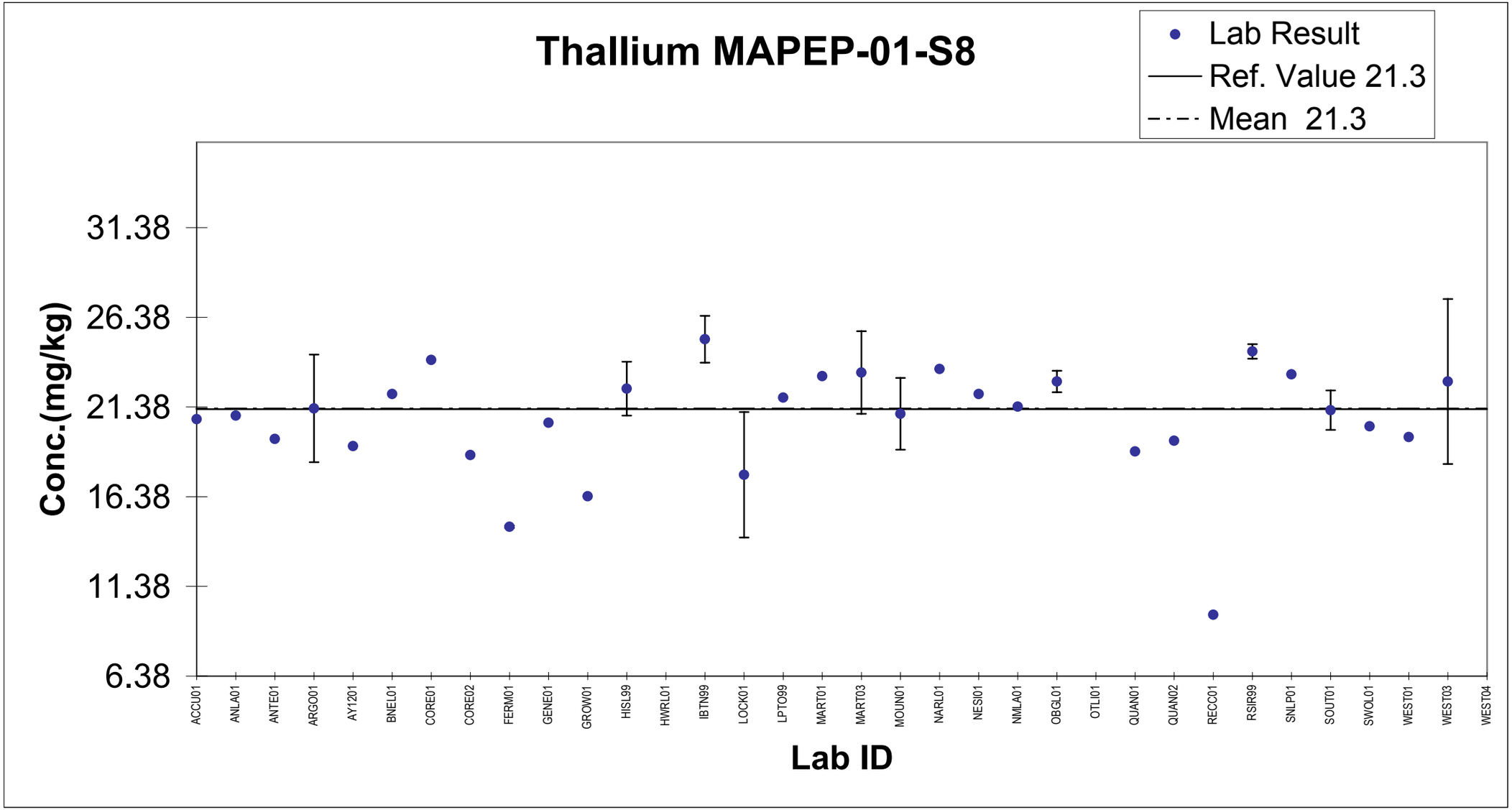
Lab ID


Thallium MAPEP-01-S8
Lab Result
Ref. Value 21.3
Mean 21.3
Conc.(mg/kg)
31.38
26.38
21.38
16.38
11.38
6.38
ACCU01
ANLA01
ANTE01
ARGO01
AY1201
BNEL01
CORE01
CORE02
FERM01
GENE01
GROW01
HISL99
HWRL01
IBTN99
LOCK01
LPTO99
MART01
MART03
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NMLA01
OBGL01
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SNLP01
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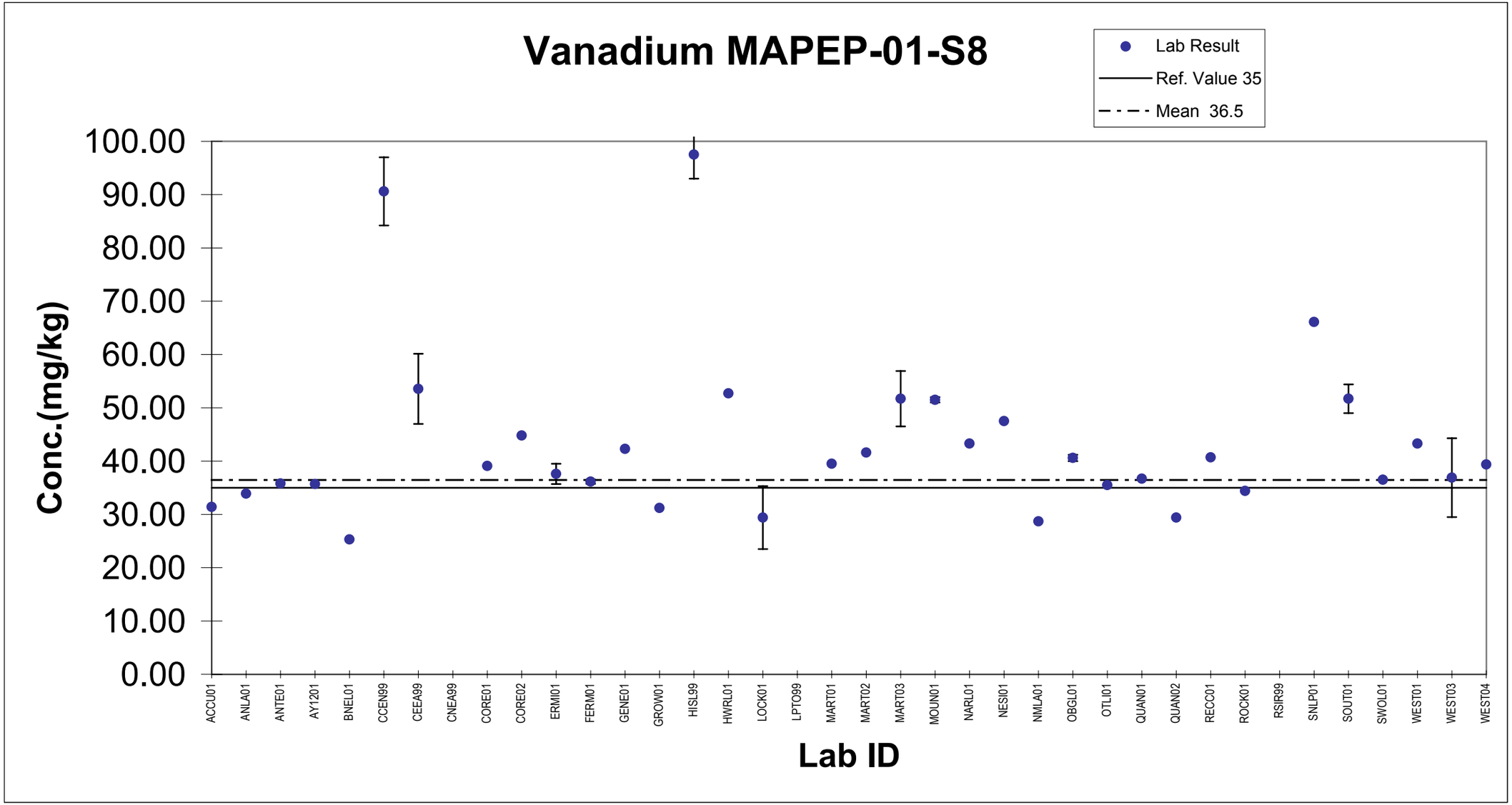
SWOL01
WEST01
WEST03
WEST04
Lab ID


Vanadium MAPEP-01-S8
Lab Result
Ref. Value 35
Mean 36.5
Conc.(mg/kg)
100.00
90.00
80.00
70.00
60.00
50.00
40.00
30.00
20.00
10.00
0.00
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CCEN99
CEEA99
CNEA99
CORE01
CORE02
ERMI01
FERM01
GENE01
GROW01
HISL99
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LOCK01
LPTO99
MART01
MART02
MART03
MOUN01
NARL01
NESI01
NMLA01
OBGL01
OTLI01
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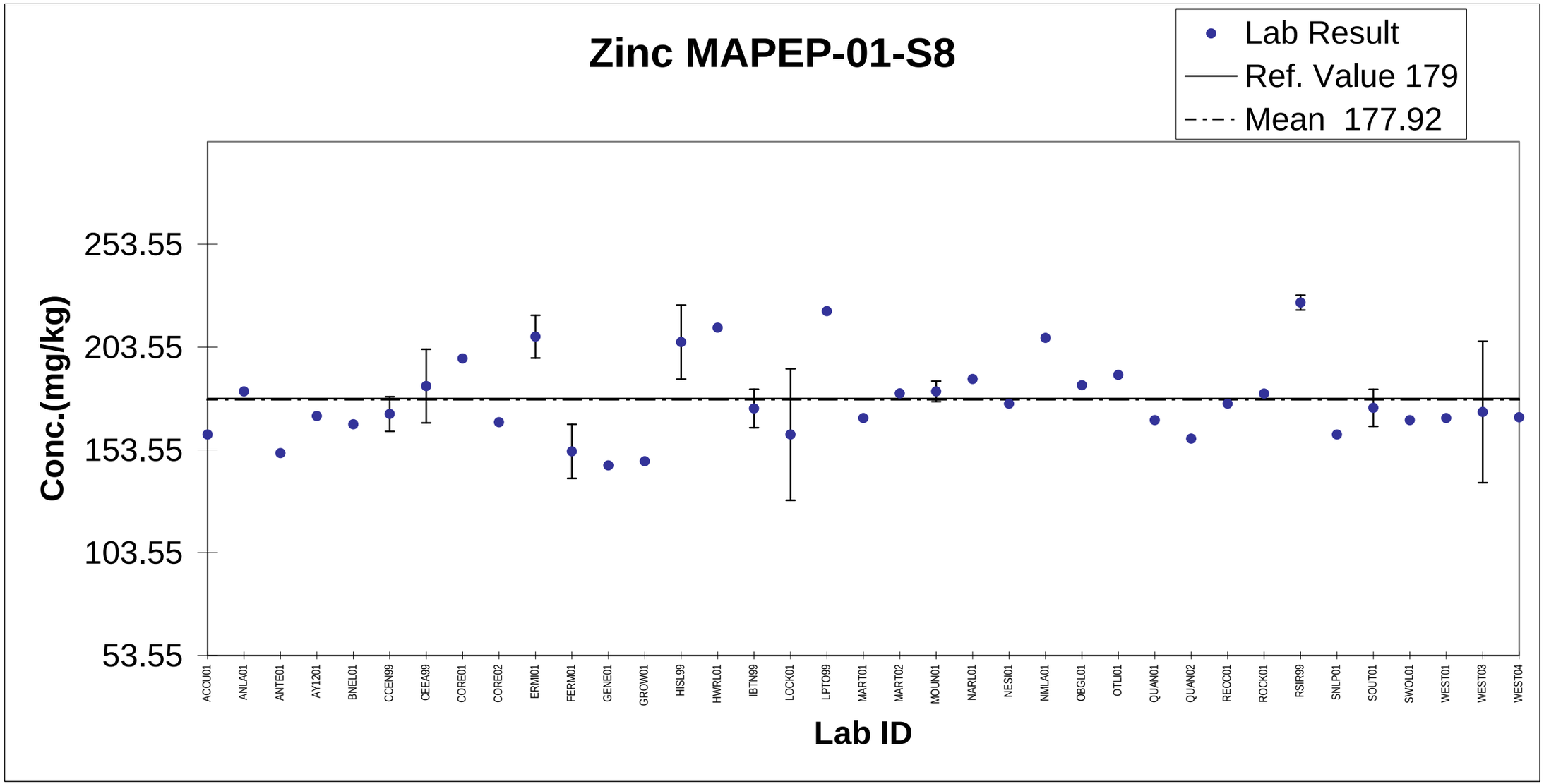
SOUT01
SWOL01
WEST01
WEST03
WEST04
Lab ID


Zinc MAPEP-01-S8
Lab Result
Ref. Value 179
Mean 177.92
Conc.(mg/kg)
253.55
203.55
153.55
103.55
53.55
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CCEN99
CEEA99
CORE01
CORE02
ERMI01
FERM01
GENE01
GROW01
HISL99
HWRL01
IBTN99
LOCK01
LPTO99
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OBGL01
OTLI01
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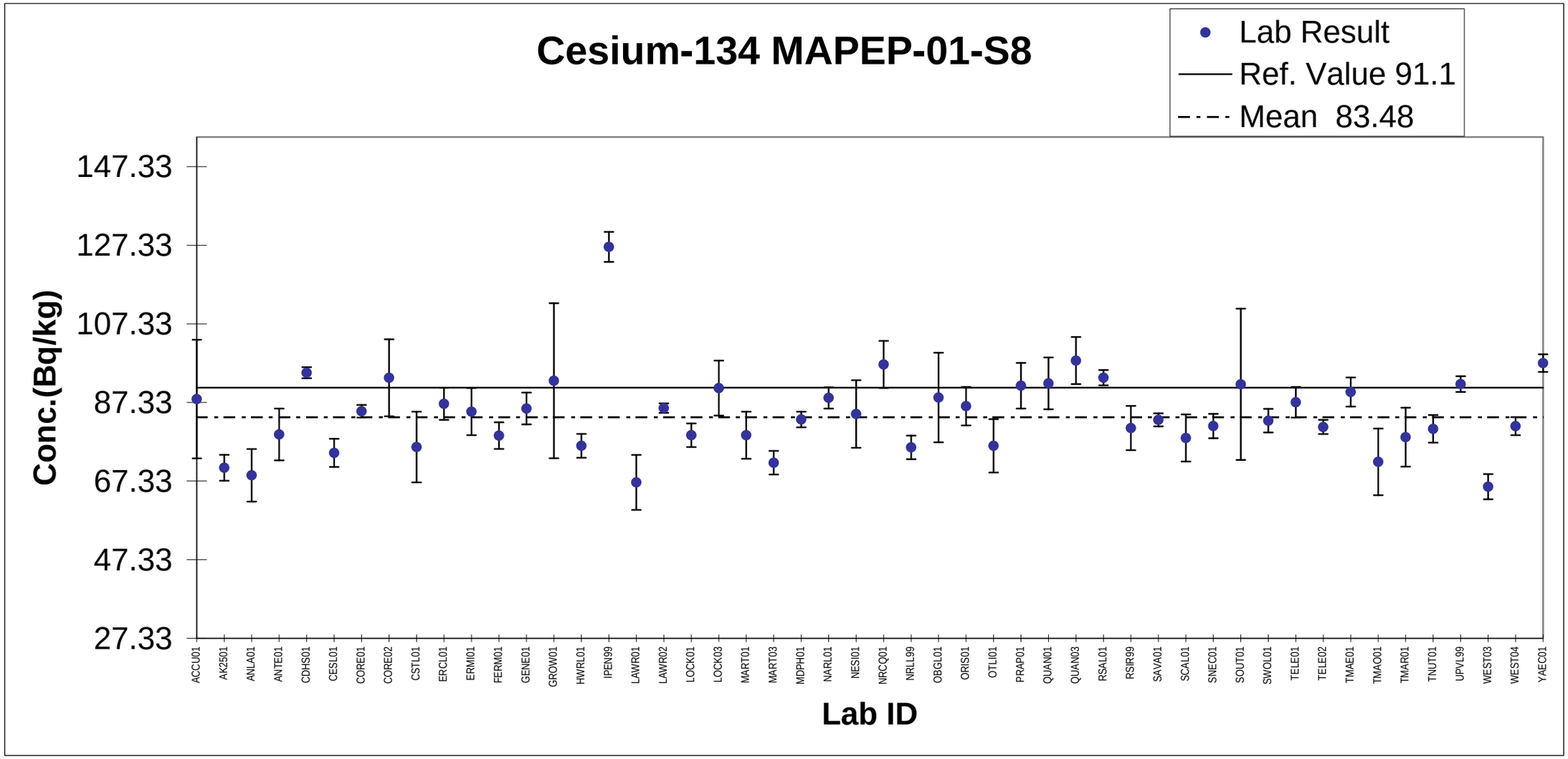
ROCK01
RSIR99
SNLP01
SOUT01
SWOL01
WEST01
WEST03
WEST04
Lab ID


Cesium-134 MAPEP-01-S8
Lab Result
Ref. Value 91.1
Mean 83.48
Conc.(Bq/kg)
147.33
127.33
107.33
87.33
67.33
47.33
27.33
ACCU01
AK2S01
ANLA01
ANTE01
CDHS01
CESL01
CORE01
CORE02
CSTL01
ERCL01
ERMI01
FERM01
GENE01
GROW01
HWRL01
IPEN99
LAWR01
LAWR02
LOCK01
LOCK03
MART01
MART03
MDPH01
NARL01
NESI01
NRCQ01
NRLL99
OBGL01
ORIS01
OTLI01
PRAP01
QUAN01
QUAN03
RSAL01
RSIR99
SAVA01
SCAL01
SNEC01
SOUT01
SWOL01
TELE01
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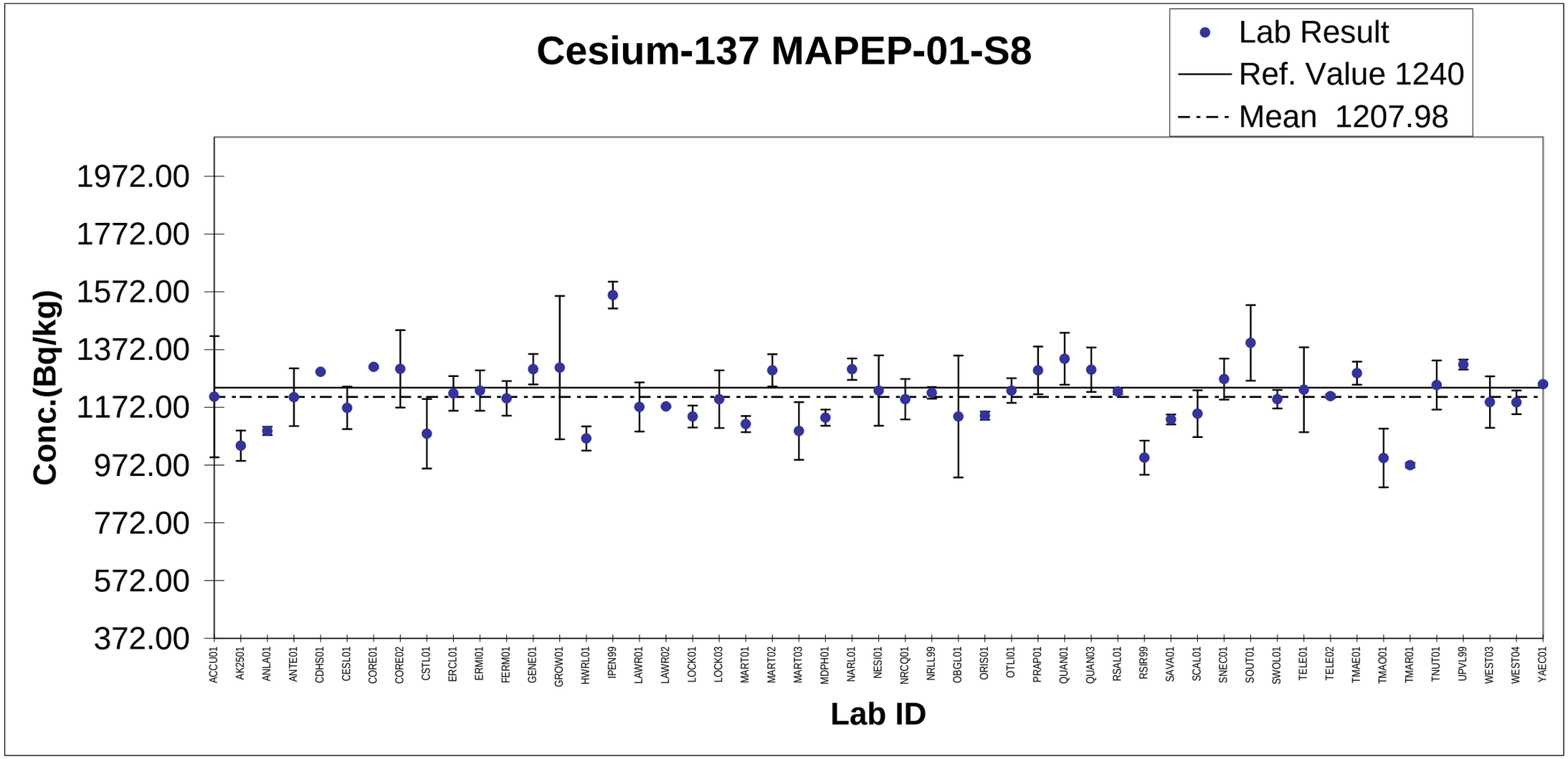
TMAR01
TNUT01
UPVL99
WEST03
WEST04
YAEC01
Lab ID


Cesium-137 MAPEP-01-S8
Lab Result
Ref. Value 1240
Mean 1207.98
Conc.(Bq/kg)
1972.00
1772.00
1572.00
1372.00
1172.00
972.00
772.00
572.00
372.00
ACCU01
AK2501
ANLA01
ANTE01
CDHS01
CESL01
CORE01
CORE02
CSTL01
ERCL01
ERMI01
FERM01
GENE01
GROW01
HWRL01
IPEN99
LAWR01
LAWR02
LOCK01
LOCK03
MART01
MART02
MART03
MDPH01
NARL01
NESI01
NRCQ01
NRLL99
OBGL01
ORIS01
OTLI01
PRAP01
QUAN01
QUAN03
RSAL01
RSIR99
SAVA01
SCAL01
SNEC01
SOUT01
SWOL01
TELE01
TELE02
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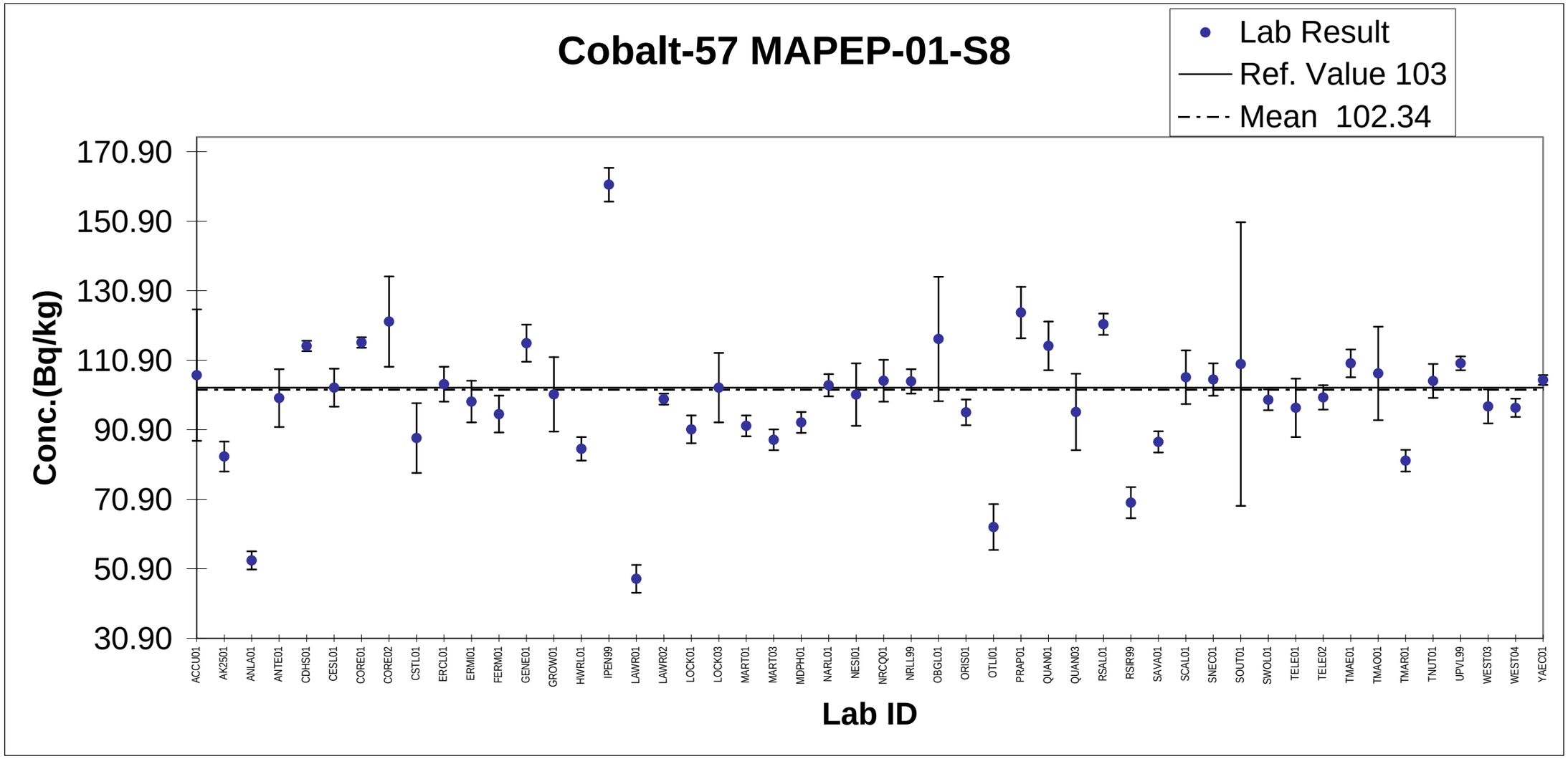
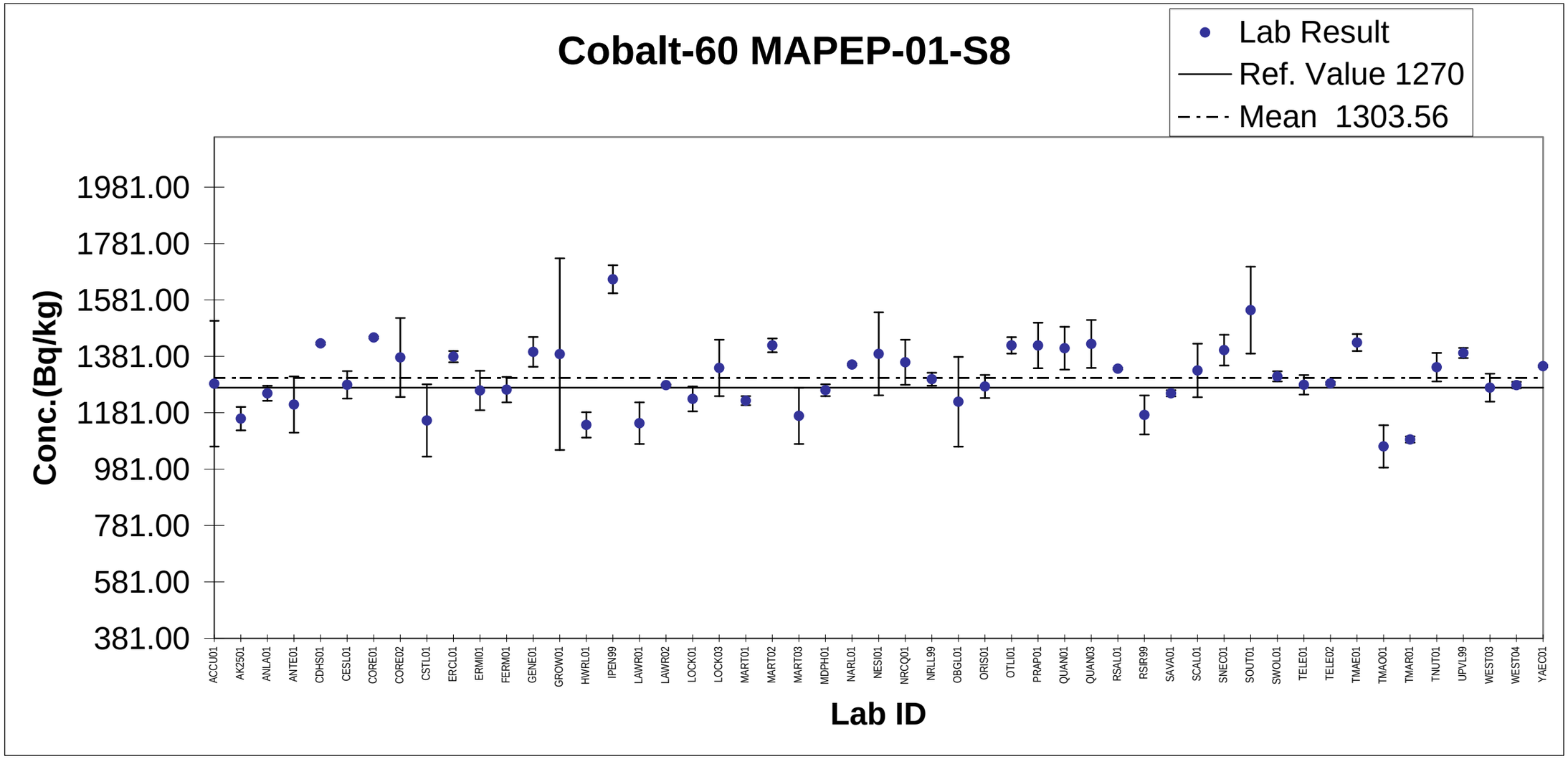
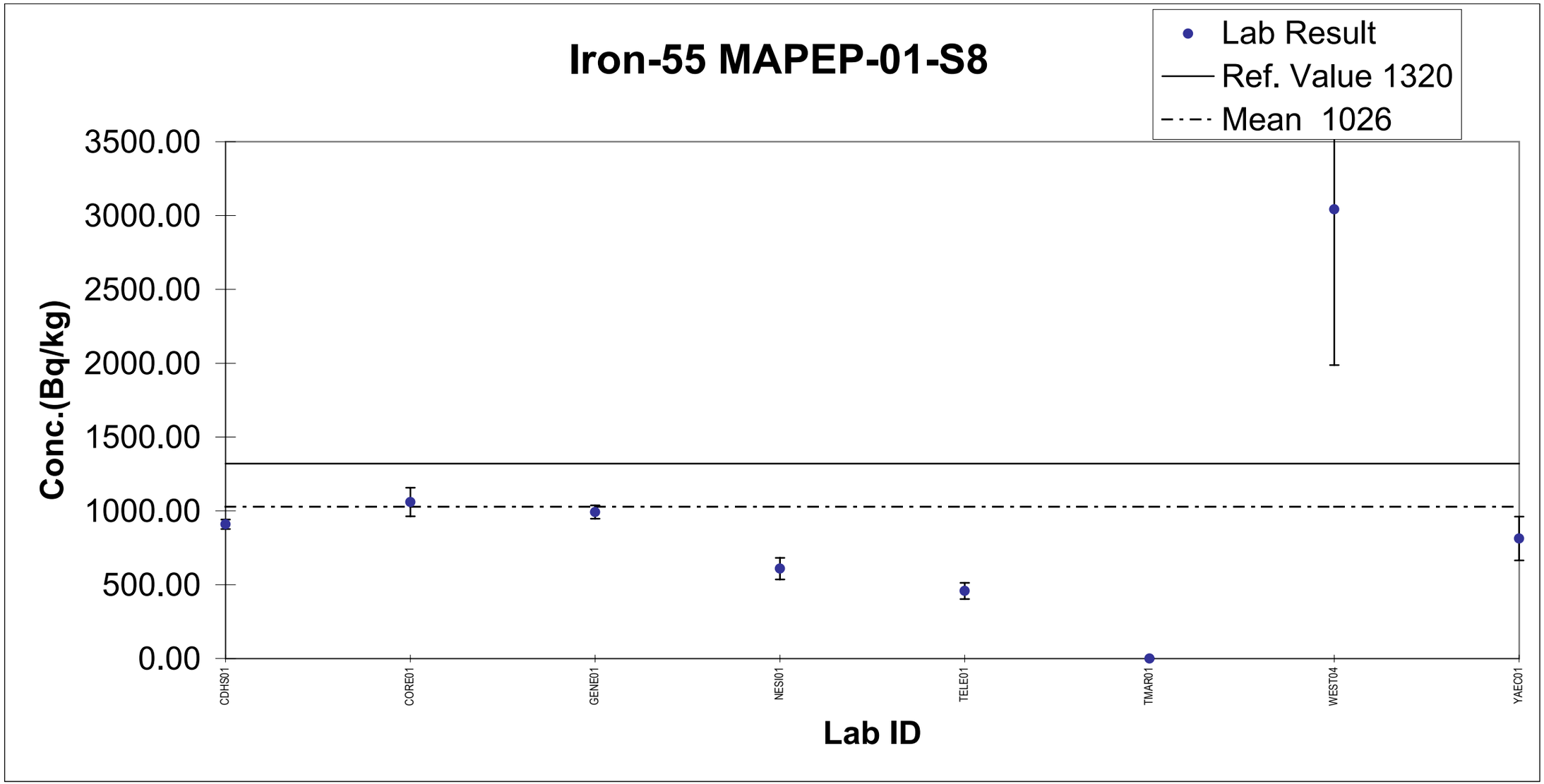
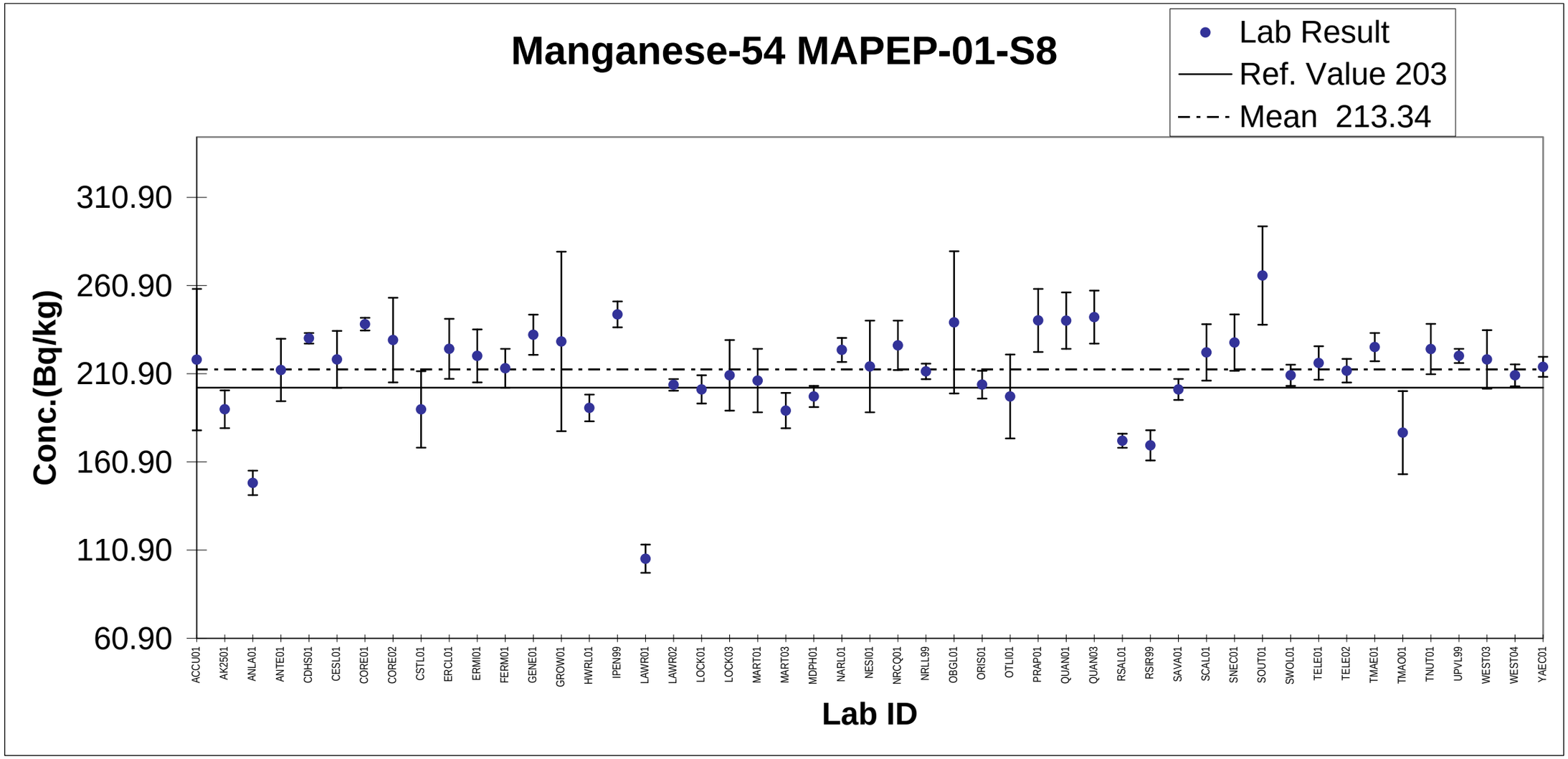
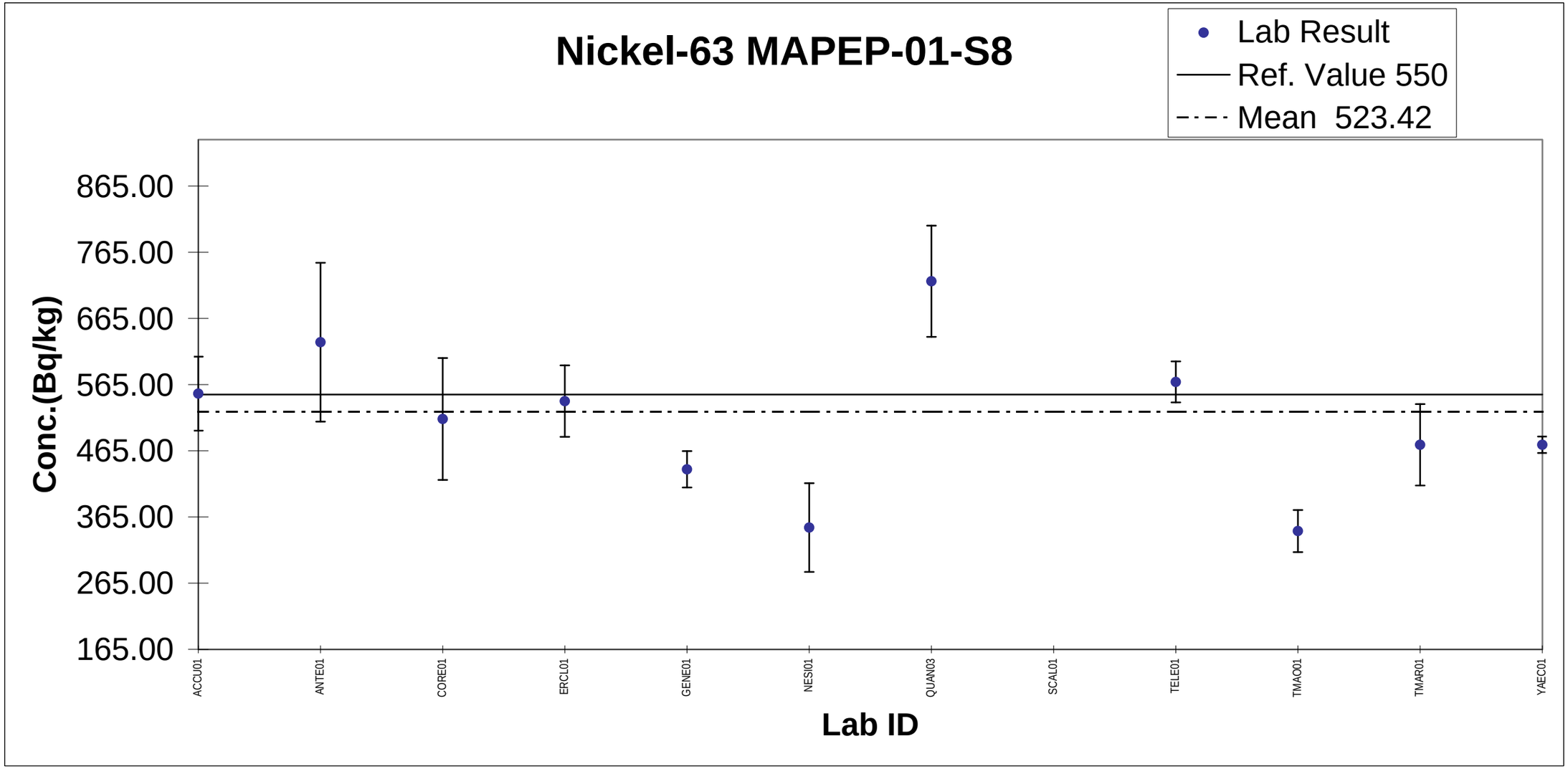
TMAO01
TMAR01
TNUT01
UPVL99
WEST03
WEST04
YAEC01
Lab ID

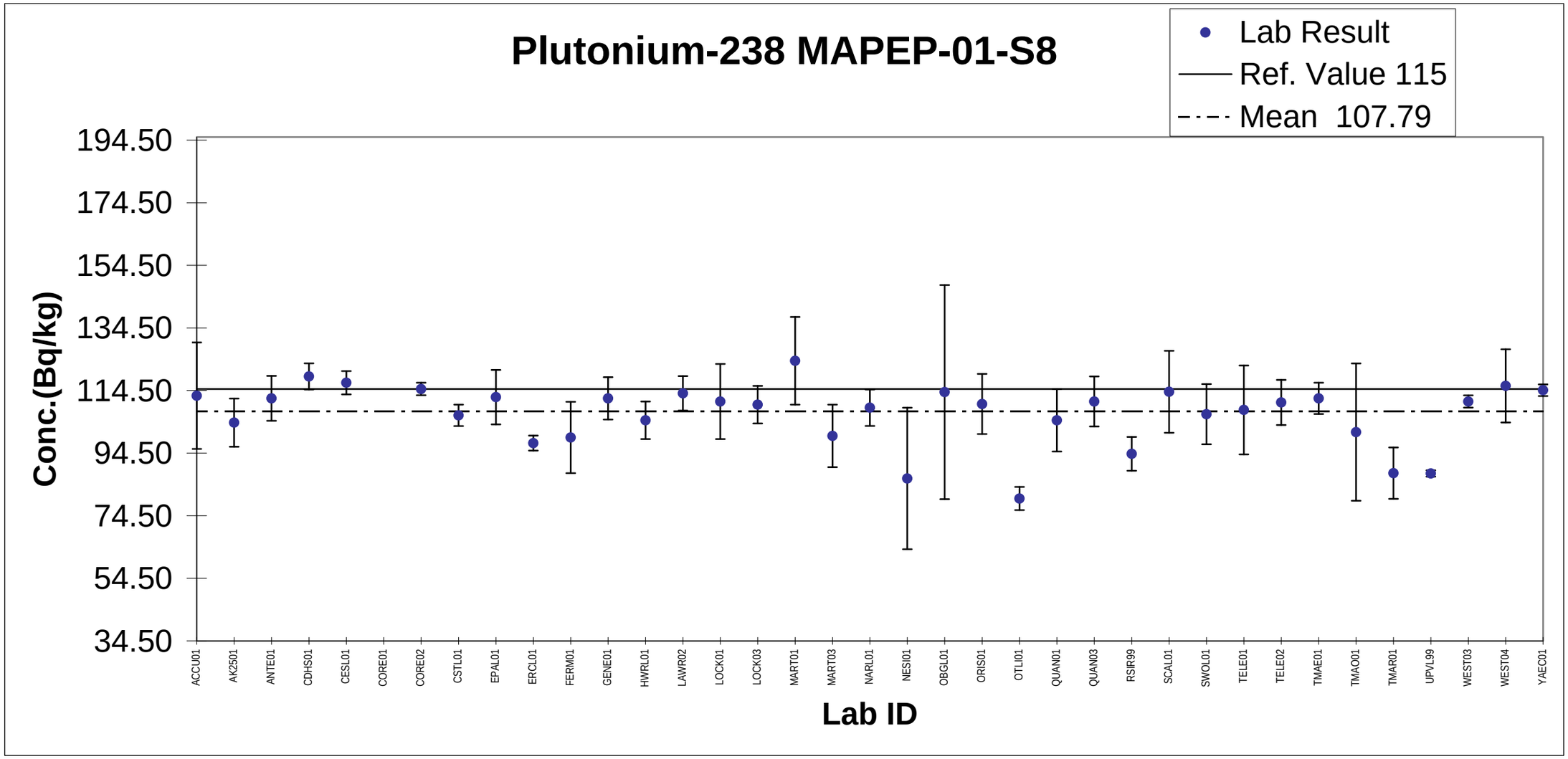

Cobalt-57 MAPEP-01-S8
Lab Result
Ref. Value 103
Mean 102.34
Conc.(Bq/kg)
170.90
150.90
130.90
110.90
90.90
70.90
50.90
30.90
ACCU01
AK2S01
ANLA01
ANTE01
CDHS01
CESL01
CORE01
CORE02
CSTL01
ERCL01
ERMI01
FERM01
GENE01
GROW01
HWRL01
IPEN99
LAWR01
LAWR02
LOCK01
LOCK03
MART01
MART03
MDPH01
NARL01
NESI01
NRCQ01
NRLL99
OBGL01
ORIS01
OTLI01
PRAP01
QUAN01
QUAN03
RSAL01
RSIR99
SAVA01
SCAL01
SNEC01
SOUT01
SWOL01
TELE01
TELE02
TMAE01
TMAO01
TMAR01
TNUT01
UPVL99
WEST03
WEST04
YAEC01
Lab ID

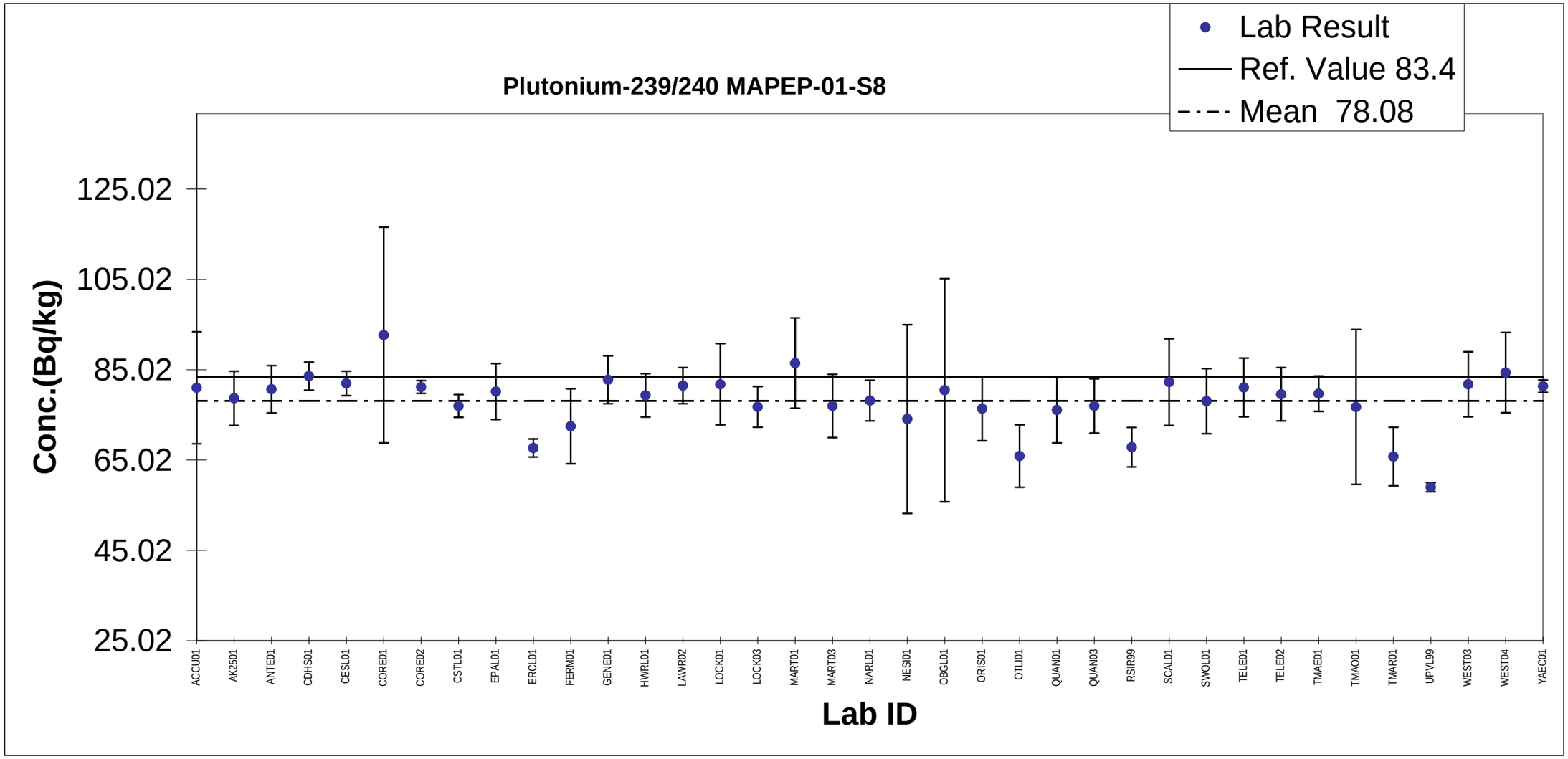

Cobalt-60 MAPEP-01-S8
Lab Result
Ref. Value 1270
Mean 1303.56
Conc.(Bq/kg)
1981.00
1781.00
1581.00
1381.00
1181.00
981.00
781.00
581.00
381.00
ACCU01
AK2501
ANLA01
ANTE01
CDHS01
CESL01
CORE01
CORE02
CSTL01
ERCL01
ERMI01
FERM01
GENE01
GROW01
HWRL01
IPEN99
LAWR01
LAWR02
LOCK01
LOCK03
MART01
MART02
MART03
MDPH01
NARL01
NESI01
NRCQ01
NRLL99
OBGL01
ORIS01
OTLI01
PRAP01
QUAN01
QUAN03
RSAL01
RSIR99
SAVA01
SCAL01
SNEC01
SOUT01
SWOL01
TELE01
TELE02
TMAE01
TMAO01
TMAR01
TNUT01
UPVL99
WEST03
WEST04
YAEC01
Lab ID

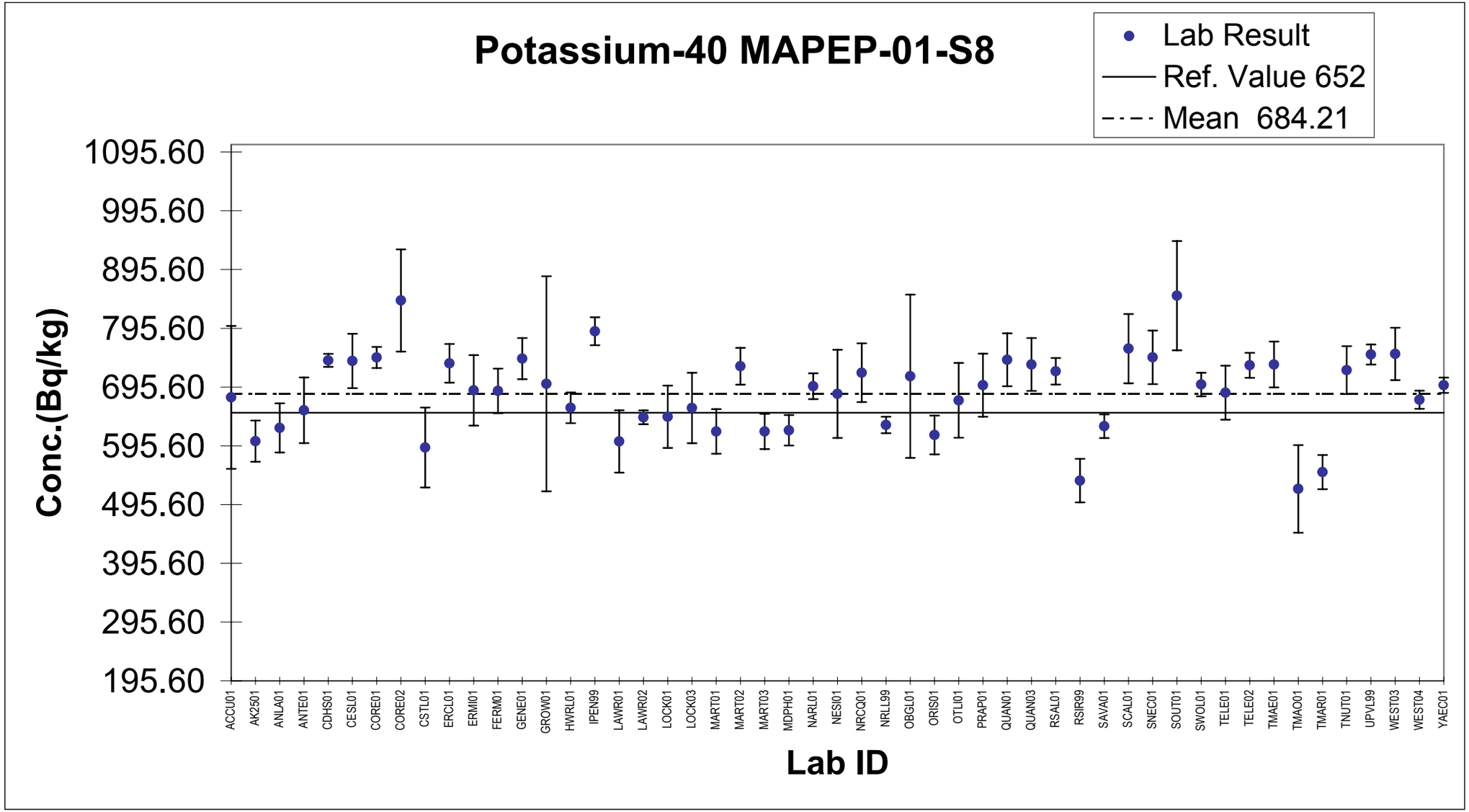

Iron-55 MAPEP-01-S8
Lab Result
Ref. Value 1320
Mean 1026
3500.00
3000.00
2500.00
2000.00
1500.00
1000.00
500.00
0.00
Conc.(Bq/kg)
CDHS01
CORE01
GENE01
NESI01
TELE01
TMAR01
WEST04
YAEC01
Lab ID


Manganese-54 MAPEP-01-S8
Lab Result
Ref. Value 203
Mean 213.34
Conc.(Bq/kg)
310.90
260.90
210.90
160.90
110.90
60.90
ACCU01
AK2501
ANLA01
ANTE01
CDHS01
CESL01
CORE01
CORE02
CSTL01
ERCL01
ERMI01
FERM01
GENE01
GROW01
HWRL01
IPEN99
LAWR01
LAWR02
LOCK01
LOCK03
MART01
MART03
MDPH01
NARL01
NESI01
NRCQ01
NRLL99
OBGL01
ORIS01
OTLI01
PRAP01
QUAN01
QUAN03
RSAL01
RSIR99
SAVA01
SCAL01
SNEC01
SOUT01
SWOL01
TELE01
TELE02
TMAE01
TMAO01
TNUT01
UPVL99
WEST03
WEST04
YAEC01
Lab ID


Nickel-63 MAPEP-01-S8
Lab Result
Ref. Value 550
Mean 523.42
Conc.(Bq/kg)
865.00
765.00
665.00
565.00
465.00
365.00
265.00
165.00
ACCU01
ANTE01
CORE01
ERCL01
GENE01
NESI01
QUAN03
SCAL01
TELE01
TMAO01
TMAR01
YAEC01
Lab ID


Plutonium-238 MAPEP-01-S8
Lab Result
Ref. Value 115
Mean 107.79
Conc.(Bq/kg)
194.50
174.50
154.50
134.50
114.50
94.50
74.50
54.50
34.50
ACCU01
AK2501
ANTE01
CDHS01
CESL01
CORE01
CORE02
CSTL01
EPAL01
ERCL01
FERM01
GENE01
HWRL01
LAWR02
LOCK01
LOCK03
MART01
MART03
NARL01
NESI01
OBGL01
ORIS01
OTLI01
QUAN01
QUAN03
RSIR99
SCAL01
SWOL01
TELE01
TELE02
TMAE01
TMAO01
TMAR01
UPVL99
WEST03
WEST04
YAEC01
Lab ID


Plutonium-239/240 MAPEP-01-S8
Lab Result
Ref. Value 83.4
Mean 78.08
Conc.(Bq/kg)
125.02
105.02
85.02
65.02
45.02
25.02
ACCU01
AK2501
ANTE01
CDHS01
CESL01
CORE01
CORE02
CSTL01
EPAL01
ERCL01
FERM01
GENE01
HWRL01
LAWR02
LOCK01
LOCK03
MART01
MART03
NARL01
NESI01
OBGL01
ORIS01
OTLI01
QUAN01
QUAN03
RSIR99
SCAL01
SWOL01
TELE01
TELE02
TMAE01
TMAO01
TMAR01
UPVL99
WEST03
WEST04
YAEC01
Lab ID


Potassium-40 MAPEP-01-S8
Lab Result
Ref. Value 652
Mean 684.21
Conc.(Bq/kg)
1095.60
995.60
895.60
795.60
695.60
595.60
495.60
395.60
295.60
195.60
ACCU01
AK2501
ANLA01
ANTE01
CDHS01
CESL01
CORE01
CORE02
CSTL01
ERCL01
ERMI01
FERM01
GENE01
GROW01
HWRL01
IPEN99
LAWR01
LAWR02
LOCK01
LOCK03
MART01
MART02
MART03
MDPH01
NARL01
NESI01
NRCQ01
NRLL99
OBGL01
ORIS01
OTLI01
PRAP01
QUAN01
QUAN03
RSAL01
RSIR99
SAVA01
SCAL01
SNEC01
SOUT01
SWOL01
TELE01
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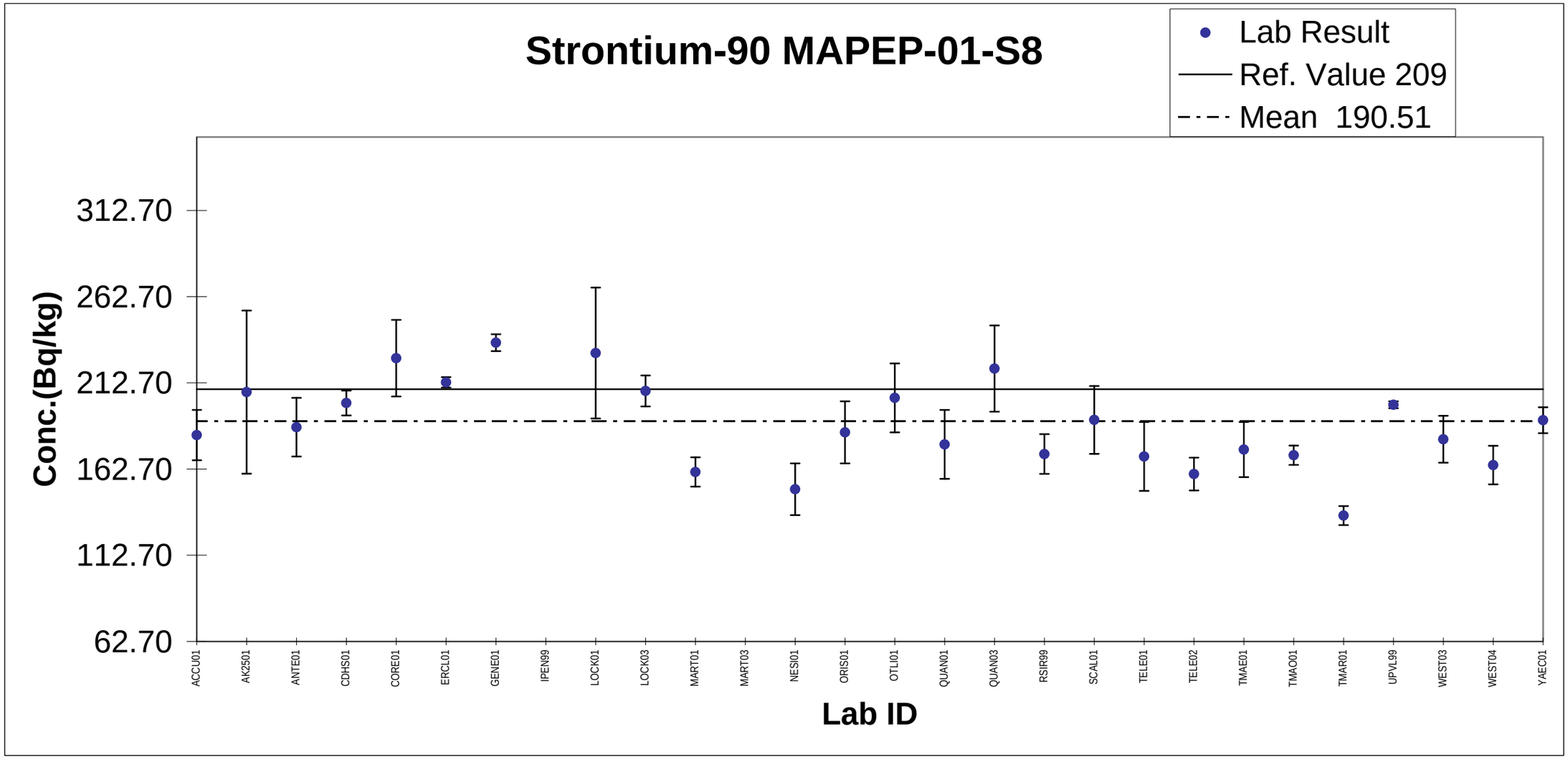
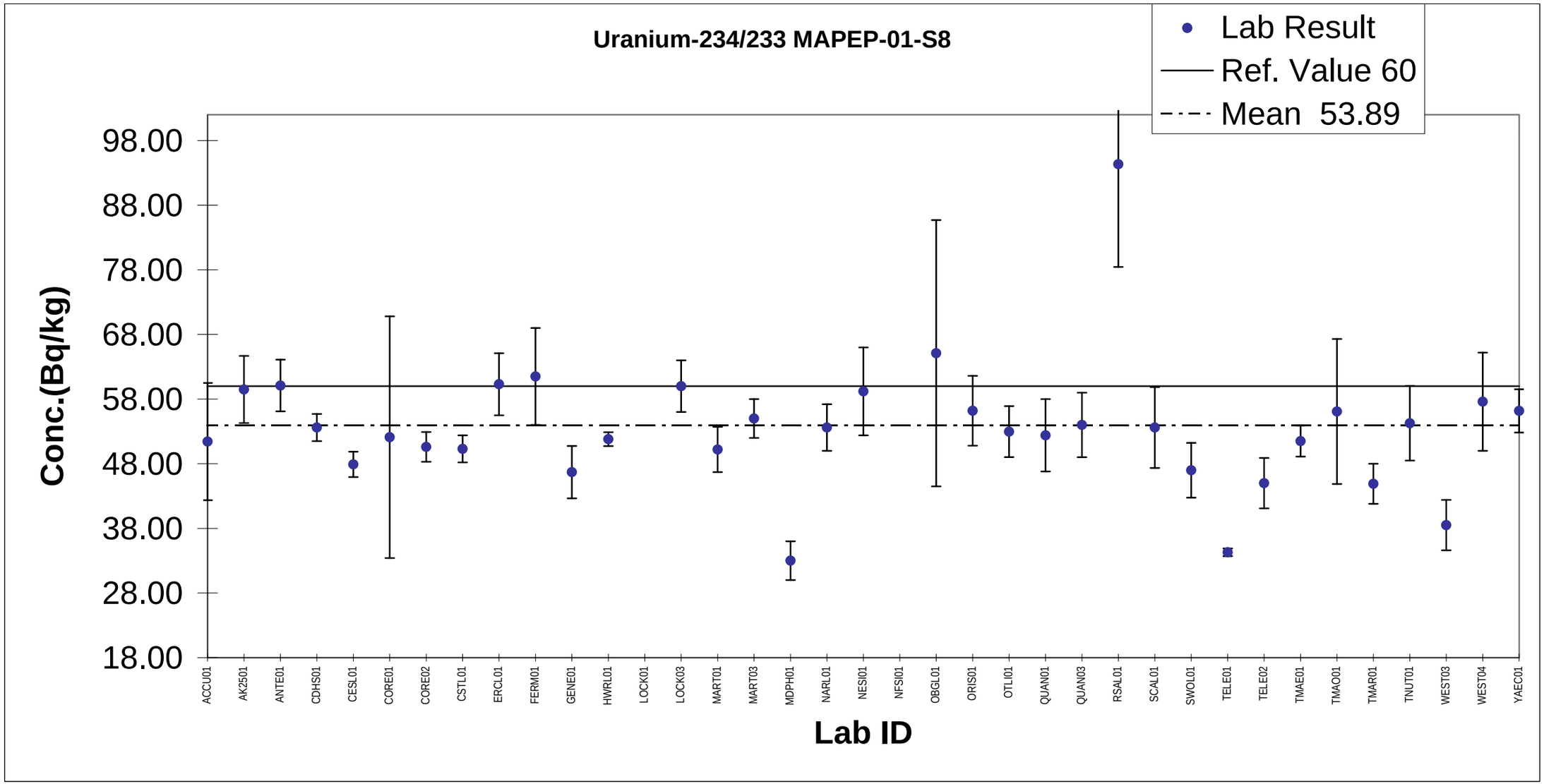
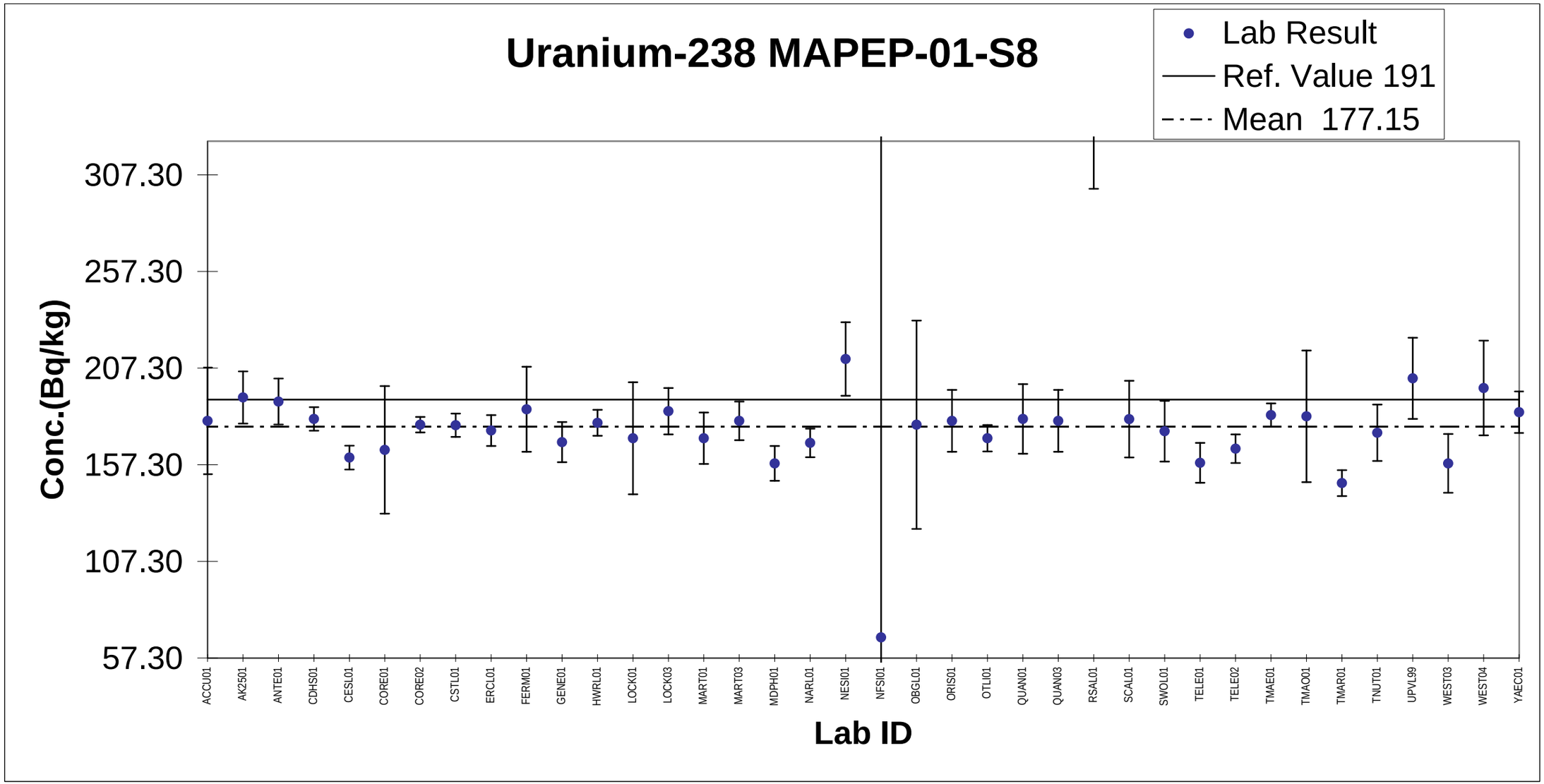
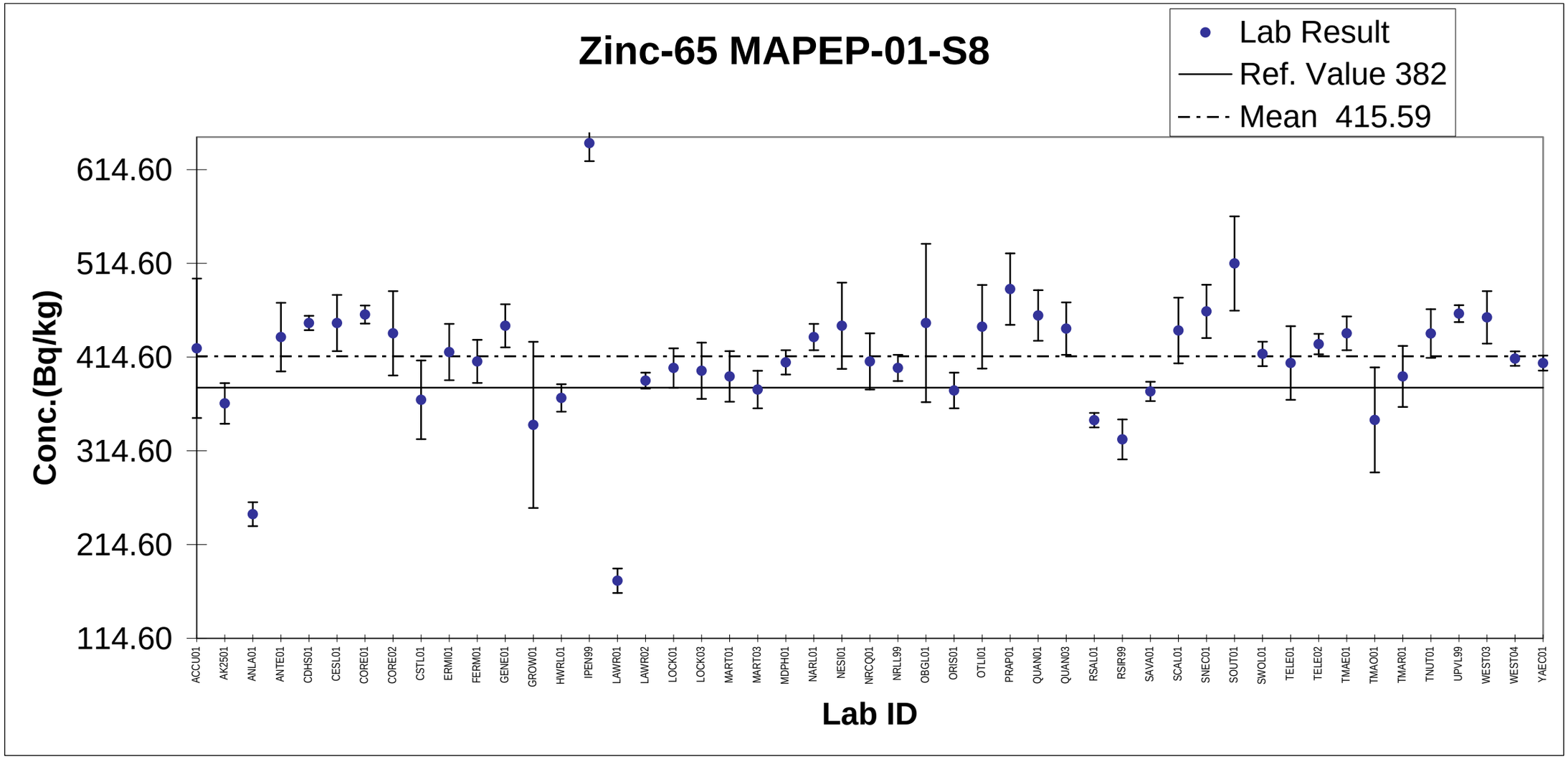
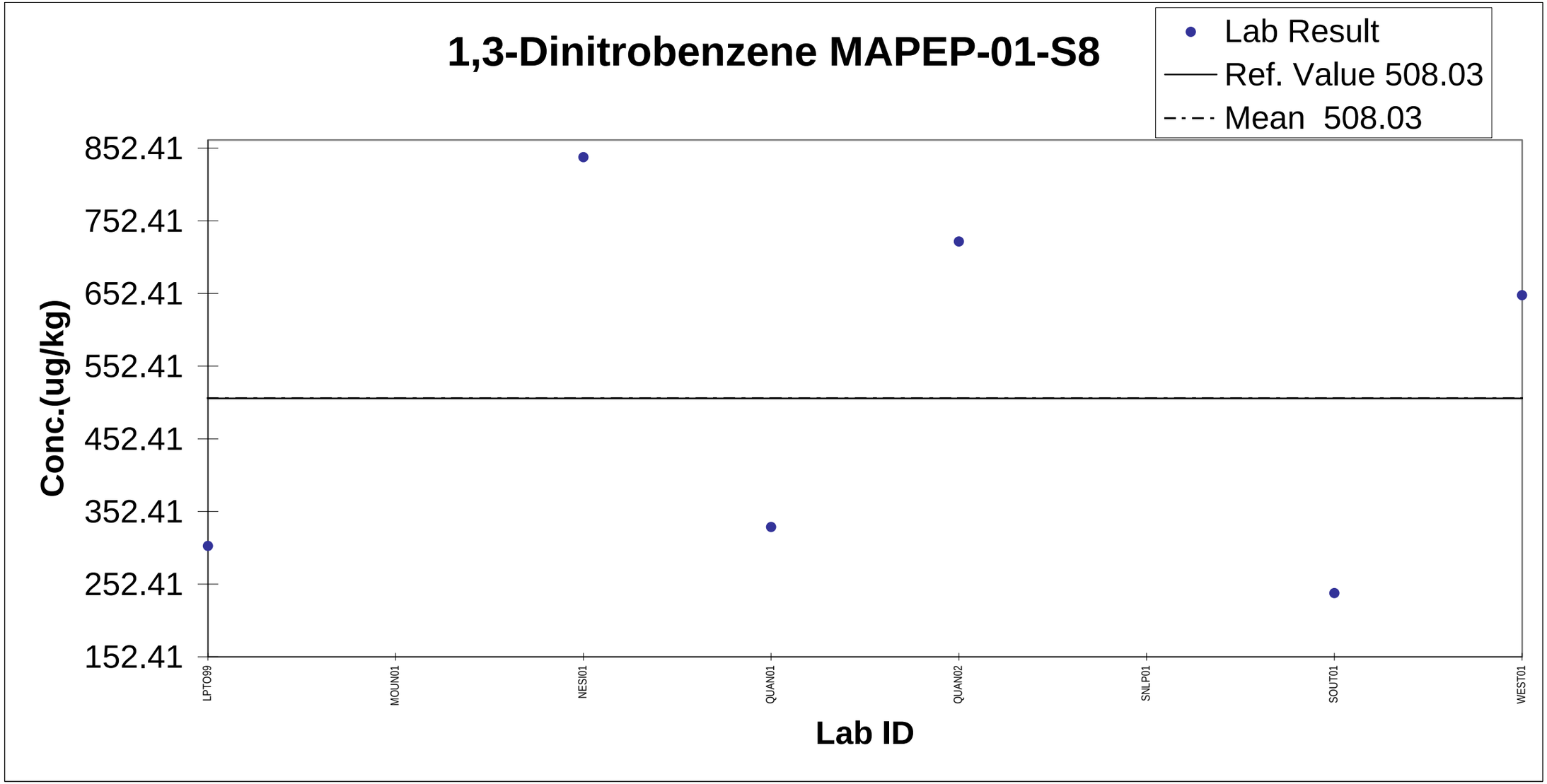
TMAE01
TMAO01
TMAR01
TNUT01
UPVL99
WEST03
WEST04
YAEC01
Lab ID

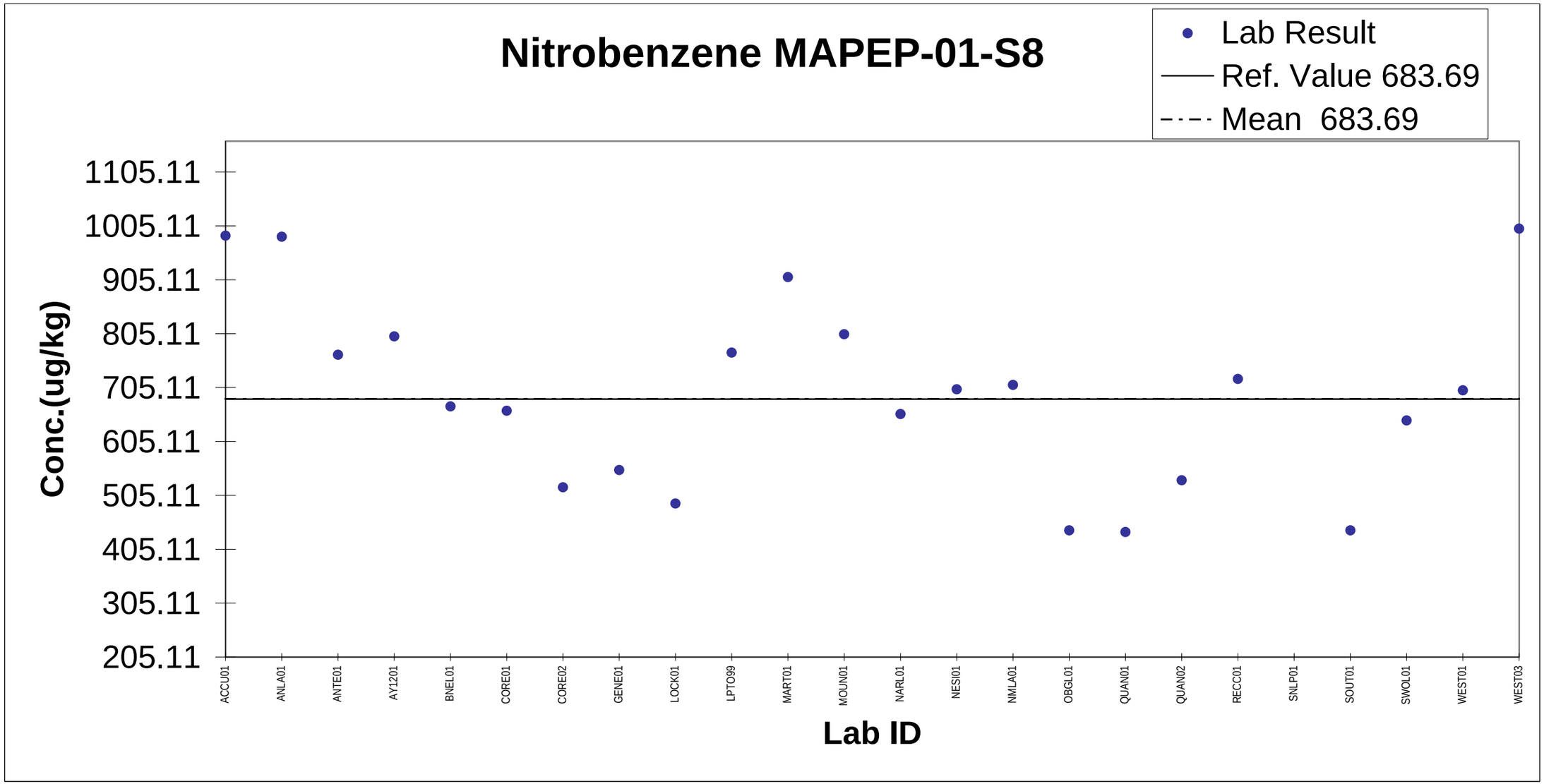

Strontium-90 MAPEP-01-S8
Lab Result
Ref. Value 209
Mean 190.51
Conc.(Bq/kg)
312.70
262.70
212.70
162.70
112.70
62.70
ACCU01
AK2501
ANTE01
CDHS01
CORE01
ERCL01
GENE01
IPEN99
LOCK01
LOCK03
MART01
MART03
NESI01
ORIS01
OTLI01
QUAN01
QUAN03
RSIR99
SCAL01
TELE01
TELE02
TMAE01
TMAO01
TMAR01
UPVL99
WEST03
WEST04
YAEC01
Lab ID

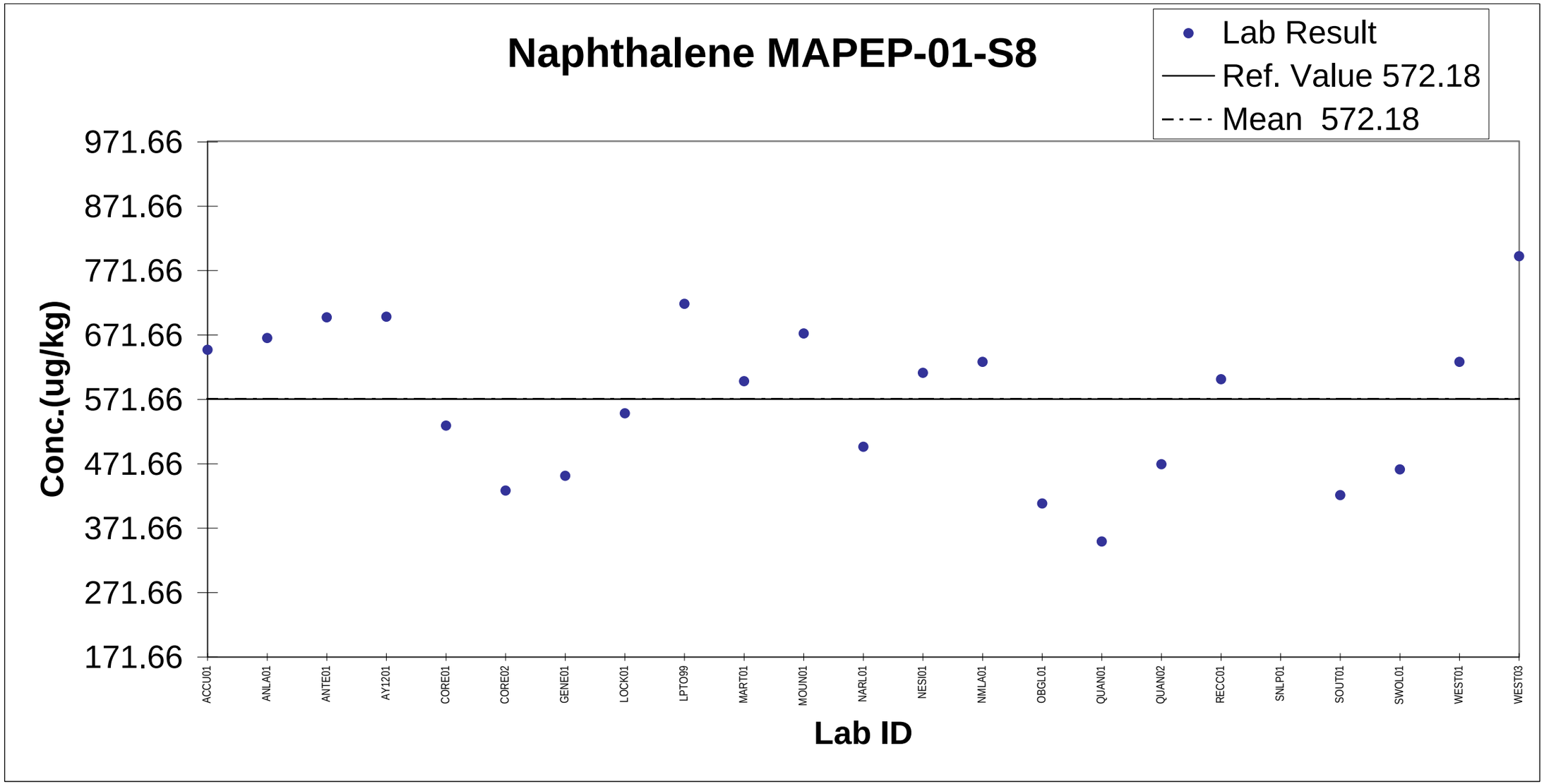

Uranium-234/233 MAPEP-01-S8
Lab Result
Ref. Value 60
Mean 53.89
Conc.(Bq/kg)
98.00
88.00
78.00
68.00
58.00
48.00
38.00
28.00
18.00
ACCU01
AK2501
ANTE01
CDHS01
CESL01
CORE01
CORE02
CSTL01
ERCL01
FERM01
GENE01
HWRL01
LOCK01
LOCK03
MART01
MART03
MDPH01
NARL01
NESI01
NFSI01
OBGL01
ORIS01
OTLI01
QUAN01
QUAN03
RSAL01
SCAL01
SWOL01
TELE01
TELE02
TMAE01
TMAO01
TMAR01
TNUT01
WEST03
WEST04
YAEC01
Lab ID

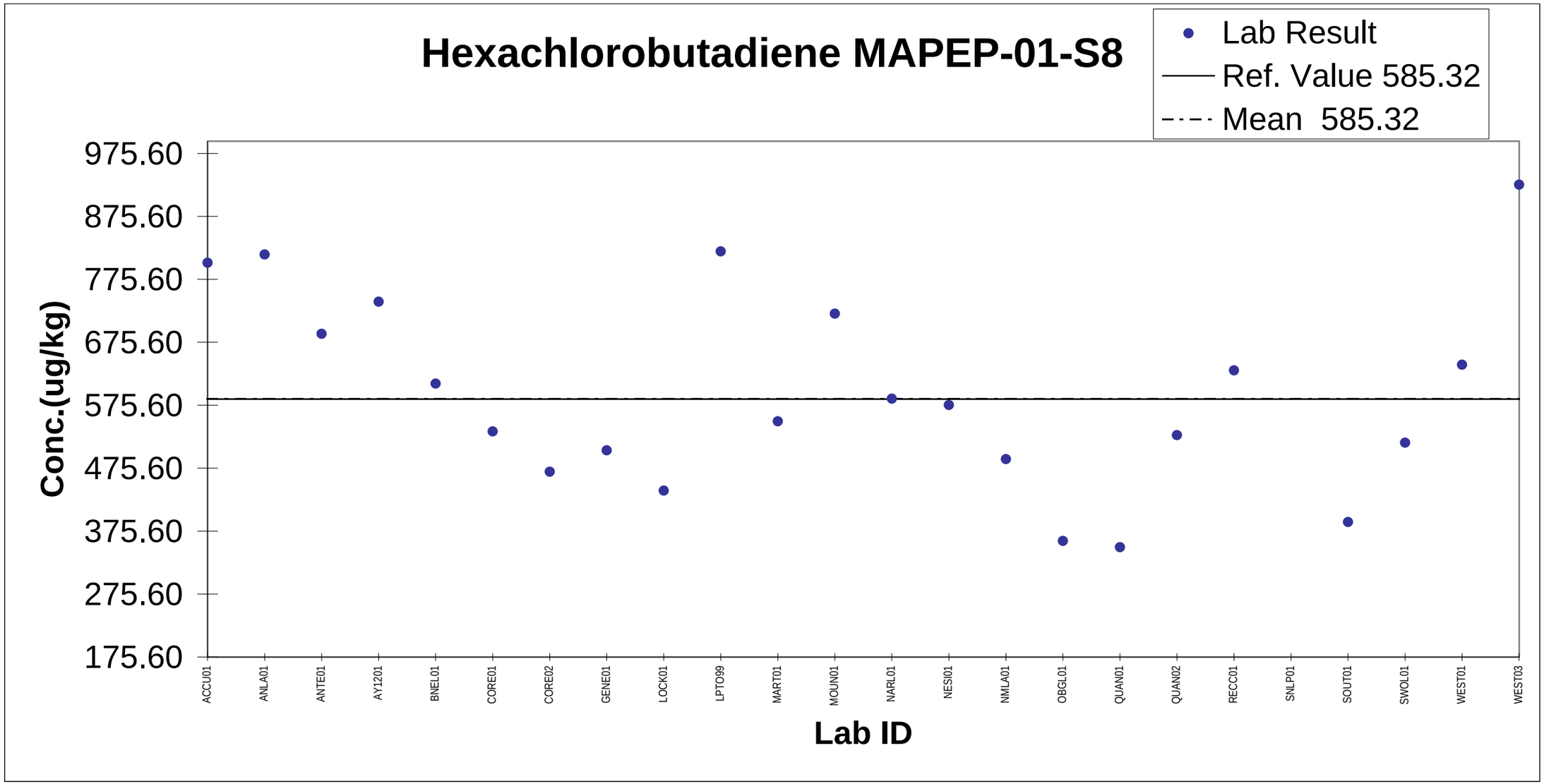

Uranium-238 MAPEP-01-S8
Lab Result
Ref. Value 191
Mean 177.15
Conc.(Bq/kg)
307.30
257.30
207.30
157.30
107.30
57.30
ACCU01
AK2501
ANTE01
CDHS01
CESL01
CORE01
CORE02
CSTL01
ERCL01
FERM01
GENE01
HWRL01
LOCK01
LOCK03
MART01
MART03
MDPH01
NARL01
NESI01
NFSI01
OBGL01
ORIS01
OTLI01
QUAN01
QUAN03
RSAL01
SCAL01
SWOL01
TELE01
TELE02
TMAE01
TMAO01
TMAR01
TNUT01
UPVL99
WEST03
WEST04
YAEC01
Lab ID

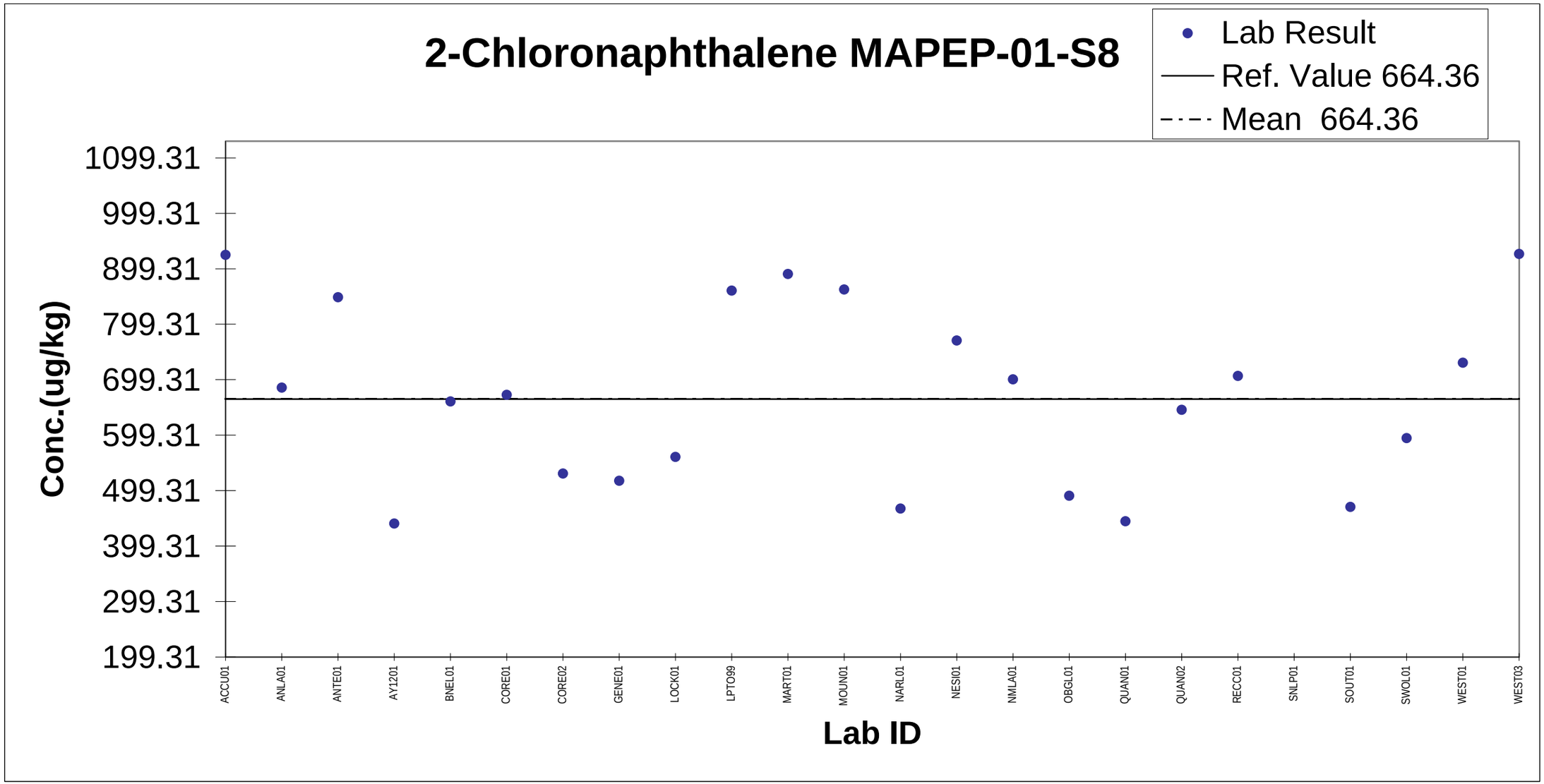

Zinc-65 MAPEP-01-S8
Lab Result
Ref. Value 382
Mean 415.59
Conc.(Bq/kg)
614.60
514.60
414.60
314.60
214.60
114.60
ACCU01
AK2501
ANLA01
ANTE01
CDHS01
CESL01
CORE01
CORE02
CSTL01
ERMI01
FERM01
GENE01
GROW01
HWRL01
IPEN99
LAWR01
LAWR02
LOCK01
LOCK03
MART01
MART03
MDPH01
NARL01
NESI01
NRCQ01
NRLL99
OBGL01
ORIS01
OTLI01
PRAP01
QUAN01
QUAN03
RSAL01
RSIR99
SAVA01
SCAL01
SNEC01
SOUT01
SWOL01
TELE01
TELE02
TMAE01
TMAO01
TMAR01
TNUT01
UPVL99
WEST03
WEST04
YAEC01
Lab ID

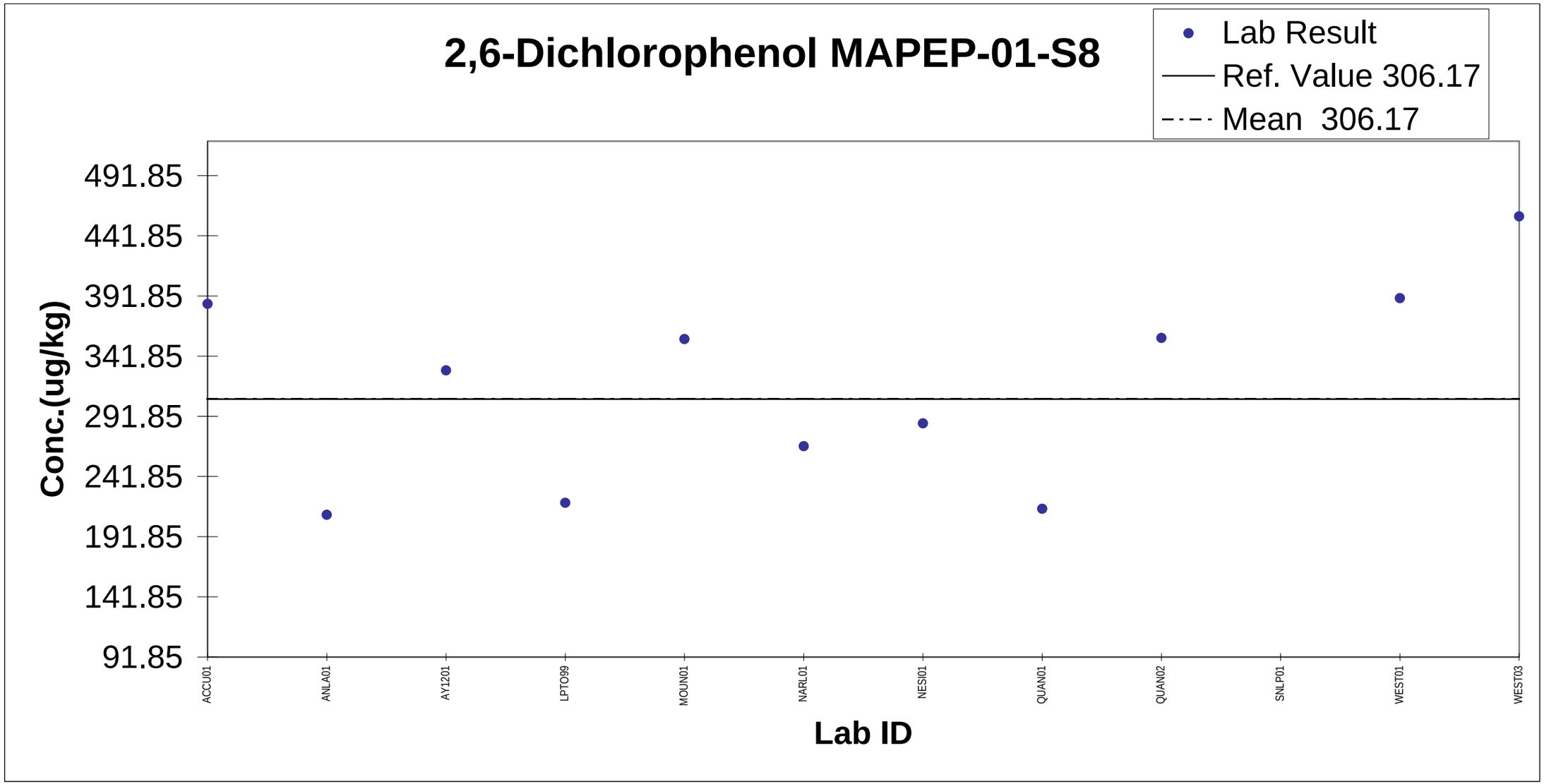

1,3-Dinitrobenzene MAPEP-01-S8
Lab Result
Ref. Value 508.03
Mean 508.03
852.41
752.41
652.41
552.41
452.41
352.41
252.41
152.41
Conc.(ug/kg)
LPTO99
MOUN01
NESI01
QUAN01
QUAN02
SNLP01
SOUT01
WEST01
Lab ID

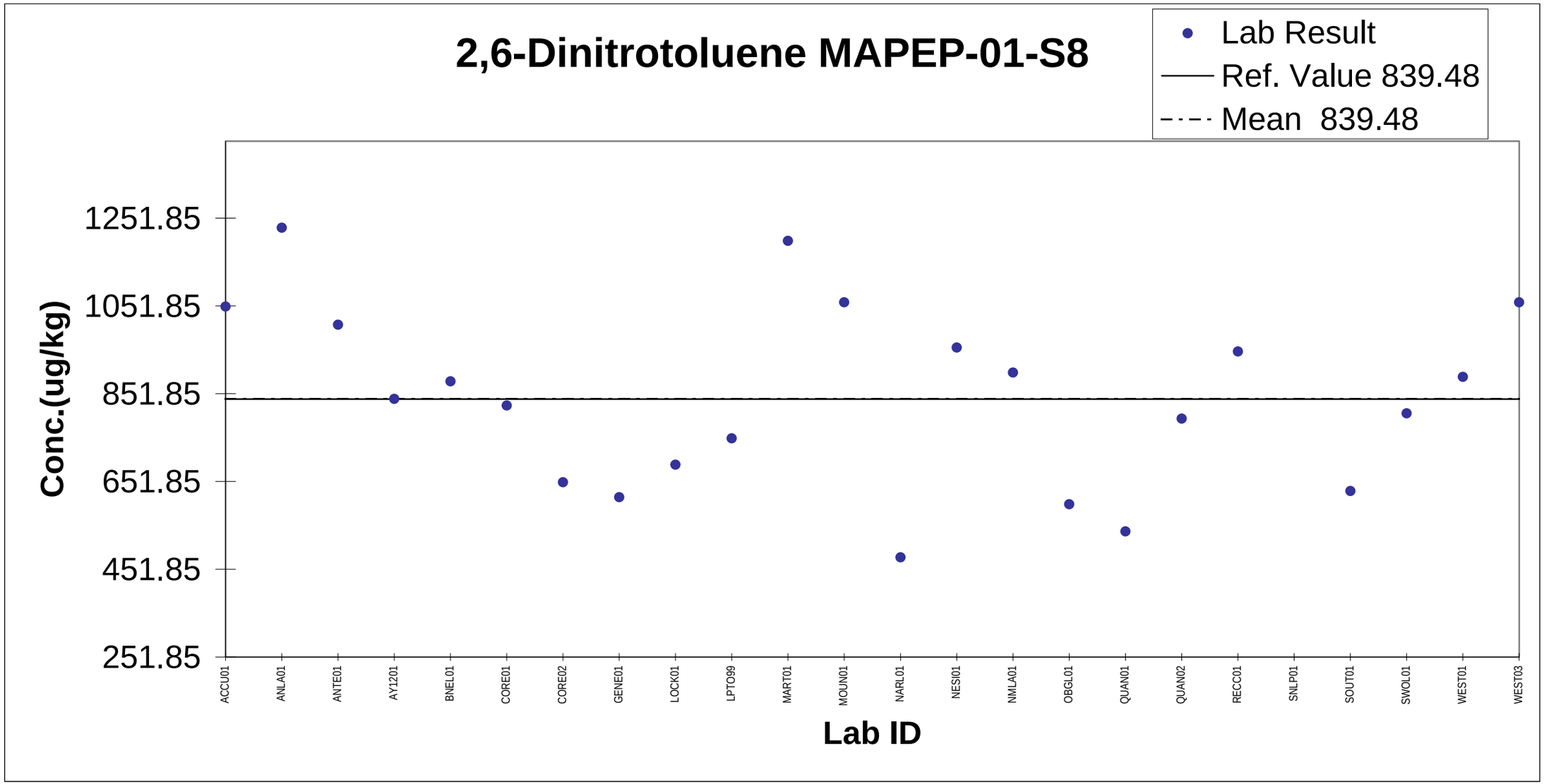

Nitrobenzene MAPEP-01-S8
Lab Result
Ref. Value 683.69
Mean 683.69
Conc.(ug/kg)
1105.11
1005.11
905.11
805.11
705.11
605.11
505.11
405.11
305.11
205.11
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CORE01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID

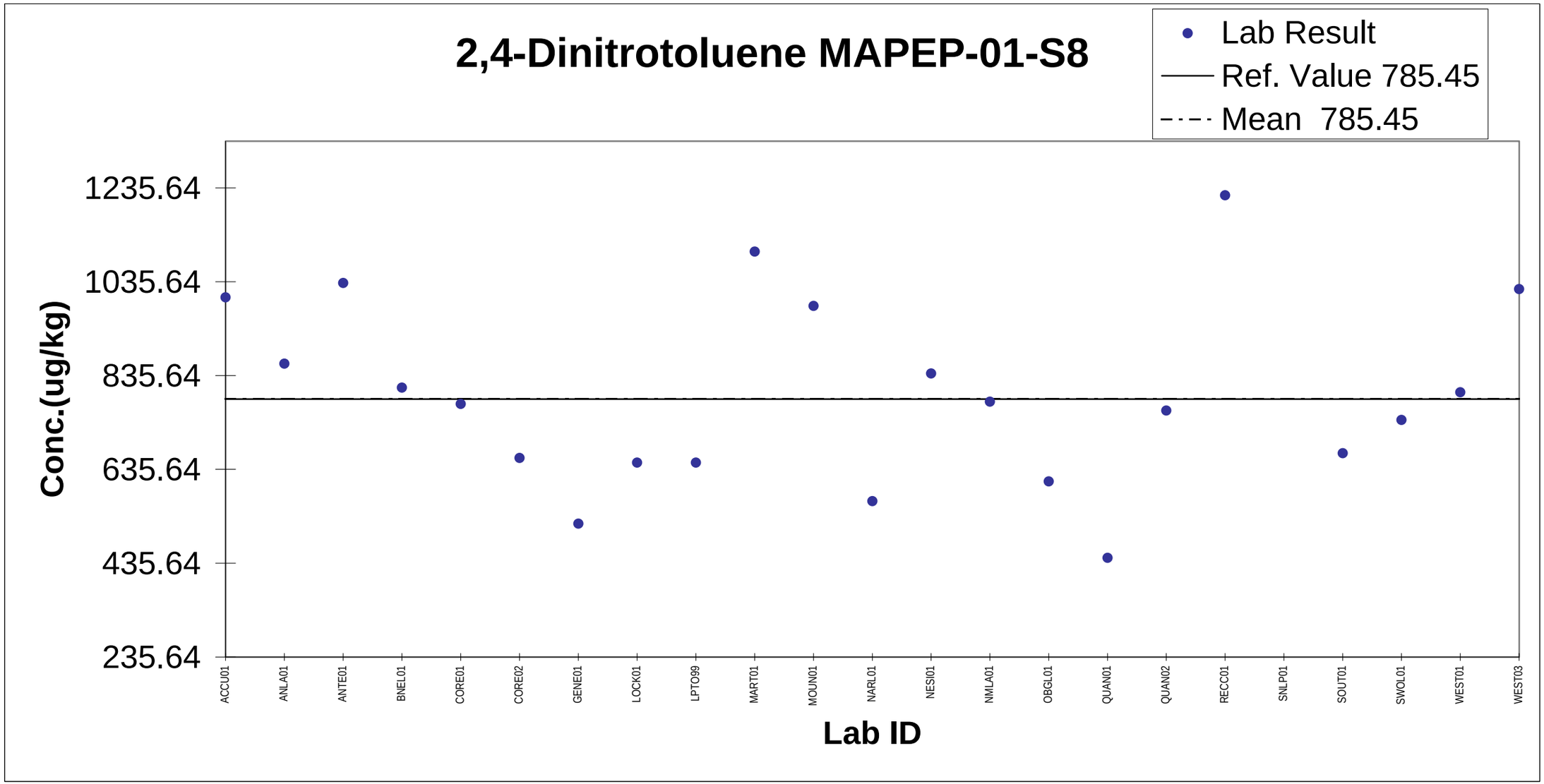

Naphthalene MAPEP-01-S8
Lab Result
Ref. Value 572.18
Mean 572.18
971.66
871.66
771.66
671.66
571.66
471.66
371.66
271.66
171.66
Conc.(ug/kg)
ACCU01
ANLA01
ANTE01
AY1201
CORE01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID

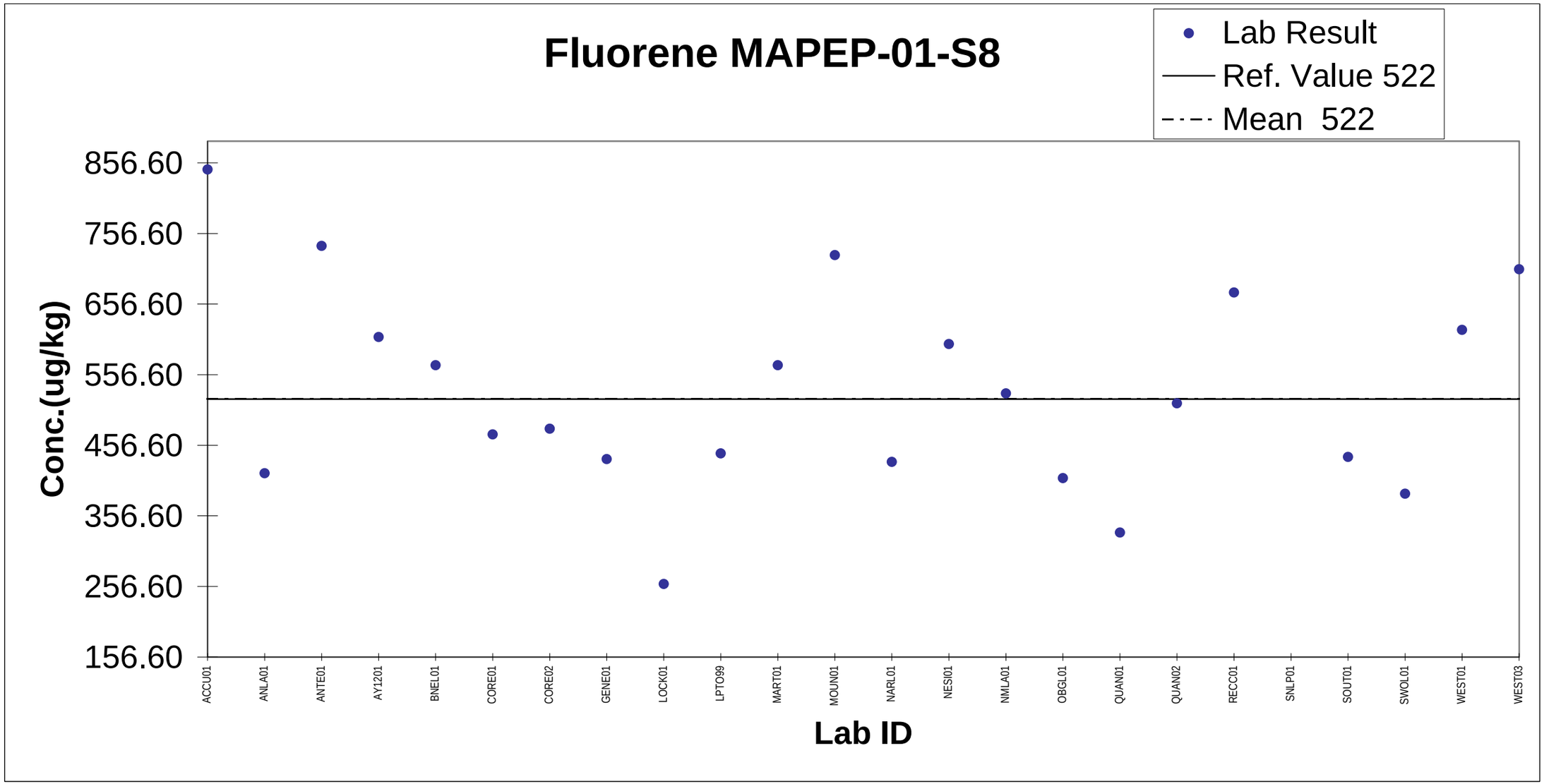

Hexachlorobutadiene MAPEP-01-S8
Lab Result
Ref. Value 585.32
Mean 585.32
975.60
875.60
775.60
675.60
575.60
475.60
375.60
275.60
175.60
Conc.(ug/kg)
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CORE01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID

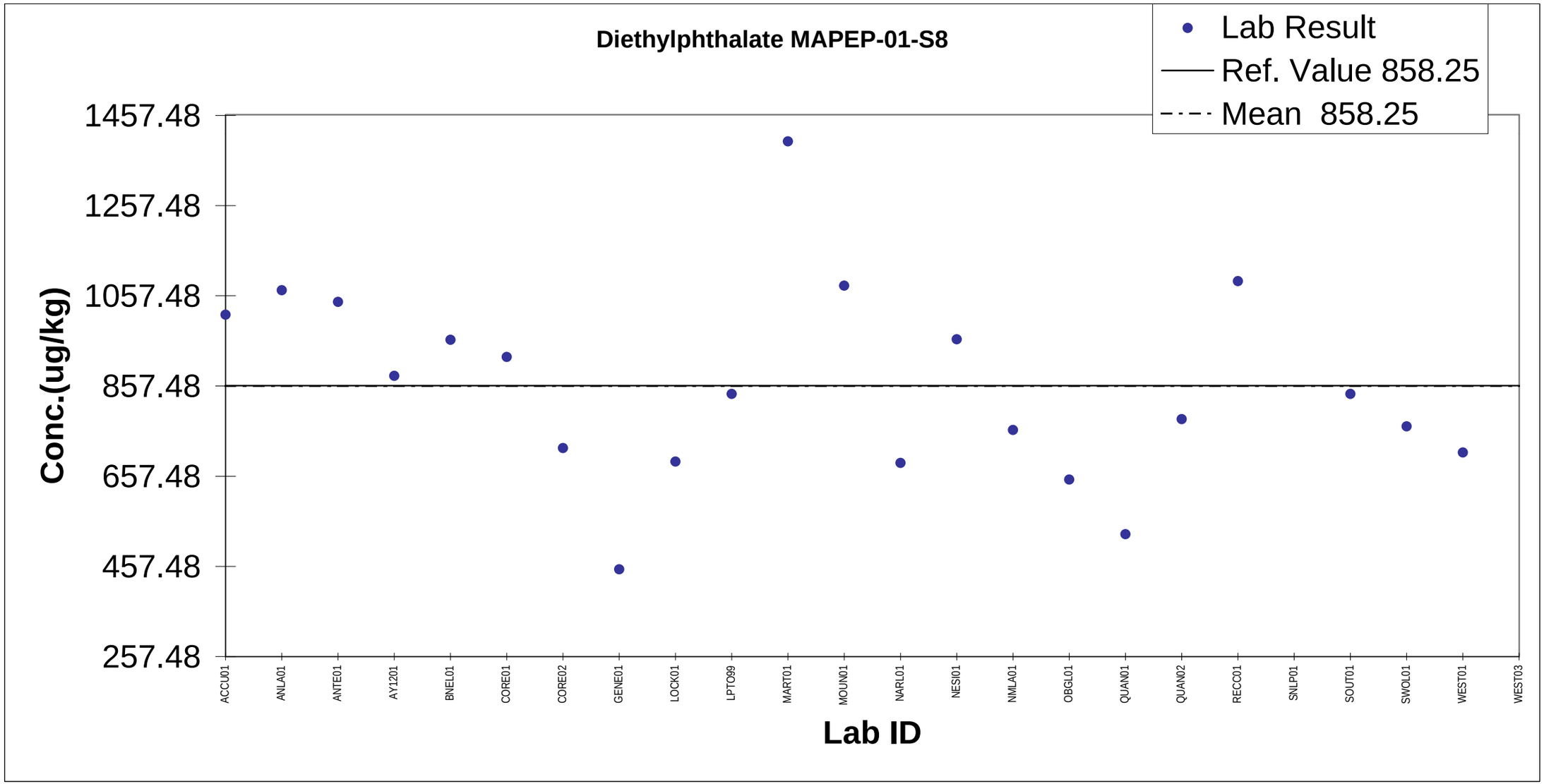

2-Chloronaphthalene MAPEP-01-S8
Lab Result
Ref. Value 664.36
Mean 664.36
Conc.(ug/kg)
1099.31
999.31
899.31
799.31
699.31
599.31
499.31
399.31
299.31
199.31
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CORE01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID


2,6-Dichlorophenol MAPEP-01-S8
Lab Result
Ref. Value 306.17
Mean 306.17
Conc.(ug/kg)
491.85
441.85
391.85
341.85
291.85
241.85
191.85
141.85
91.85
ACCU01
ANLA01
AY1201
LPTO99
MOUN01
NARL01
NESI01
QUAN01
QUAN02
SNLP01
WEST01
WEST03
Lab ID


2,6-Dinitrotoluene MAPEP-01-S8
Lab Result
Ref. Value 839.48
Mean 839.48
Conc.(ug/kg)
1251.85
1051.85
851.85
651.85
451.85
251.85
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CORE01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID


2,4-Dinitrotoluene MAPEP-01-S8
Lab Result
Ref. Value 785.45
Mean 785.45
Conc.(ug/kg)
1235.64
1035.64
835.64
635.64
435.64
235.64
ACCU01
ANLA01
ANTE01
BNEL01
CORE01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID


Fluorene MAPEP-01-S8
Lab Result
Ref. Value 522
Mean 522
Conc.(ug/kg)
856.60
756.60
656.60
556.60
456.60
356.60
256.60
156.60
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CORE01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID


Diethylphthalate MAPEP-01-S8
Lab Result
Ref. Value 858.25
Mean 858.25
1457.48
1257.48
1057.48
857.48
657.48
457.48
257.48
Conc.(ug/kg)
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CORE01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
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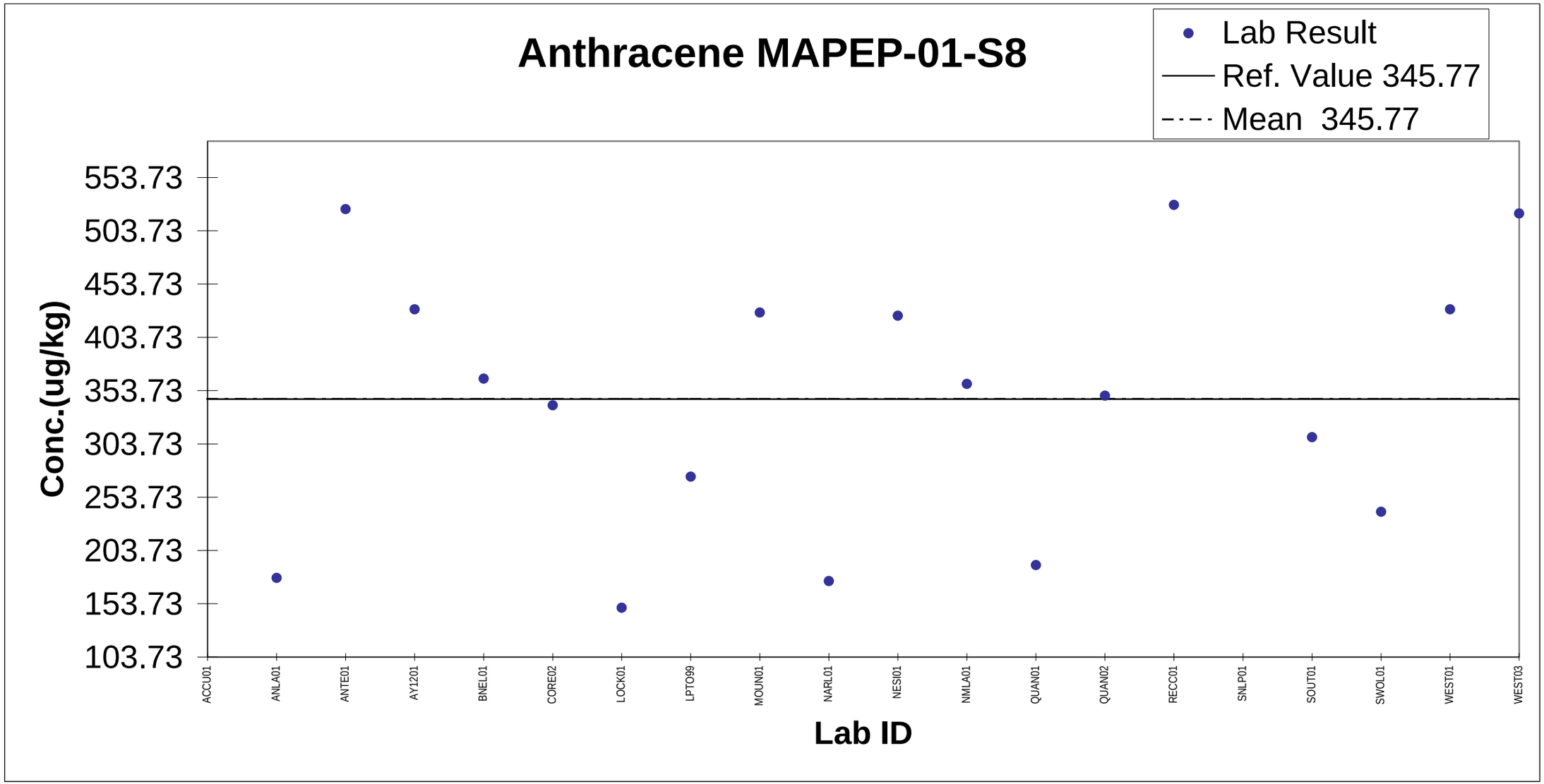
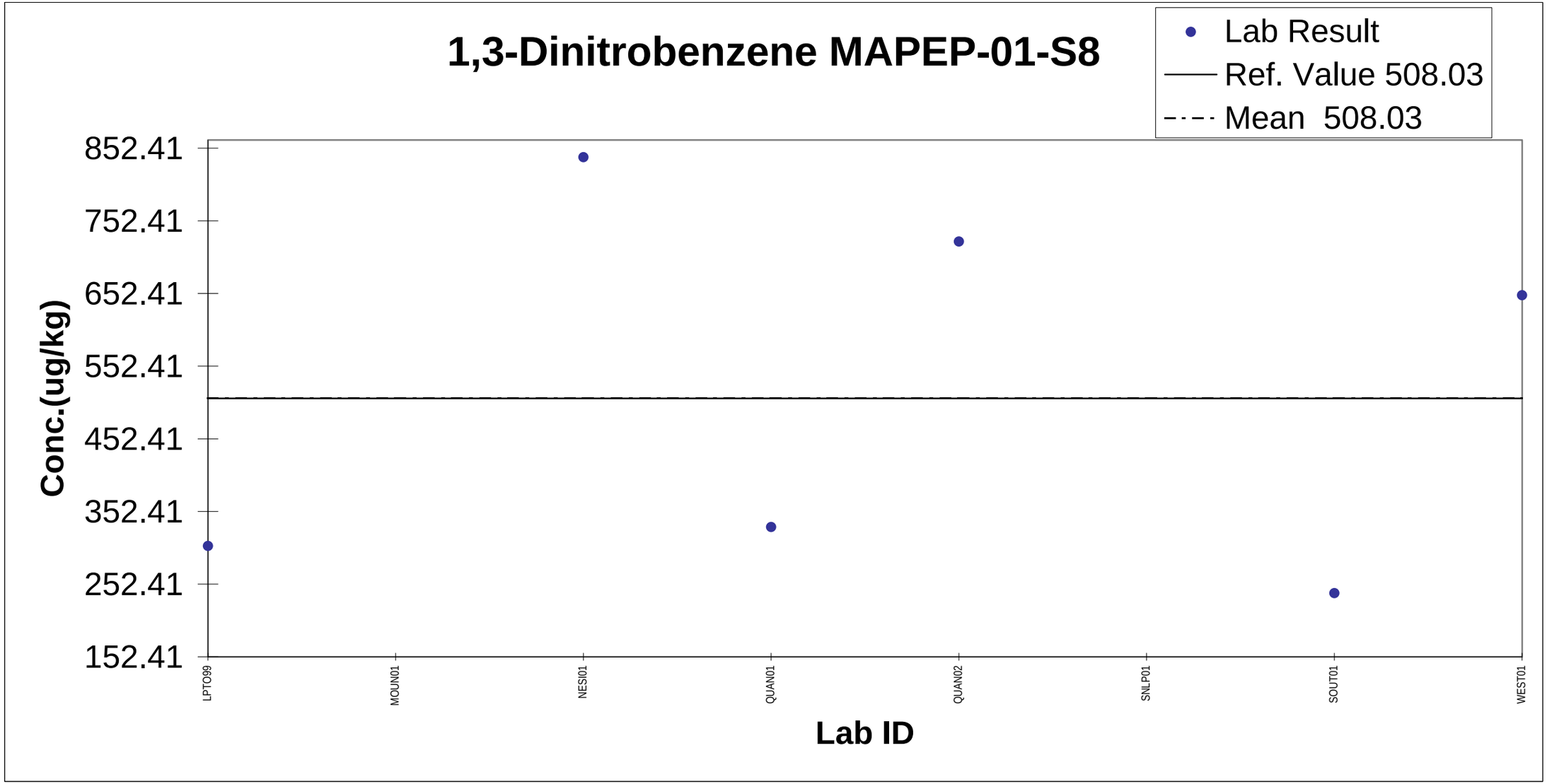
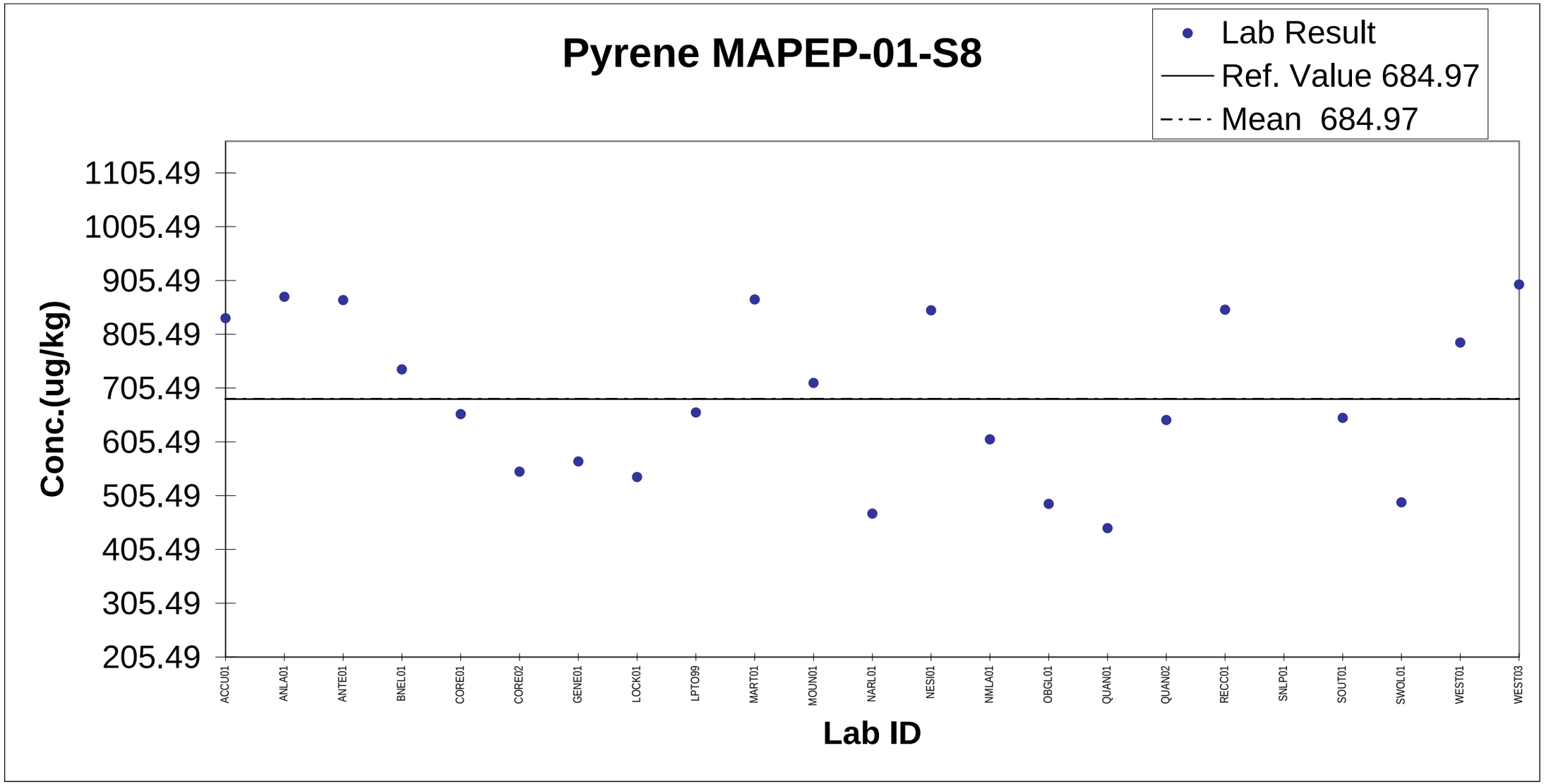
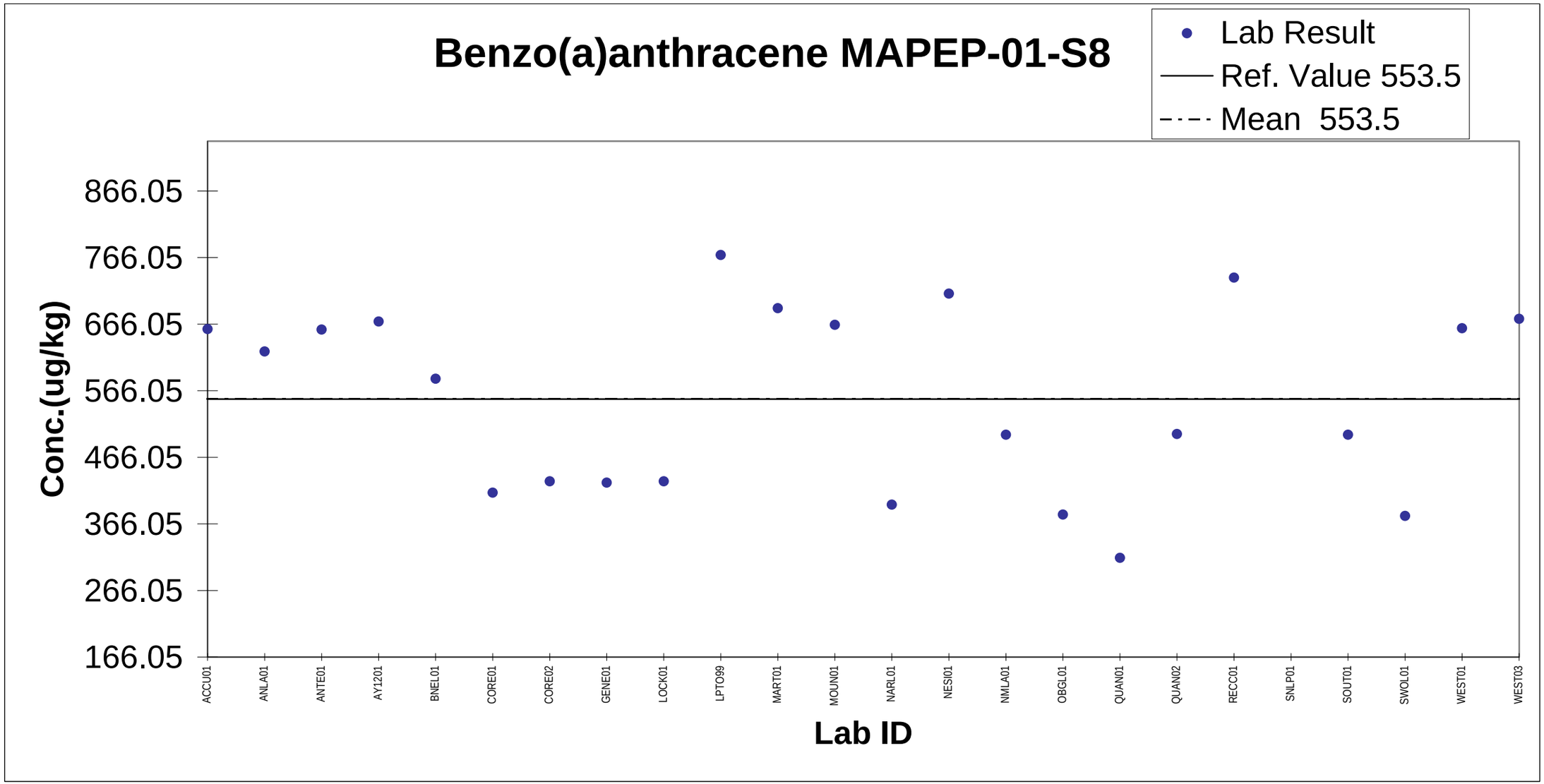
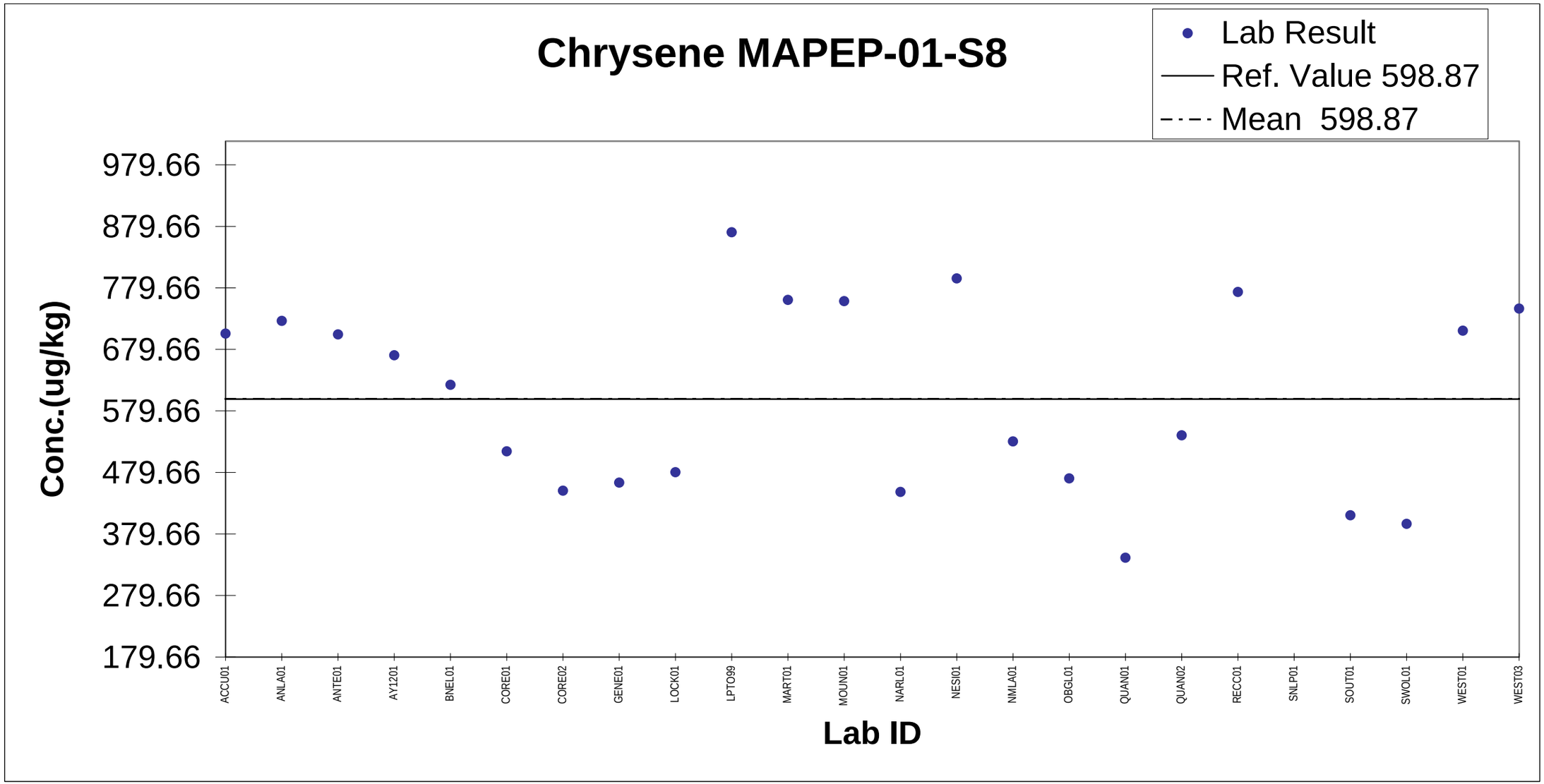
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID

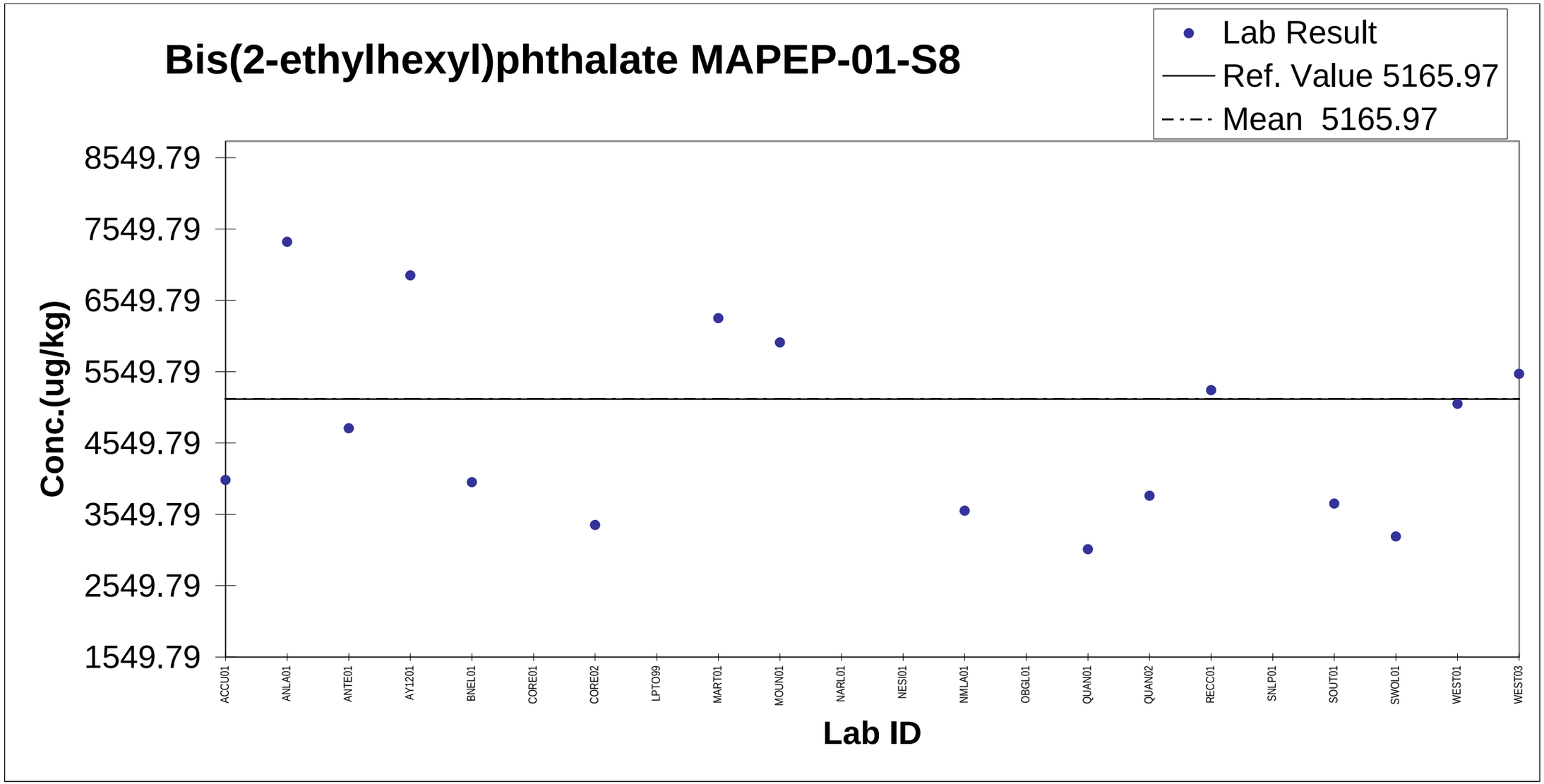

Anthracene MAPEP-01-S8
Lab Result
Ref. Value 345.77
Mean 345.77
Conc.(ug/kg)
553.73
503.73
453.73
403.73
353.73
303.73
253.73
203.73
153.73
103.73
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CORE02
LOCK01
LPTO99
MOUN01
NARL01
NESI01
NMLA01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID

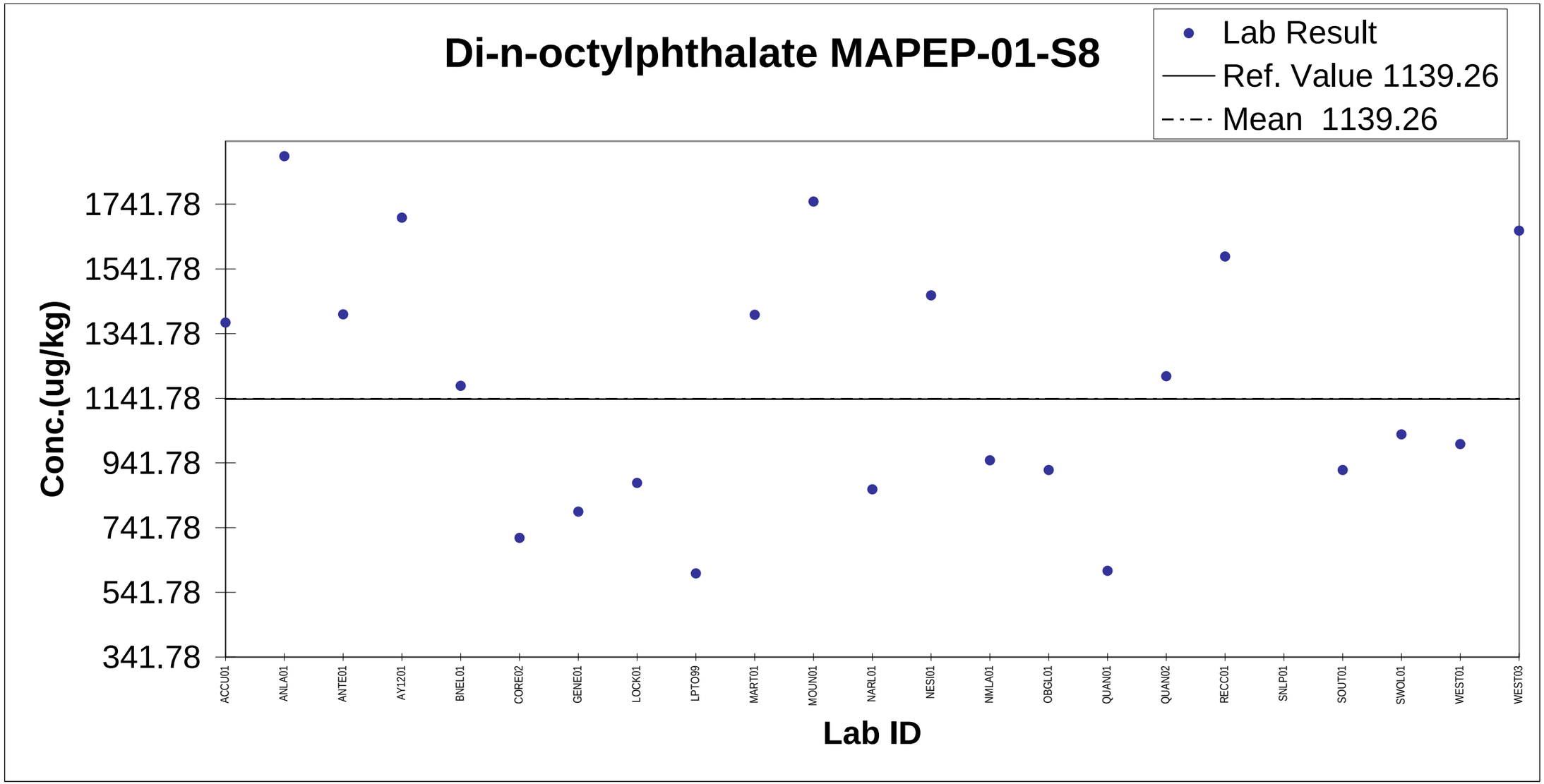

1,3-Dinitrobenzene MAPEP-01-S8
Lab Result
Ref. Value 508.03
Mean 508.03
852.41
752.41
652.41
552.41
452.41
352.41
252.41
152.41
Conc.(ug/kg)
LPTO99
MOUN01
NESI01
QUAN01
QUAN02
SNLP01
SOUT01
WEST01
Lab ID


Pyrene MAPEP-01-S8
Lab Result
Ref. Value 684.97
Mean 684.97
Conc.(ug/kg)
1105.49
1005.49
905.49
805.49
705.49
605.49
505.49
405.49
305.49
205.49
ACCU01
ANLA01
ANTE01
BNEL01
CORE01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID


Benzo(a)anthracene MAPEP-01-S8
Lab Result
Ref. Value 553.5
Mean 553.5
Conc.(ug/kg)
866.05
766.05
666.05
566.05
466.05
366.05
266.05
166.05
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CORE01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID


Chrysene MAPEP-01-S8
Lab Result
Ref. Value 598.87
Mean 598.87
Conc.(ug/kg)
979.66
879.66
779.66
679.66
579.66
479.66
379.66
279.66
179.66
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CORE01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID


Bis(2-ethylhexyl)phthalate MAPEP-01-S8
Lab Result
Ref. Value 5165.97
Mean 5165.97
Conc.(ug/kg)
8549.79
7549.79
6549.79
5549.79
4549.79
3549.79
2549.79
1549.79
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CORE01
CORE02
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID


Di-n-octylphthalate MAPEP-01-S8
Lab Result
Ref. Value 1139.26
Mean 1139.26
Conc.(ug/kg)
1741.78
1541.78
1341.78
1141.78
941.78
741.78
541.78
341.78
ACCU01
ANLA01
ANTE01
AY1201
BNEL01
CORE02
GENE01
LOCK01
LPTO99
MART01
MOUN01
NARL01
NESI01
NMLA01
OBGL01
QUAN01
QUAN02
RECC01
SNLP01
SOUT01
SWOL01
WEST01
WEST03
Lab ID

APPENDIX

D

MAPEP-01-S8 Reference Values

MAPEP-01-S8 Target Analyte Reference Values and Uncertainties

Stable inorganic and radiological analytes. Uncertainties are listed at one standard deviation.

Arsenic	27 ± 1	milligrams/Kilogram
Barium	243 ± 9	milligrams/Kilogram
Beryllium	70.3 ± 0.4	milligrams/Kilogram
Cadmium	Not Added	milligrams/Kilogram
Chromium	66 ± 3	milligrams/Kilogram
Lead	24 ± 1	milligrams/Kilogram
Nickel	95 ± 5	milligrams/Kilogram
Selenium	Not Added	milligrams/Kilogram
Silver	74.3 ± 0.4	milligrams/Kilogram
Thallium	21.3 ± 0.1	milligrams/Kilogram
Uranium-Total	15.4 ± 0.6	milligrams/Kilogram
Uranium-234	2.6E-3 ± 0.1E-3	milligrams/Kilogram
Uranium-235	0.049 ± 0.002	milligrams/Kilogram
Uranium-238	15.4 ± 0.6	milligrams/Kilogram
Vanadium	35 ± 2	milligrams/Kilogram
Zinc	179 ± 5	milligrams/Kilogram
Americium-241	False Positive Test	Becquerel/Kilogram
Cesium-134	91.1 ± 1.5	Becquerel/Kilogram
Cesium-137	1240 ± 20	Becquerel/Kilogram
Cobalt-57	103 ± 2	Becquerel/Kilogram
Cobalt-60	1270 ± 20	Becquerel/Kilogram
Iron-55	1320 ±20	Becquerel/Kilogram
Manganese-54	203 ± 3	Becquerel/Kilogram
Nickel-63	550 ± 9	Becquerel/Kilogram
Plutonium-238	115 ± 2	Becquerel/Kilogram
Plutonium-239	83.4 ± 0.8	Becquerel/Kilogram
Potassium-40	652 ± 25	Becquerel/Kilogram
Strontium-90	209 ± 2	Becquerel/Kilogram
Uranium-234	60 ± 3	Becquerel/Kilogram
Uranium-238	191 ± 8	Becquerel/Kilogram
Zinc-65	382 ± 7	Becquerel/Kilogram

MAPEP-01-S8 Target Analyte Reference Values and Uncertainties

Semi-volatile uncertainties are the 95% confidence interval for the mean of the data
(i.e., Biweight Mean ± $t_{(0.95)}$ * Biweight Standard Error).

1,3-dichlorobenzene	520.1 ± 81.4	micrograms/Kilogram
nitrobenzene	683.7 ± 85.6	micrograms/Kilogram
2,4-dimethylphenol	(1)	micrograms/Kilogram
naphthalene	572.2 ± 59.6	micrograms/Kilogram
hexachlorobutadiene	585.3 ± 76.4	micrograms/Kilogram
2,6-dichlorophenol	306.2 ± 70.8	micrograms/Kilogram
2-chloronaphthalene	664.4 ± 83.1	micrograms/Kilogram
2,6-dinitrotoluene	839.5 ± 101.2	micrograms/Kilogram
2,4-dinitrotoluene	785.4 ± 98.9	micrograms/Kilogram
fluorene	522.0 ± 69.9	micrograms/Kilogram
diethylphthalate	858.2 ± 108.2	micrograms/Kilogram
anthracene	345.8 ± 76.7	micrograms/Kilogram
1,4-dinitrobenzene	(1)	micrograms/Kilogram
1,3-dinitrobenzene	508.0 ± *	micrograms/Kilogram
1,2-dinitrobenzene	(1)	micrograms/Kilogram
pyrene	685.0 ± 79.0	micrograms/Kilogram
benzo(a)anthracene	553.5 ± 72.2	micrograms/Kilogram
chrysene	598.9 ± 80.3	micrograms/Kilogram
bis(2-ethylhexyl)phthalate	5166 ± 1290	micrograms/Kilogram
di-n-octylphthalate	1139 ± 206	micrograms/Kilogram

(1) Target analytes were added to the standard, but they were either not detected by the participants or the number of laboratories that reported results were insufficient to generate statistics.
* Eight or less laboratories returned data for this target analyte. This number is insufficient to estimate the Biweight standard deviation.