Earthlab

QAQC Report

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Volspruit Resource Recreation

Pan Palladium South Africa (Pty) Ltd

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4 INTRODUCTION

The following document contains a comprehensive report detailing the quality assurance and quality control implemented for the North Body on Volspruit 326KR.

The farm prospect occurs over numerous mining company exploration campaigns, including Arican Metals Corporation (Amcor), Anglo American Corporation (AA), Shell, Rio Tinto Zinc (RTZ), Genmin, and Pan Palladium South Africa. These exploration campaigns have taken place from the late 50's all the way through to 2010.

4.1 Quality Control and Quality assurance Procedure

To assure the exploration sampling data being used for resource modelling and other geological purposes, drill hole assay results received by Pan Palladium (Pty) Ltd ('PPD') for the North Body will undergo a series of verifications and validations as part of quality control and assurance. The historic measures undertaken during the sampling process had not been well defined in the historical reports and can only be approximated from the data received from PPD, however, all measures were taken by Earthlab Technical Division (Pty) Ltd ('Earthlab') to ensure reliable and quality data are used in the resource model.

For quality control purposes, a relevant percentage of the sample consignment per drill hole comprises certified reference materials. These are equally divided into standards and blanks. Standards are selected for a particular exploration project based on the relevant match of the matrix. Standards contain certified PGE content and are inserted randomly into a consignment to test the accuracy of assay results received from the primary laboratory. Blanks contain negligible PGE content and are used to detect contamination of samples during laboratory preparation and analysis.

The second step in quality control entails twinstream analysis undertaken on exploration samples submitted. Twinstream is a process whereby a sample is crushed, milled, and split into two separate legs that are then assayed separately. This is used as a means to test precision.

Thirdly, each lithological log is studied alongside its sampling log containing assay results for geo-assay correlation purposes. Where there are irregularities, the results are queried. Investigations of anomalous results include evaluating the geology of the area with the responsible geologist or querying the reported results with the laboratory.

Fourth, several queries are run through the database as a final verification to ensure all data is acceptable and up to Earthlabs quality standards.

Finally, quality assurance and quality control analyses are performed on assay results, the results of which are documented in this report covering data migrated from the Access Database (Grasvally Project Borehole Database) to a secure and validated SABLE® 7.0 SQL Database. Unfortunately, due to the structure and design of the historic database, especially regarding the sampling, submitted control and assay results, large portions of standardised and required data for these tables could not be stored onto the SABLE® 7.0 SQL Database. Therefore, these data have been manually cleaned and formatted to be used in this assessment.

Python programming, with the aid of several data analytical and statistical modules (NumPy, Pandas, SciPy, Matplotlib) has been used, with custom scripts written by Earthlab's Database Manager, for the purpose of this evaluation.

5 DRILL HOLES ANALYSED

The Grasvally Project contains drill hole data on two separately identified ore bodies, the North Body, and the South Body. This report covers all the drill holes relating to the North Body, which has been further separated into several projects: Grasvally GVN, North Definition, Sterilisation, and Grasvally Bulk Sample (Figure 1).

A total of 203 sampled drill holes were analysed for the North Body and have been extracted from the SABLE® 7.0 SQL Database for resource estimation purposes. These drill holes will undergo the QAQC practice outlined in the previous section. All of the samples were analysed by ALS Chemex as well as Set Point Laboratories.

The Grasvally GVN project includes all of the drill holes that have been completed during exploration campaigns before Pan Palladium South Africa (Pty) Ltd started their exploration. The Bulk Sampling programme started in February 2010 and ended in March, with a total of 42 drill holes that were sampled for the purpose of metallurgical test work. The North Definition programme was designed to better define the spatial distribution of the faults within the area totalling 5 completed drill holes, which were included into the resource model. Finally, the Sterilisation programme was conducted to better define the spatial extent of the North Body with a total of 12 drill holes completed.

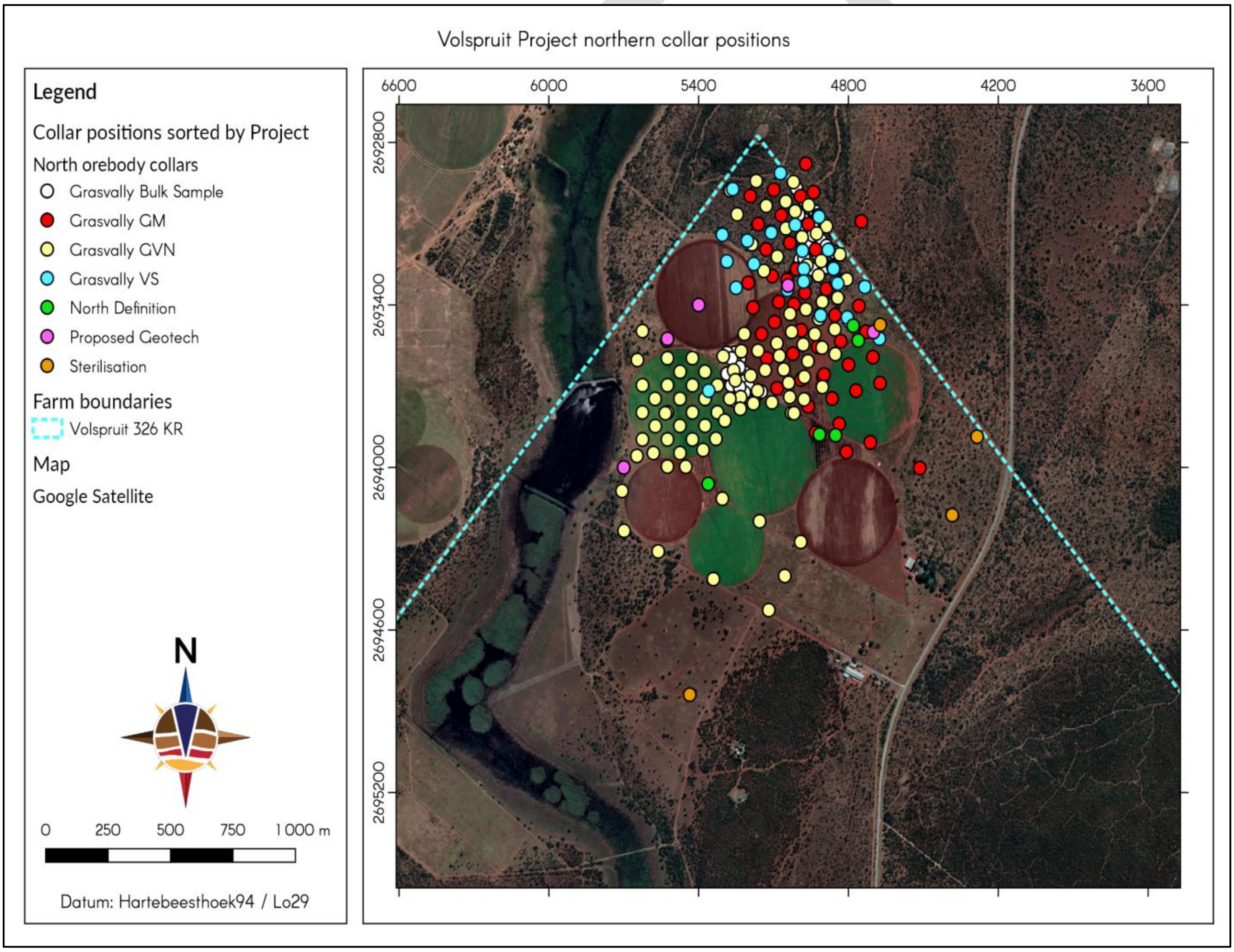

Figure 1 Geospatial map showing the positions of the North Body collars on Volspruit.

6 QUALITY CONTROL ANALYSES

This report contains all the parameters and graphical results used to produce the final master list of drill holes that have passed the QAQC analyses undertaken on the assay results obtained. Detailed information on the python scripts used to generate the results will be made available on request.

6.1 Accuracy Analysis

Each project defined within the North Body has been subjected to quality control standards by assessing the accuracy of the control samples submitted to the laboratories. This includes blanks and certified reference materials and, in some instances, non-certified reference materials. Blank samples that fall above 10x the detection limit, as well as certified reference samples that fall outside the third standard deviation upper and lower limits of statistical control, will be flagged and labelled as a failed sample. Each control sample is separated by element and will undergo this procedure to produce a list of failed samples. The failed samples are then used to produce a final list of primary samples that can be used for the resource estimation process.

Two control samples SARM7 and QC93 have been identified within the historic exploration programs, where the above criteria have been adjusted to pragmatically and reasonably represent the accuracy of the assay results reported by Set Point Laboratories. SARM7 is a CRM that was made in 1975 and was reported without the sophistication of today's modern analytical techniques. The 95% confidence limits set by SARM7s certificate elemental values are incredibly narrow, representing only 1.20%-4.84% of the accepted value for the PGEs. This tolerance may be considered too restrictive when looking at the modern-day AMIS certified reference material tolerance limits. Therefore, fourteen different AMIS standards were used to measure the percentage that two and three standard deviations are of the accepted value. Approximately 10% of the accepted value can be considered a representative of the second standard deviation, where 15% of the accepted value can be considered a representative of the third standard deviation. SARM7 will be analysed according to this approach.

The results of the accuracy assessment have been represented graphically in the following sub-sections.

6.1.1 Grasvally GVN

6.1.1.1 Submitted Blank Samples

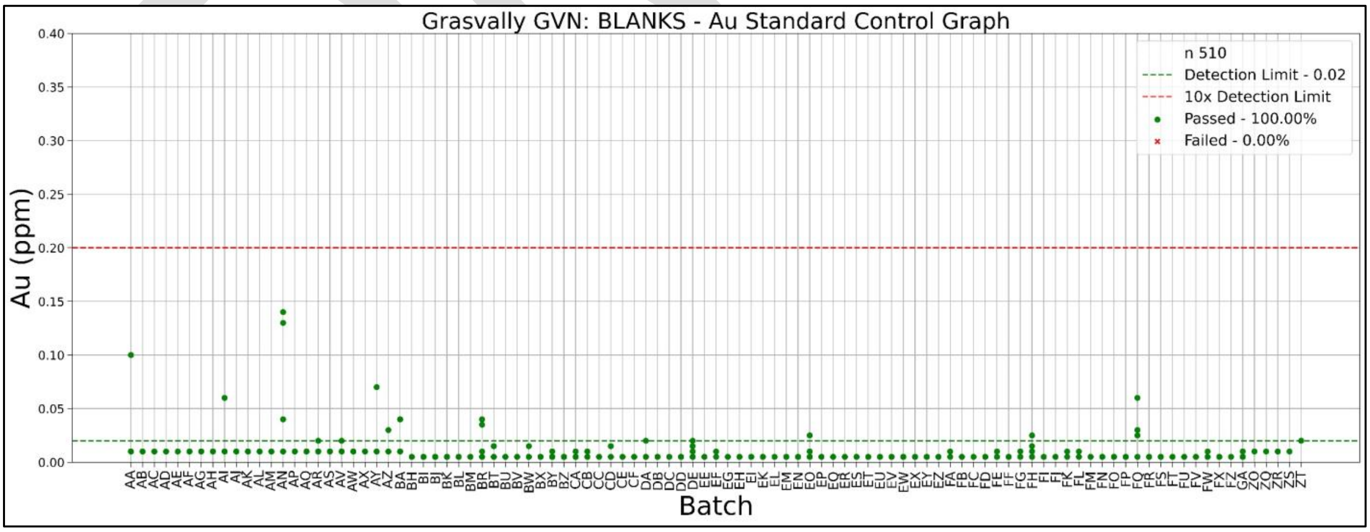

Figure 2 GVN Blank Control Graph for Au

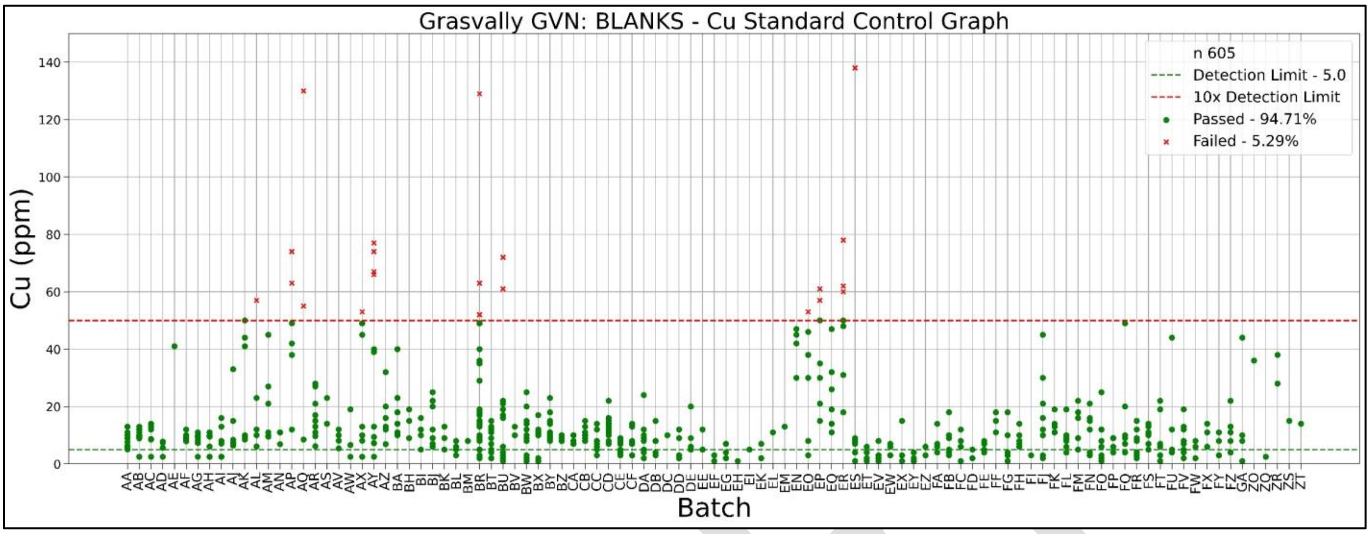

Figure 3 GVN Blank Control Graph for Cu

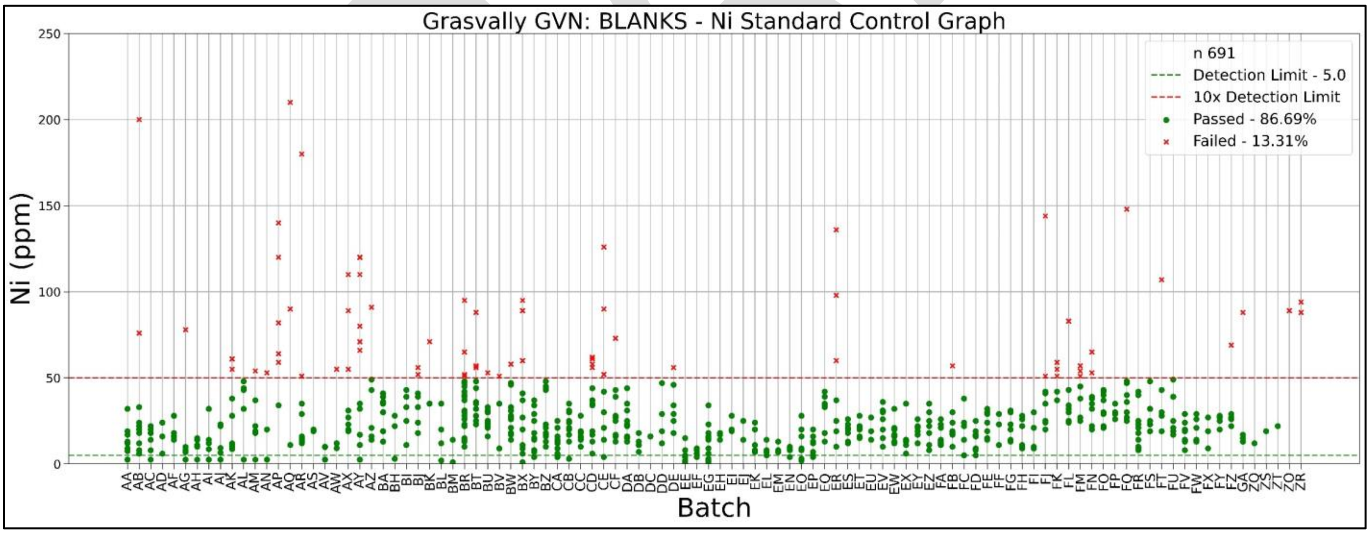

Figure 4 GVN Blank Control Graph for Ni

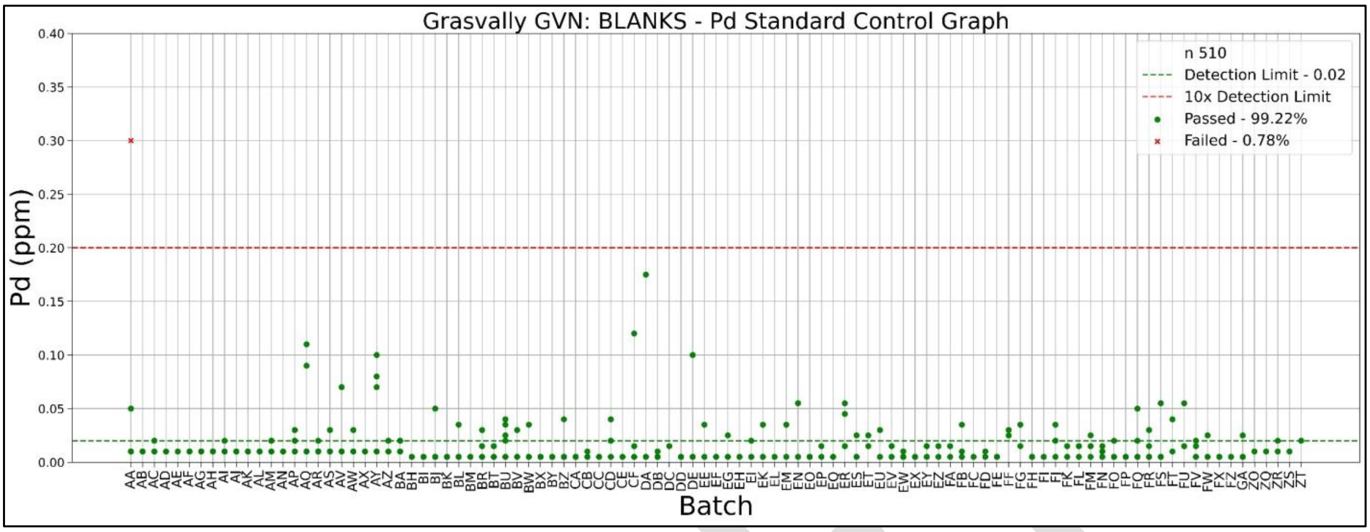

Figure 5 GVN Blank Control Graph for Pd

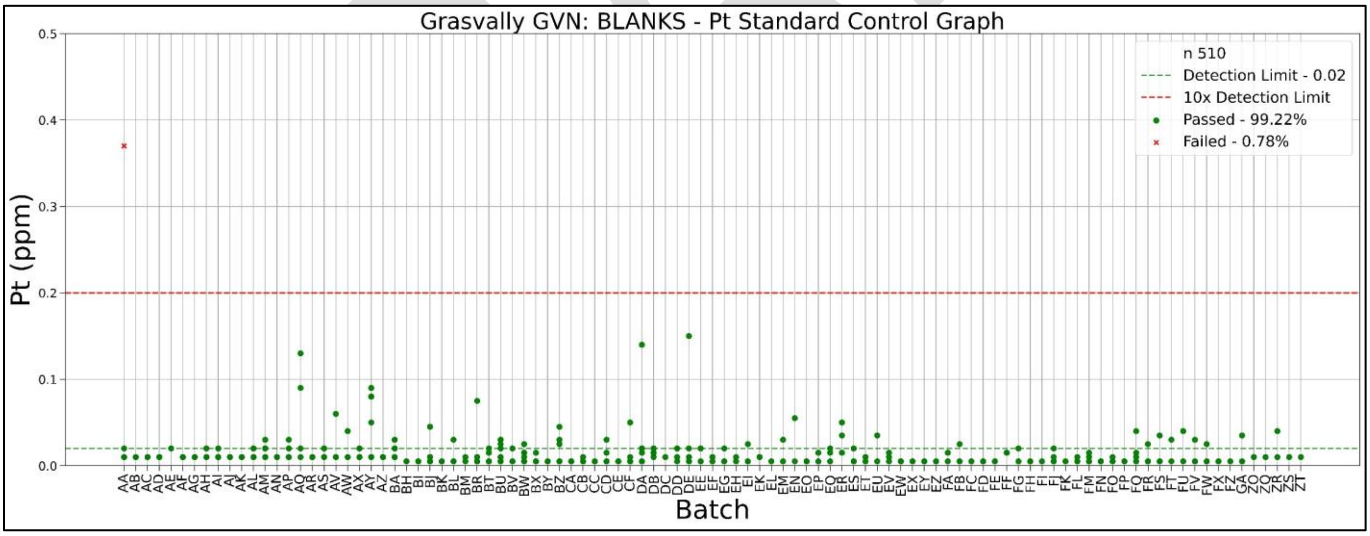

Figure 6 GVN Blank Control Graph for Pt

6.1.1.2 SARM7

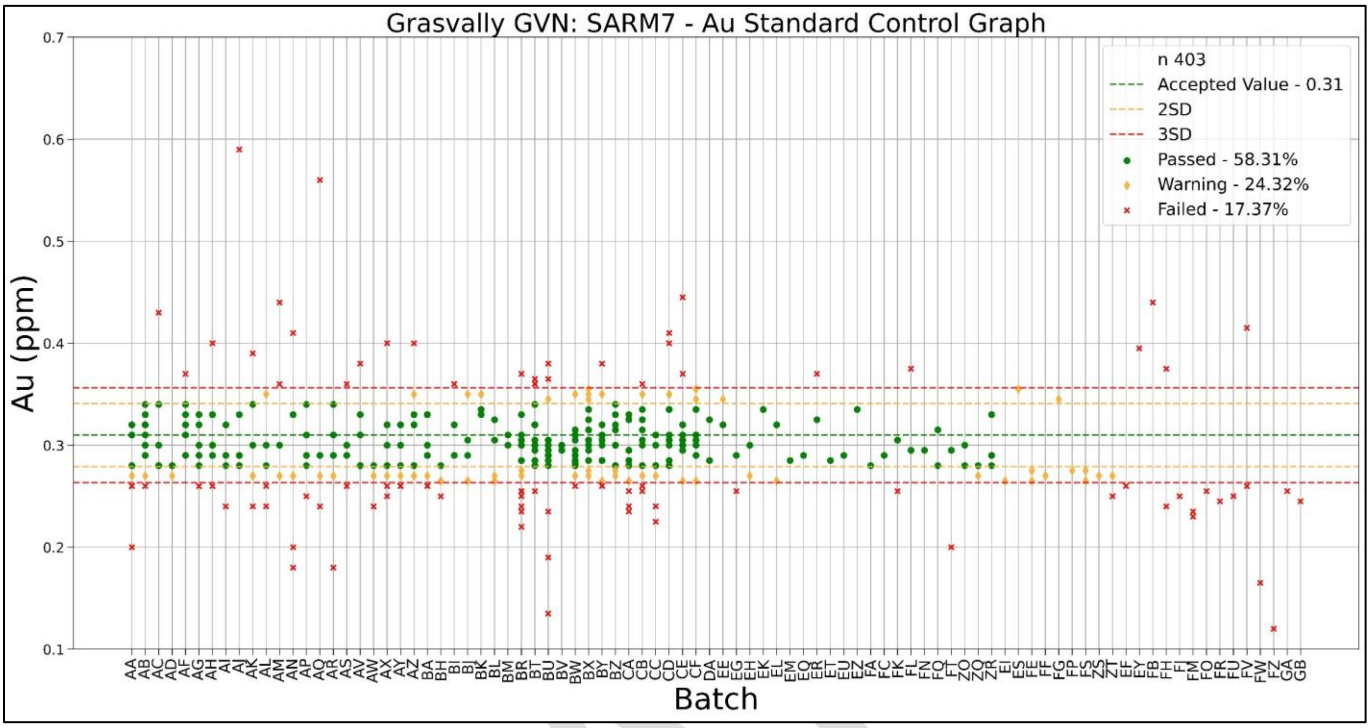

Figure 7 GVN SARM7 Control Graph for Au

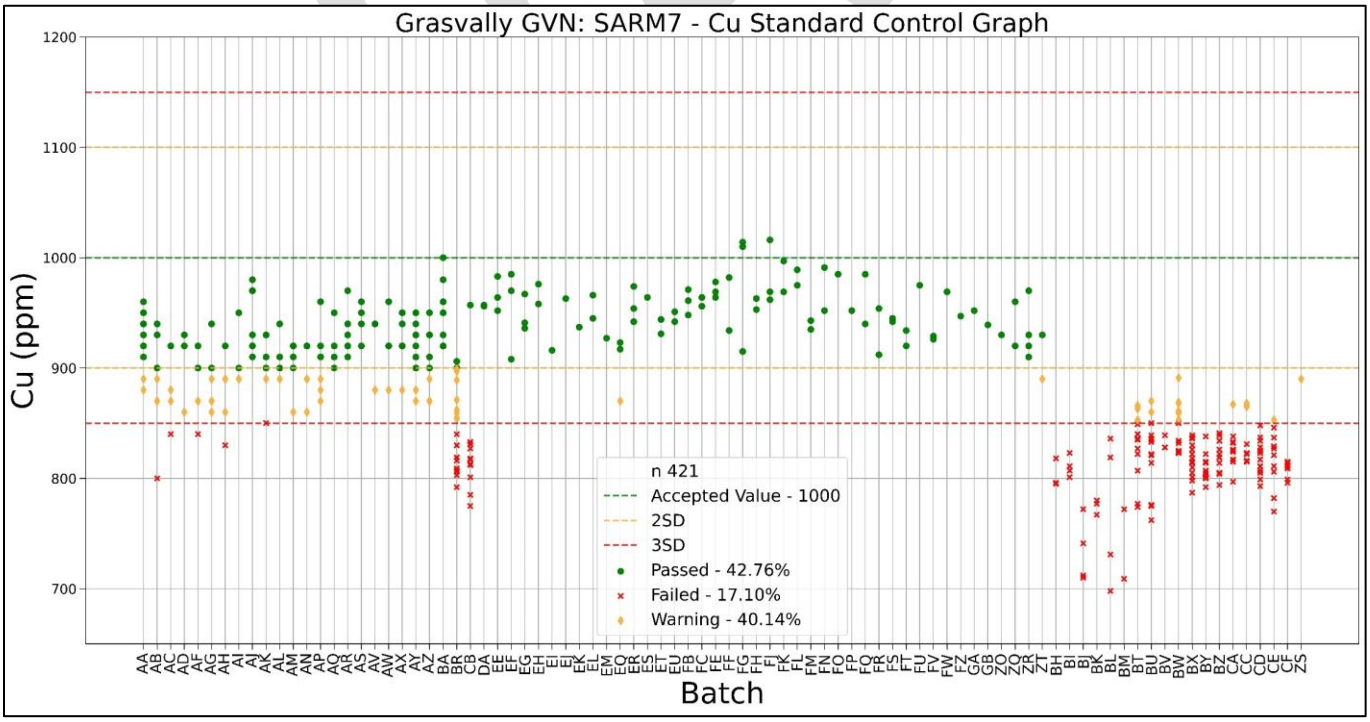

Figure 8 GVN SARM7 Control Graph for Cu

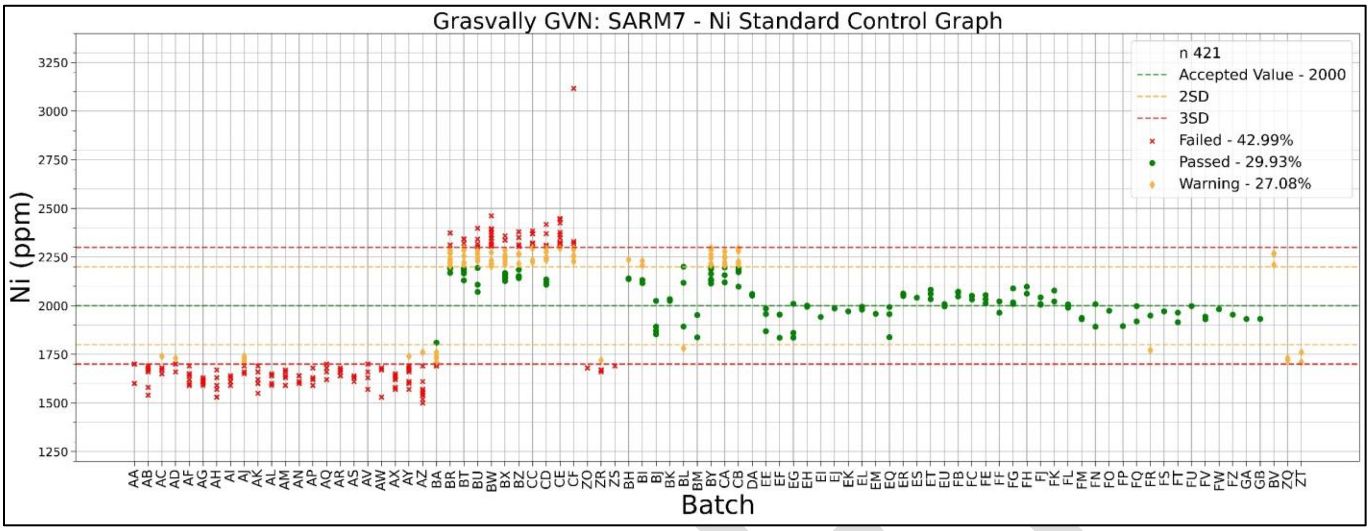

Figure 9 GVN SARM7 Control Graph for Ni

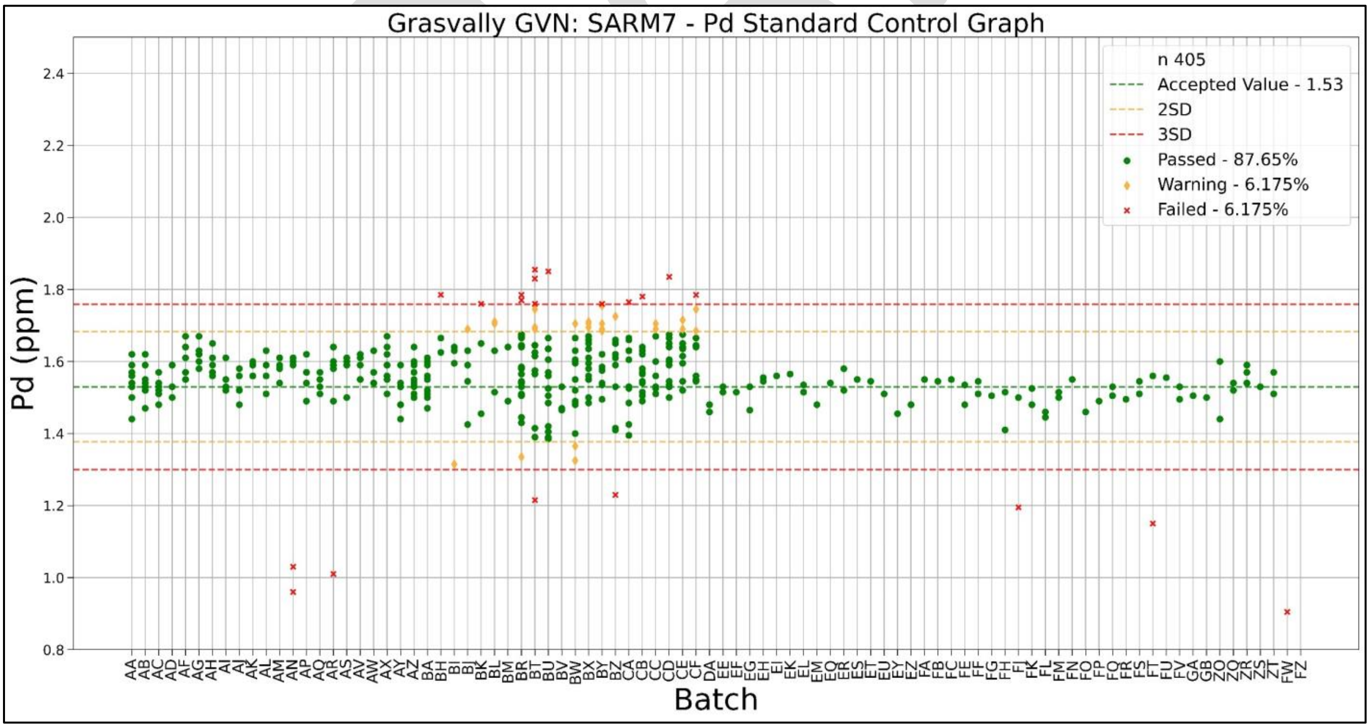

Figure 10 GVN SARM7 Control Graph for Pd

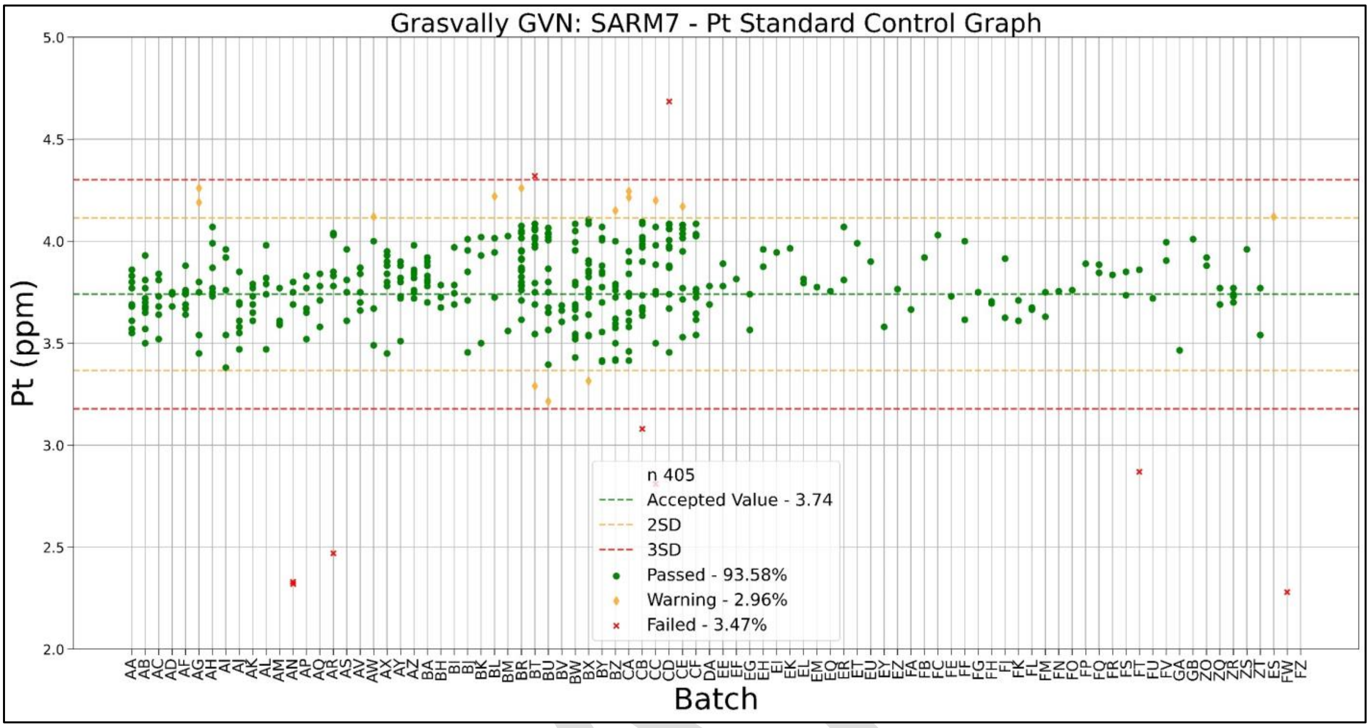

Figure 11 GVN SARM7 Control Graph for Pt

6.1.1.3 QC93

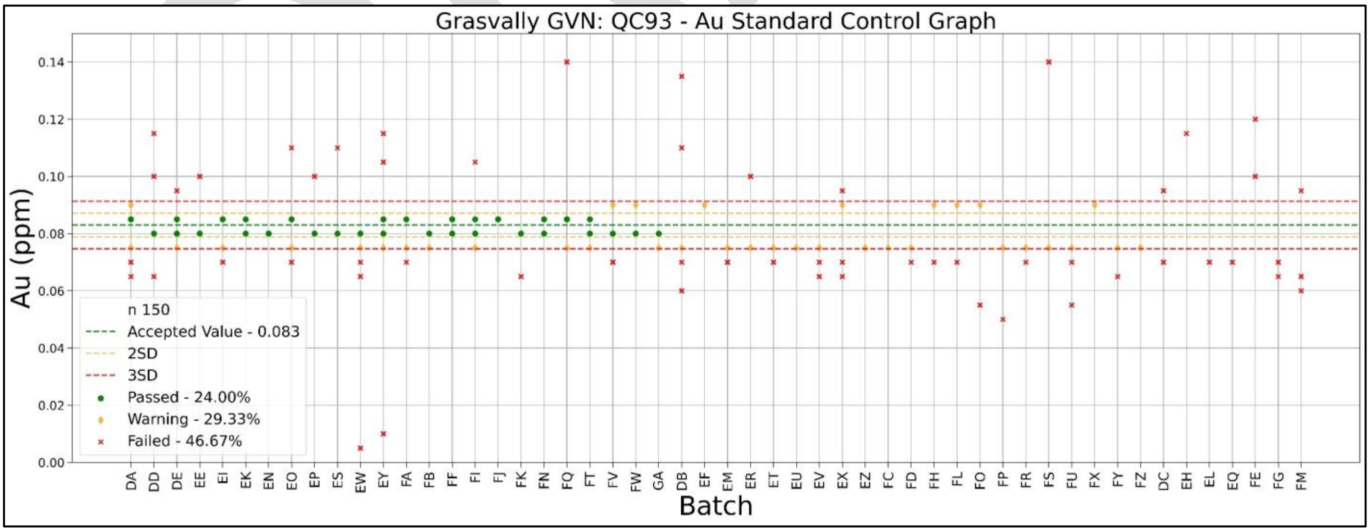

Figure 12 GVN QC93 Control Graph for Au

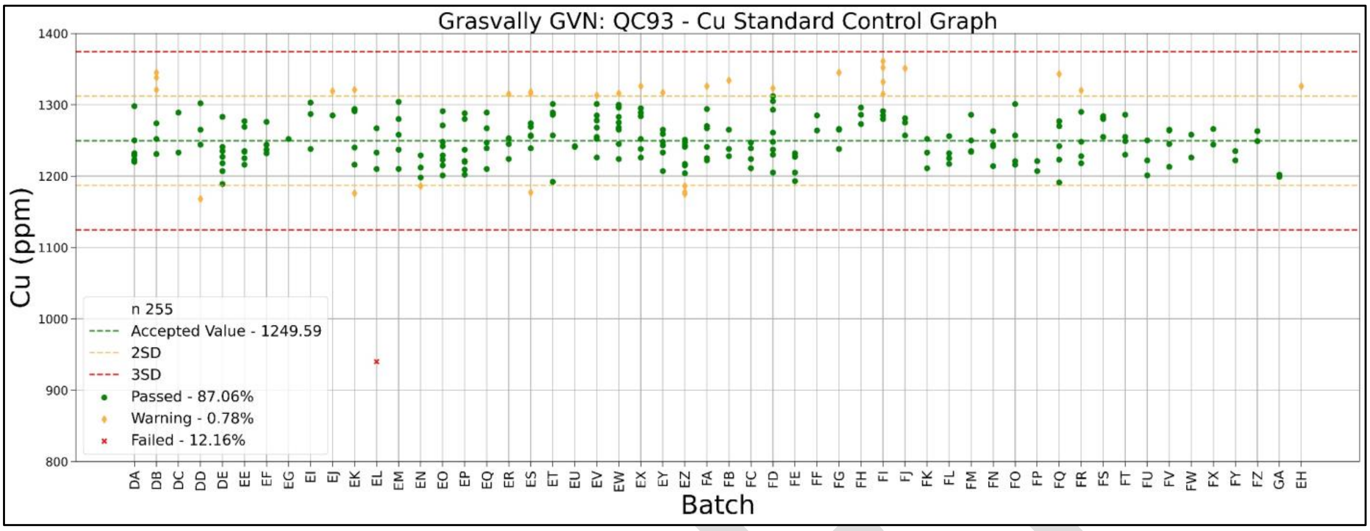

Figure 13 GVN QC93 Control Graph for Cu

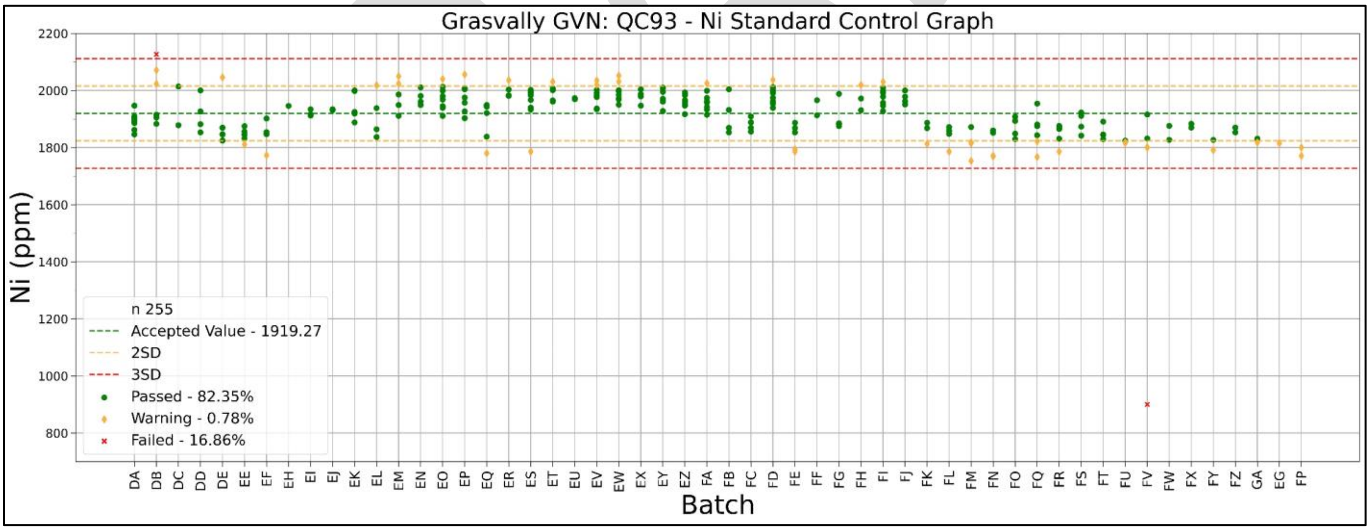

Figure 14 GVN QC93 Control Graph for Ni

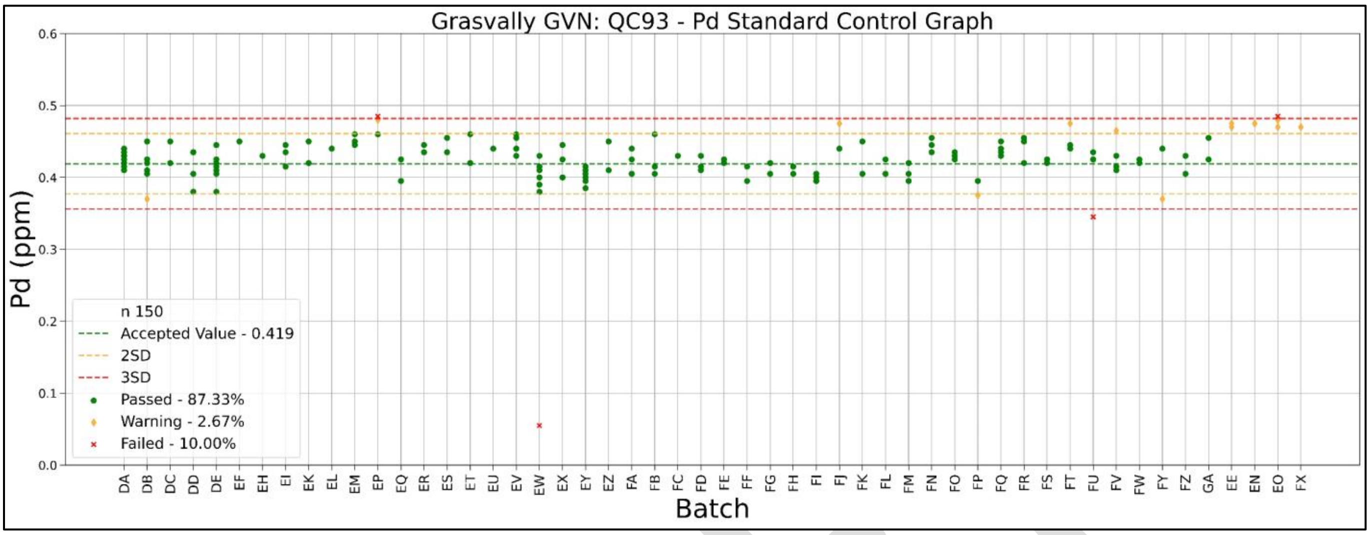

Figure 15 GVN QC93 Control Graph for Pd

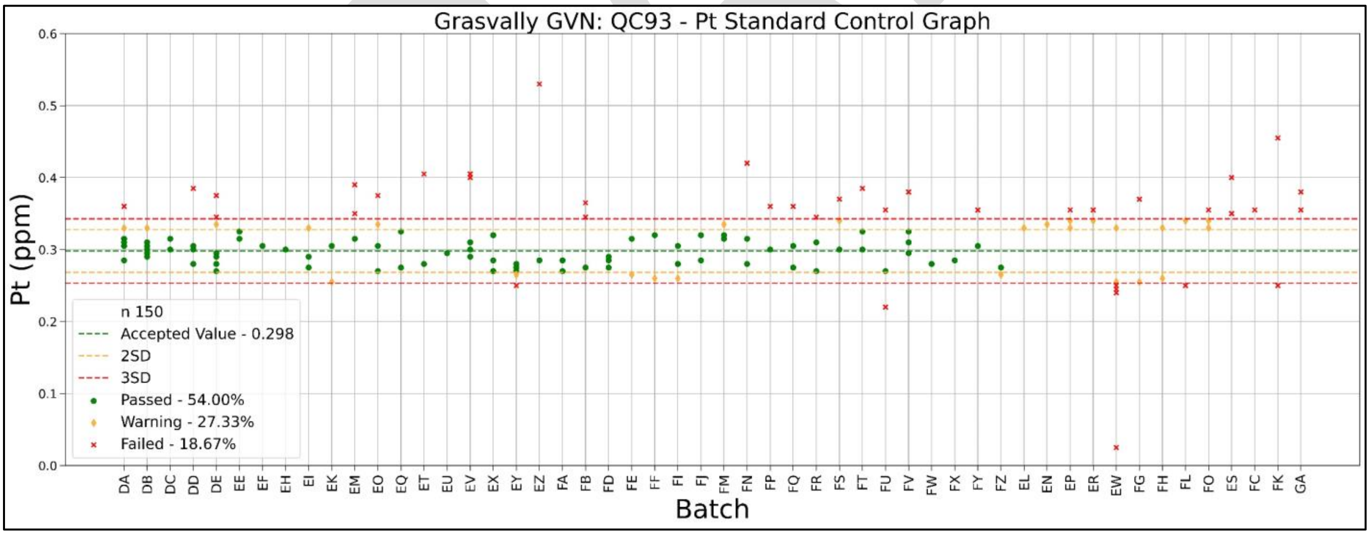

Figure 16 GVN QC93 Control Graph for Pt

6.1.2 Grasvally Bulk Sample

6.1.2.1 Submitted Blanks

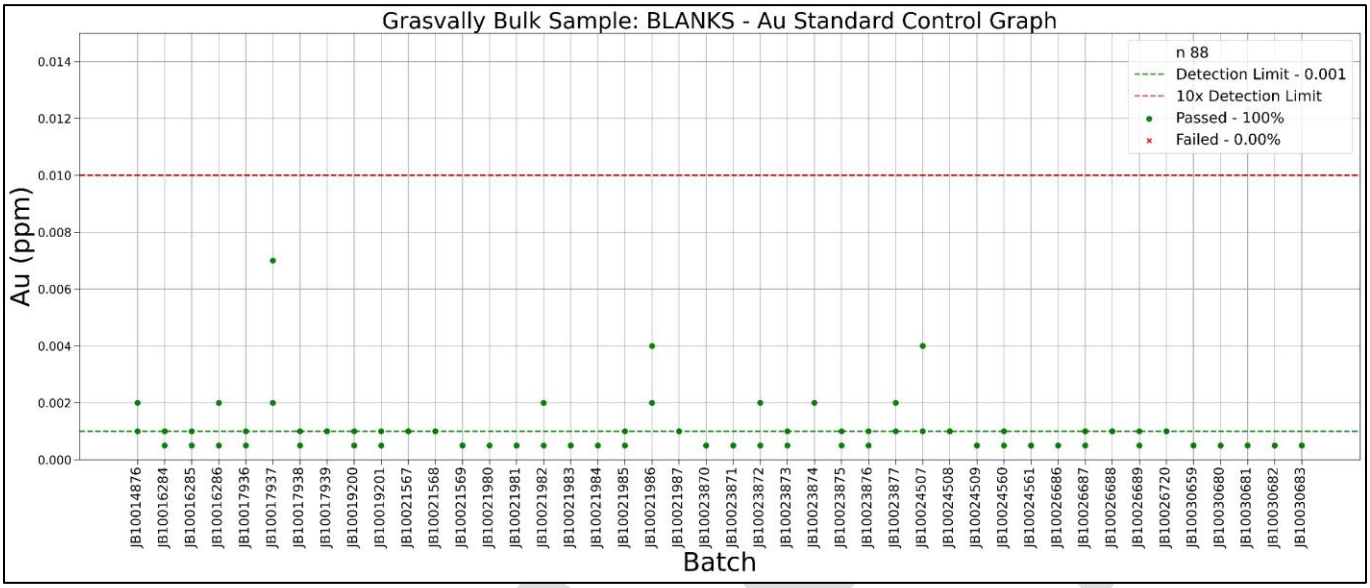

Figure 17 Bulk Sample Blank Control Graph for Au

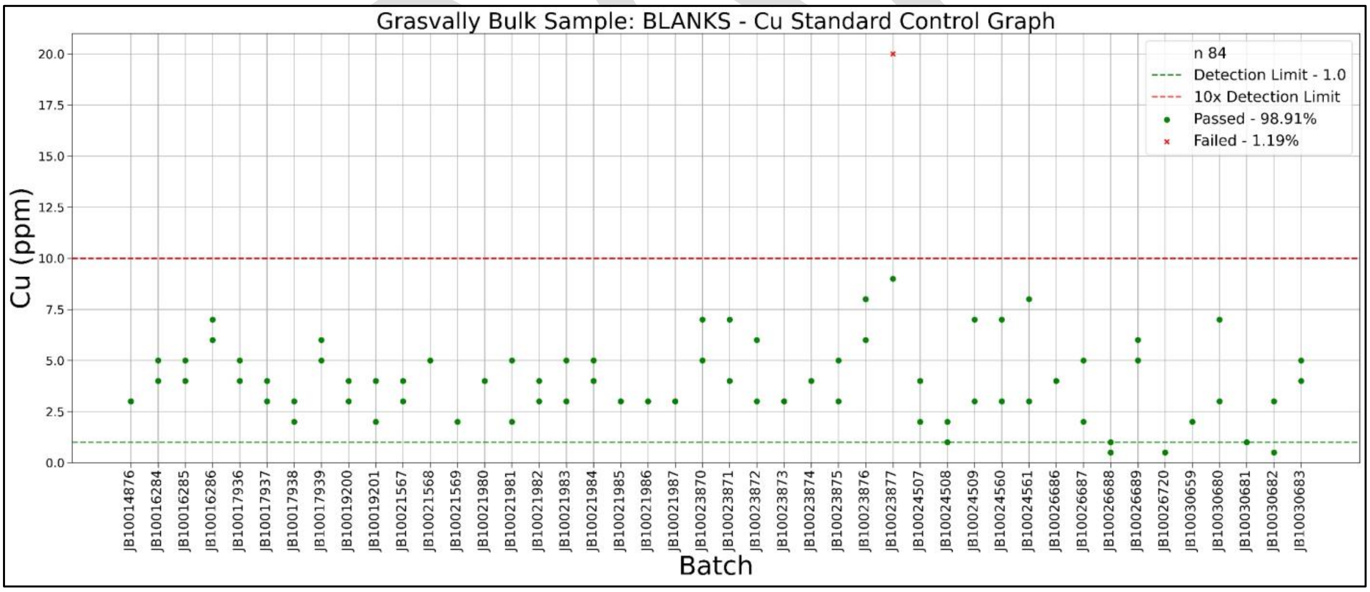

Figure 18 Bulk Sample Blank Control Graph for Cu

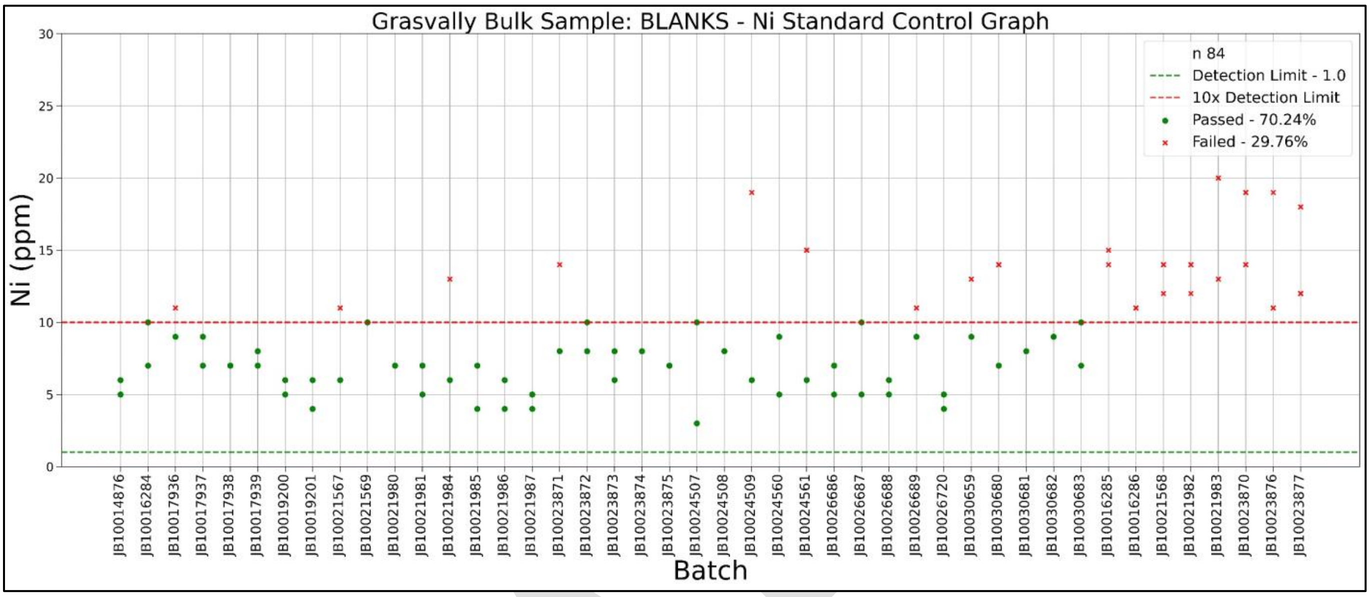

Figure 19 Bulk Sample Blank Control Graph for Ni

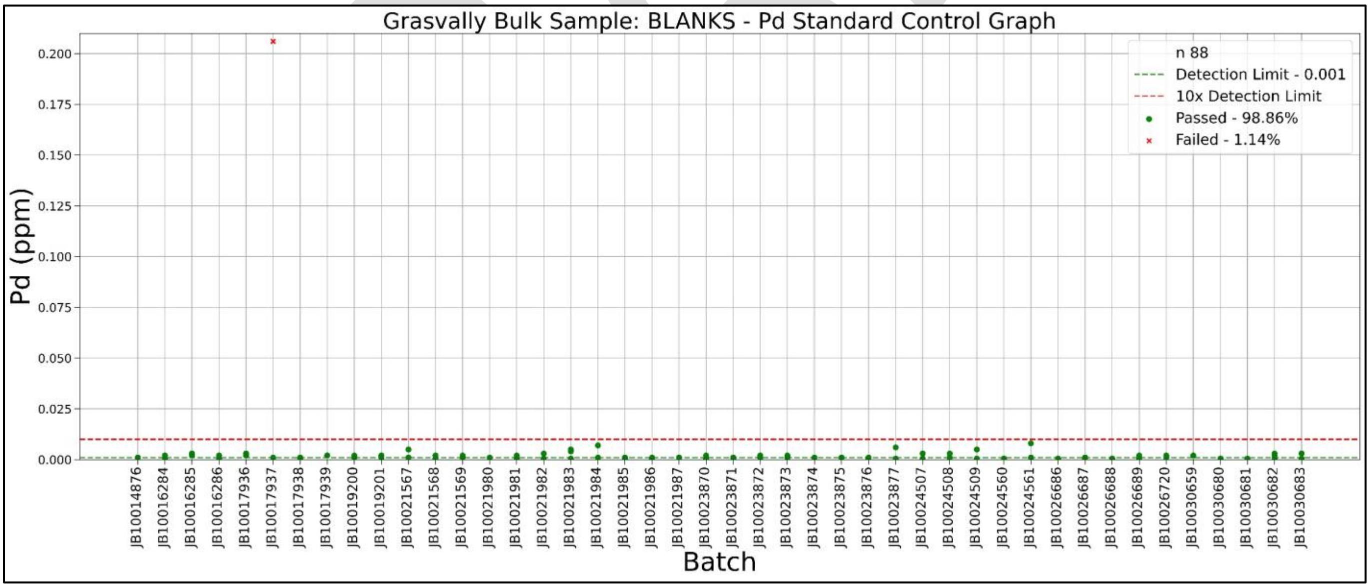

Figure 20 Bulk Sample Blank Control Graph for Pd

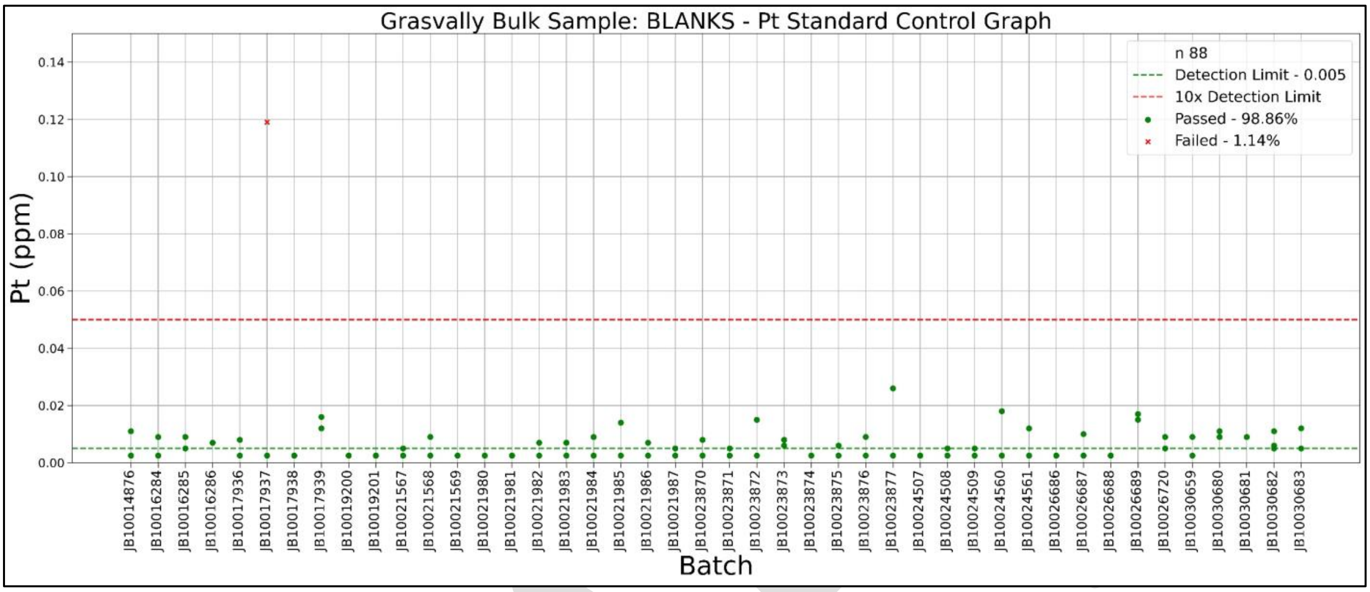

Figure 21 Bulk Sample Blank Control Graph for Pt

6.1.2.2 AMIS0002

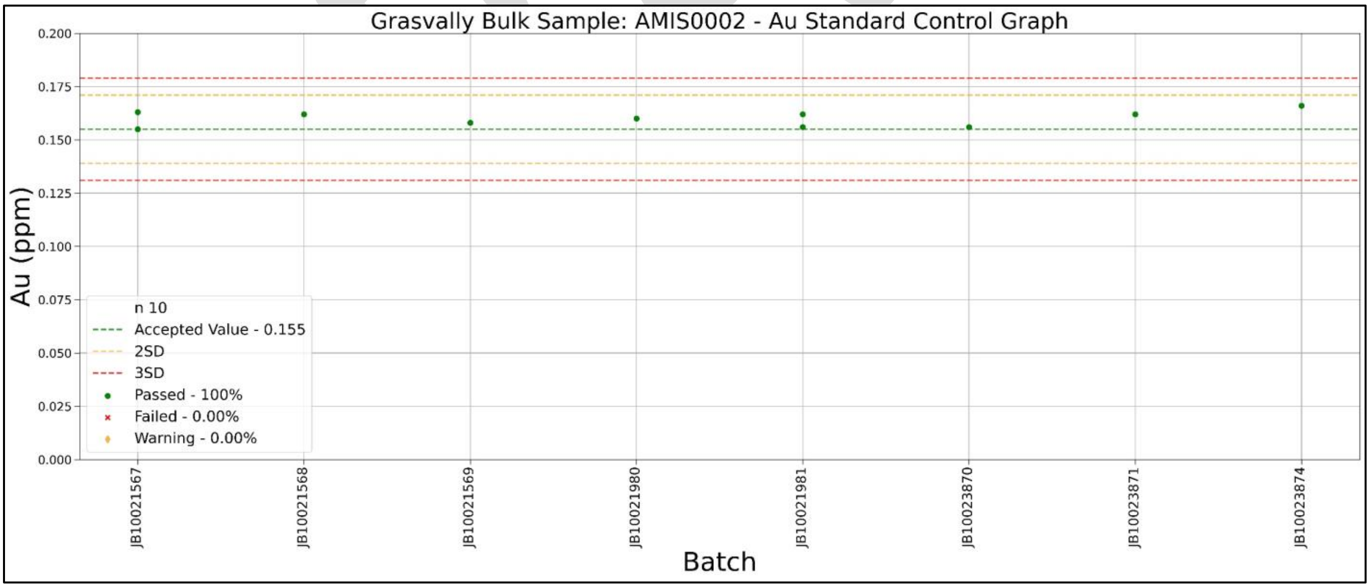

Figure 22 Bulk Sample AMIS0002 Control Graph for Au

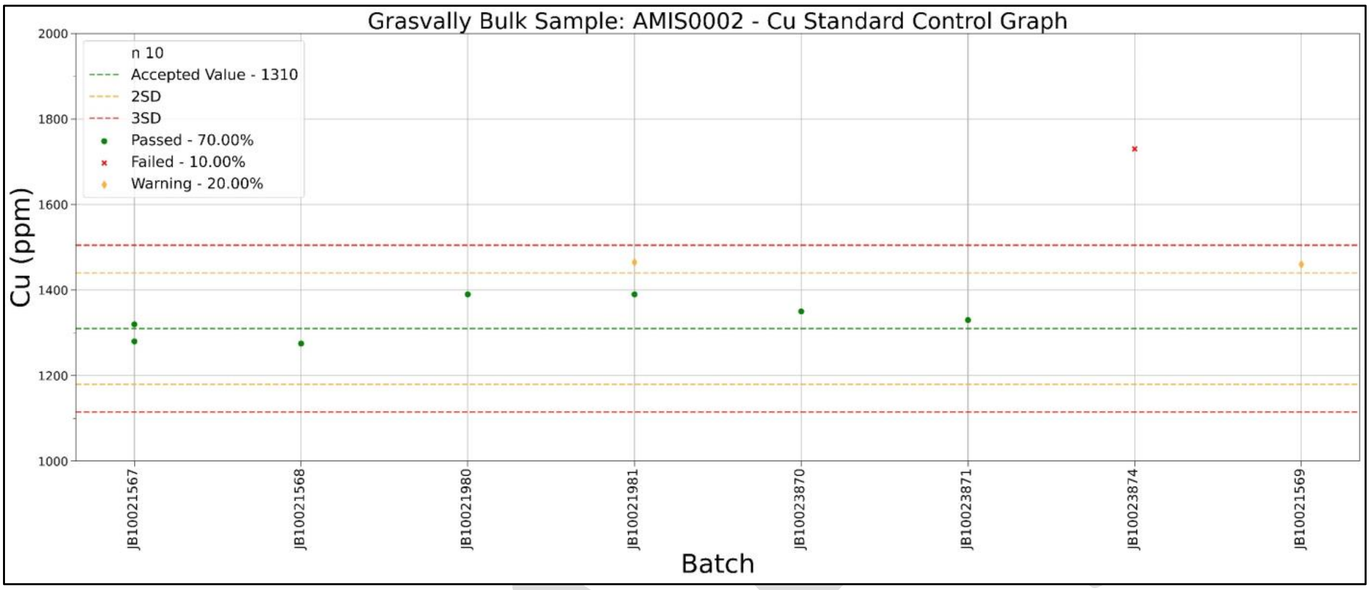

Figure 23 Bulk Sample AMIS0002 Control Graph for Cu

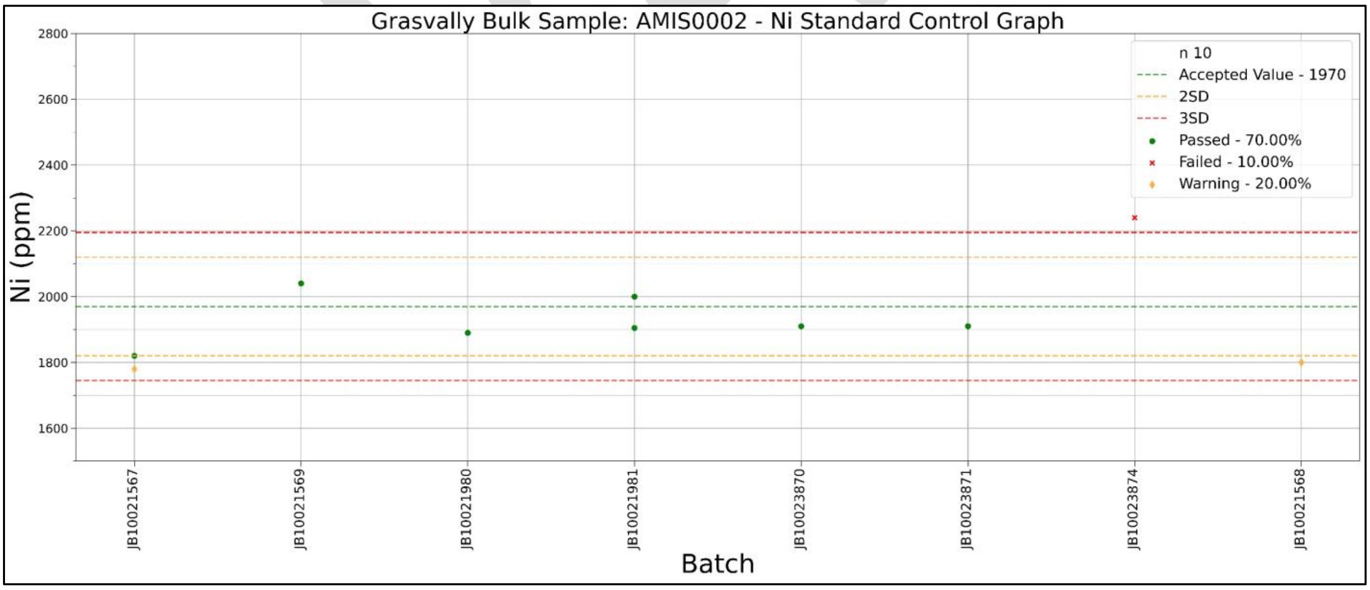

Figure 24 Bulk Sample AMIS0002 Control Graph for Ni

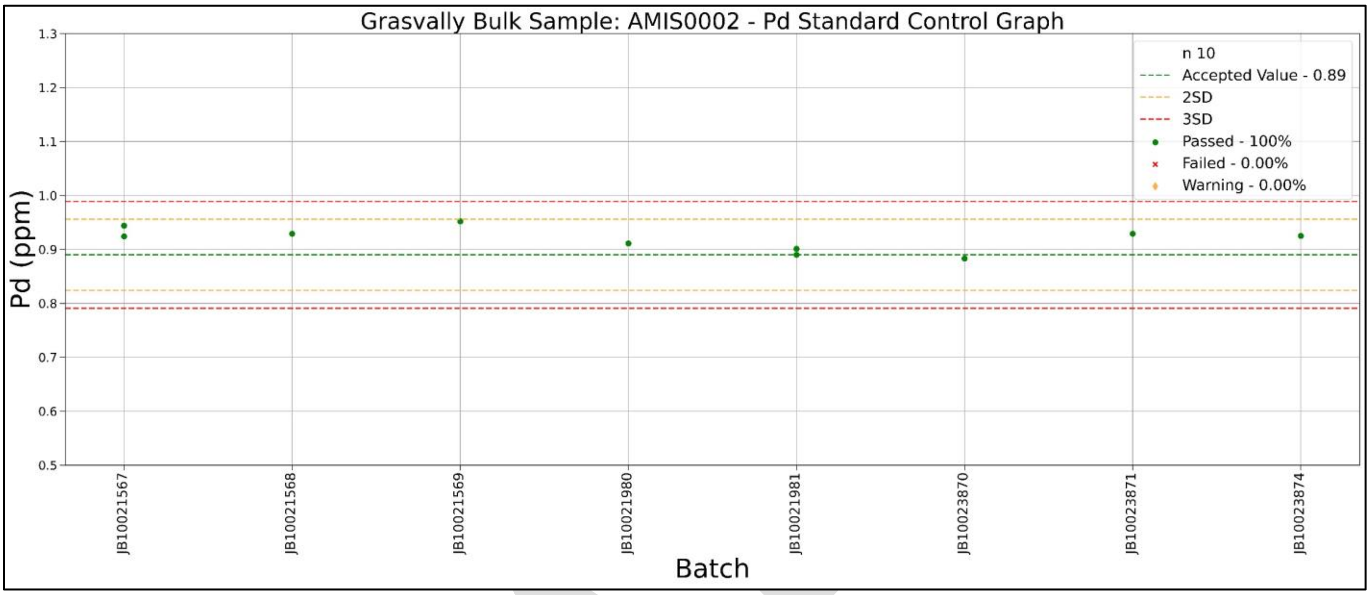

Figure 25 Bulk Sample AMIS0002 Control Graph for Pd

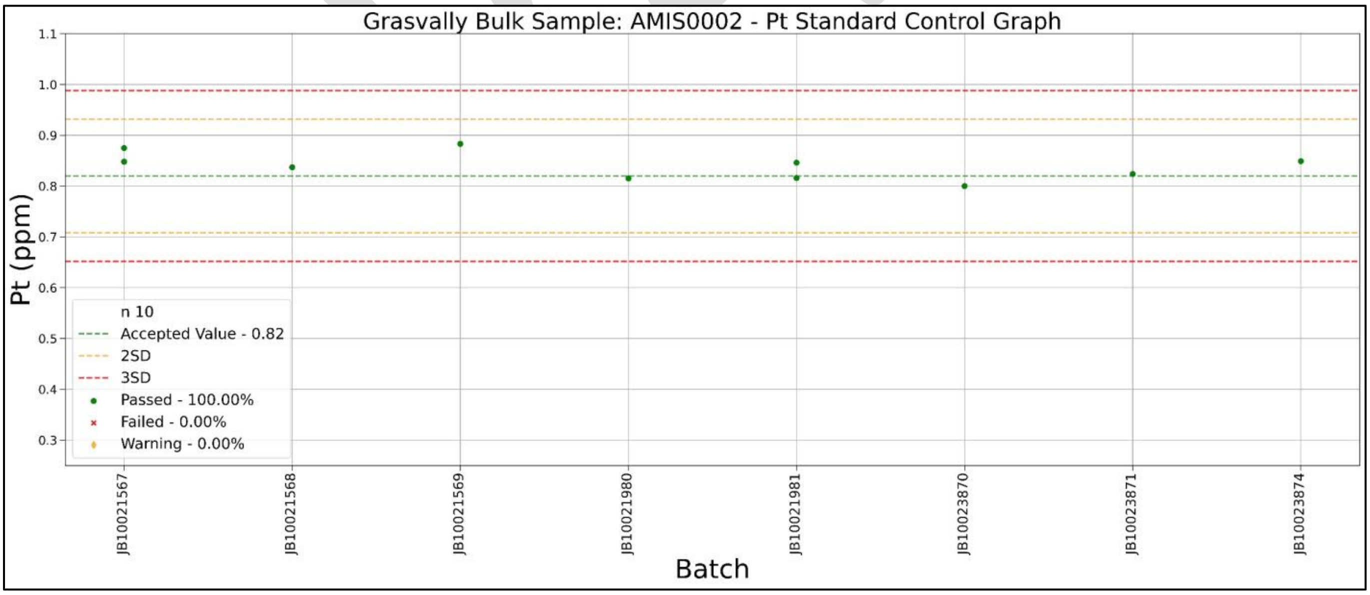

Figure 26 Bulk Sample AMIS0002 Control Graph for Pt

6.1.2.3 AMIS0099

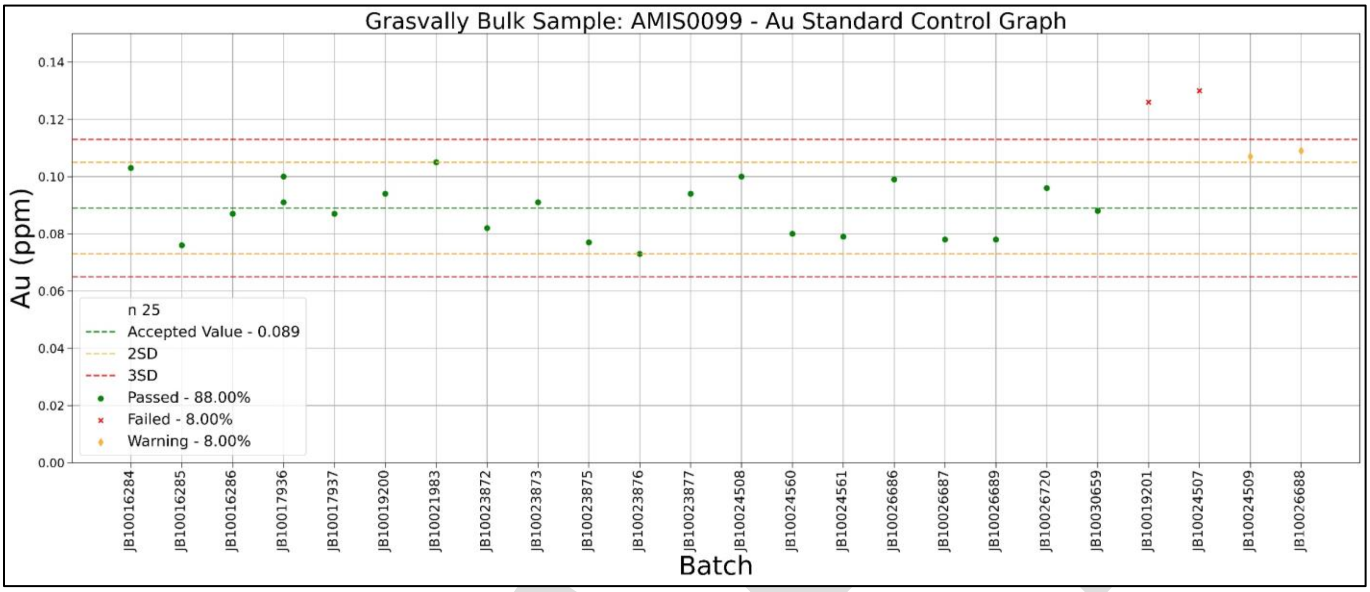

Figure 27 Bulk Sample AMIS0099 Control Graph for Au

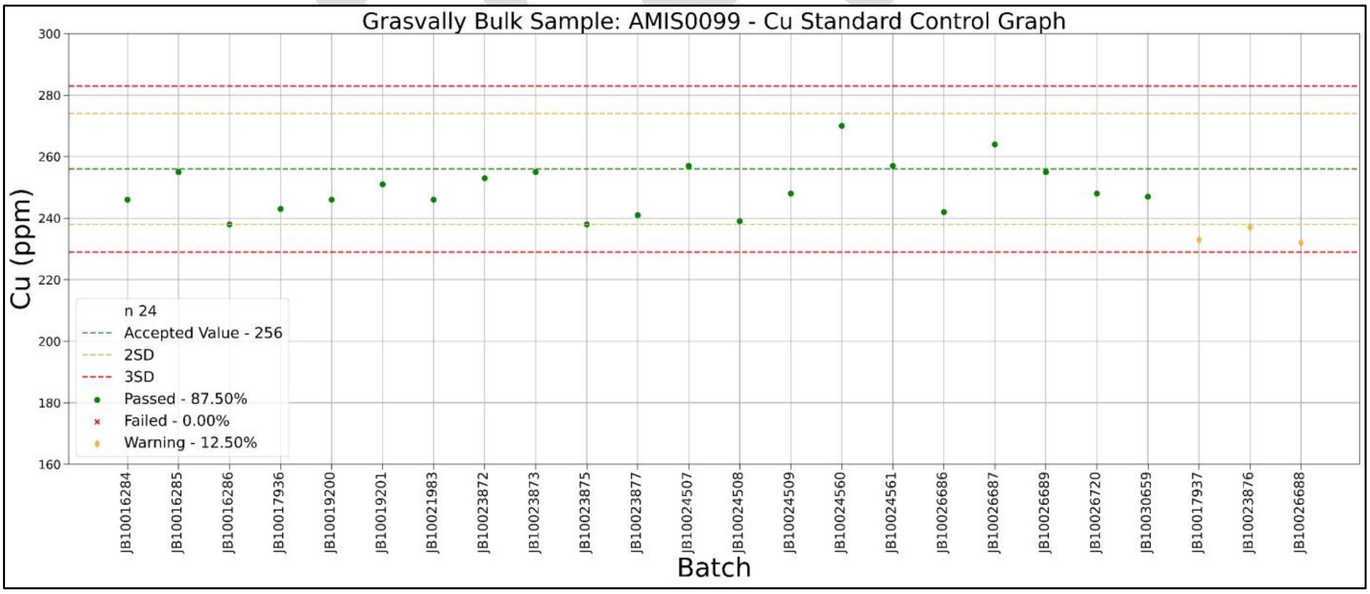

Figure 28 Bulk Sample AMIS0099 Control Graph for Cu

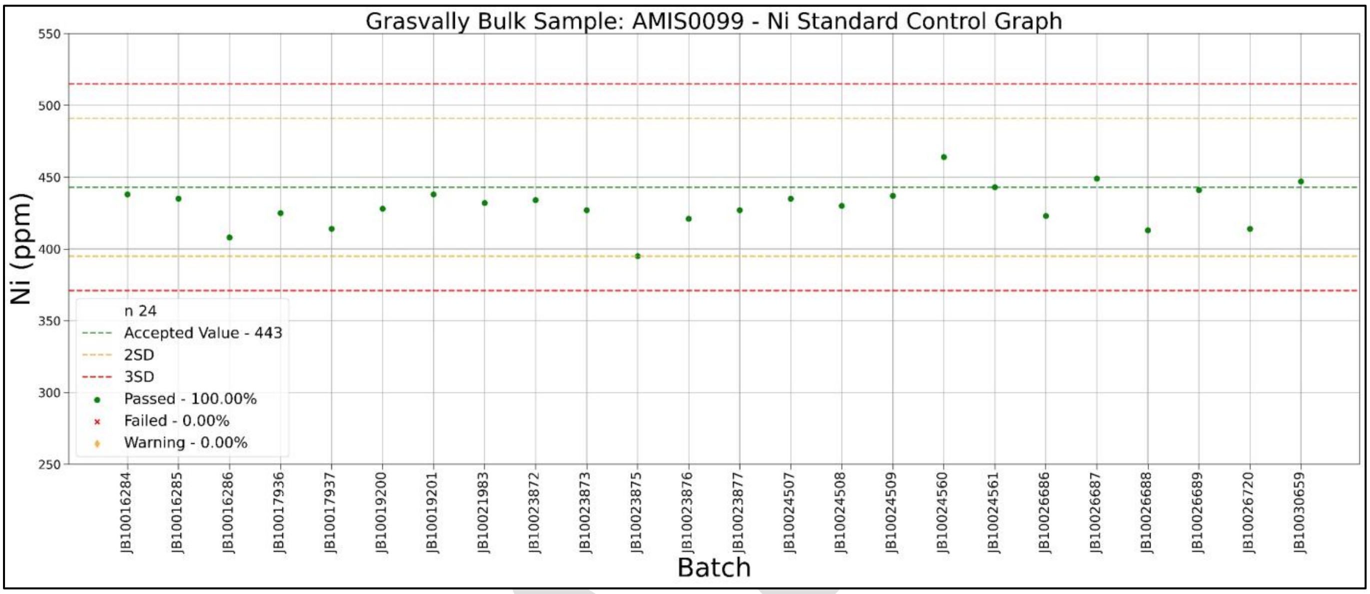

Figure 29 Bulk Sample AMIS0099 Control Graph for Ni

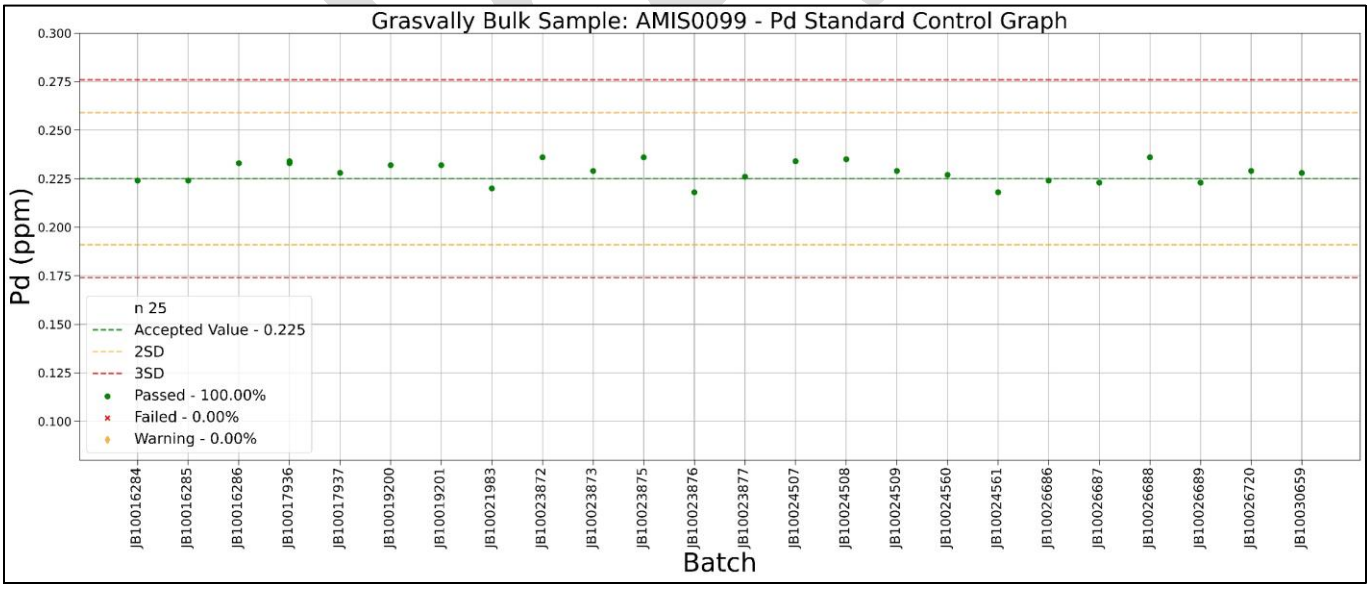

Figure 30 Bulk Sample AMIS0099 Control Graph for Pd

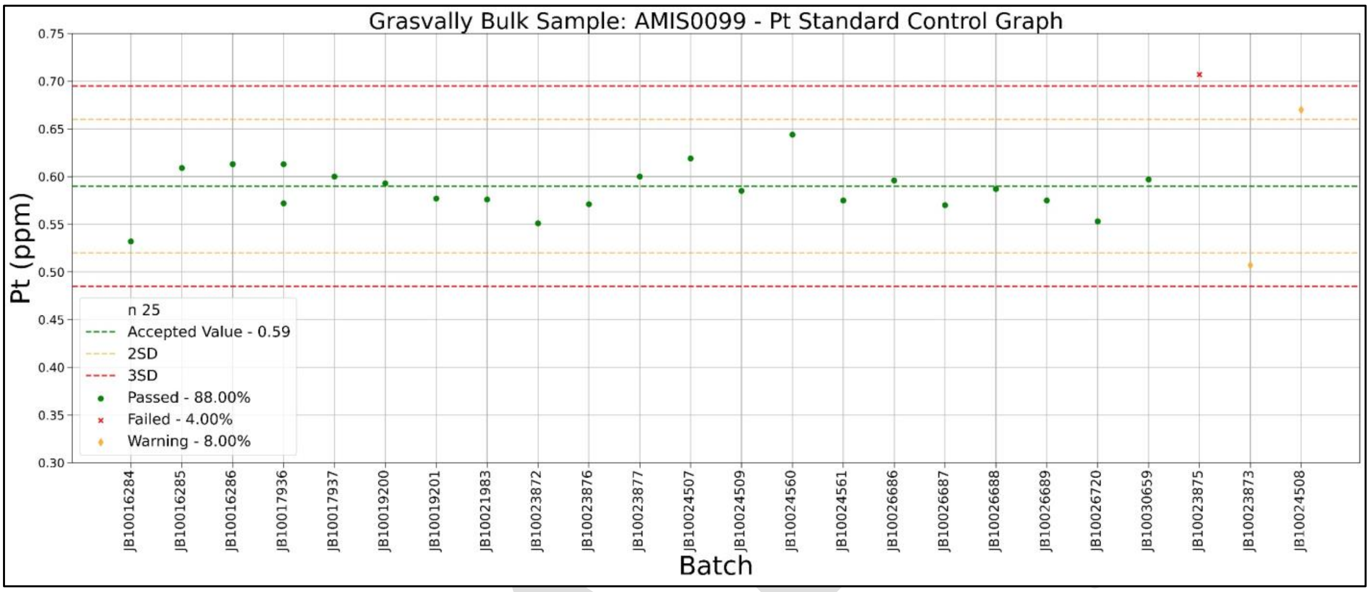

Figure 31 Bulk Sample AMIS0099 Control Graph for Pt

6.1.2.4 AMIS0124

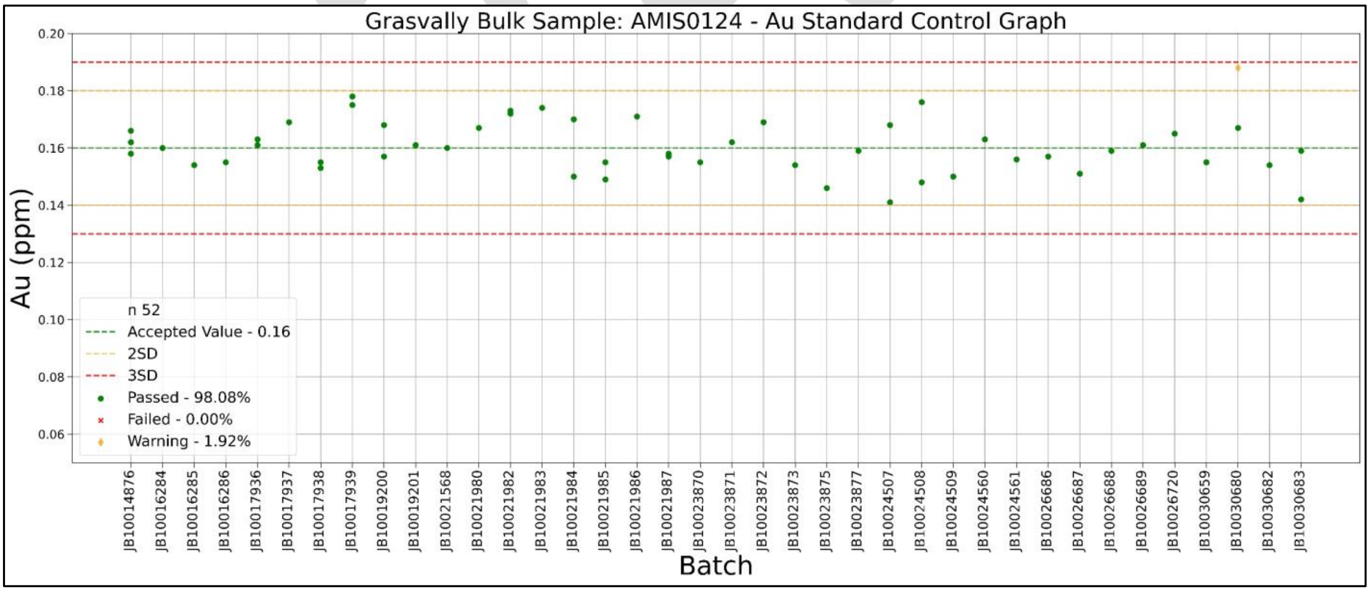

Figure 32 Bulk Sample AMIS0124 Control Graph for Au

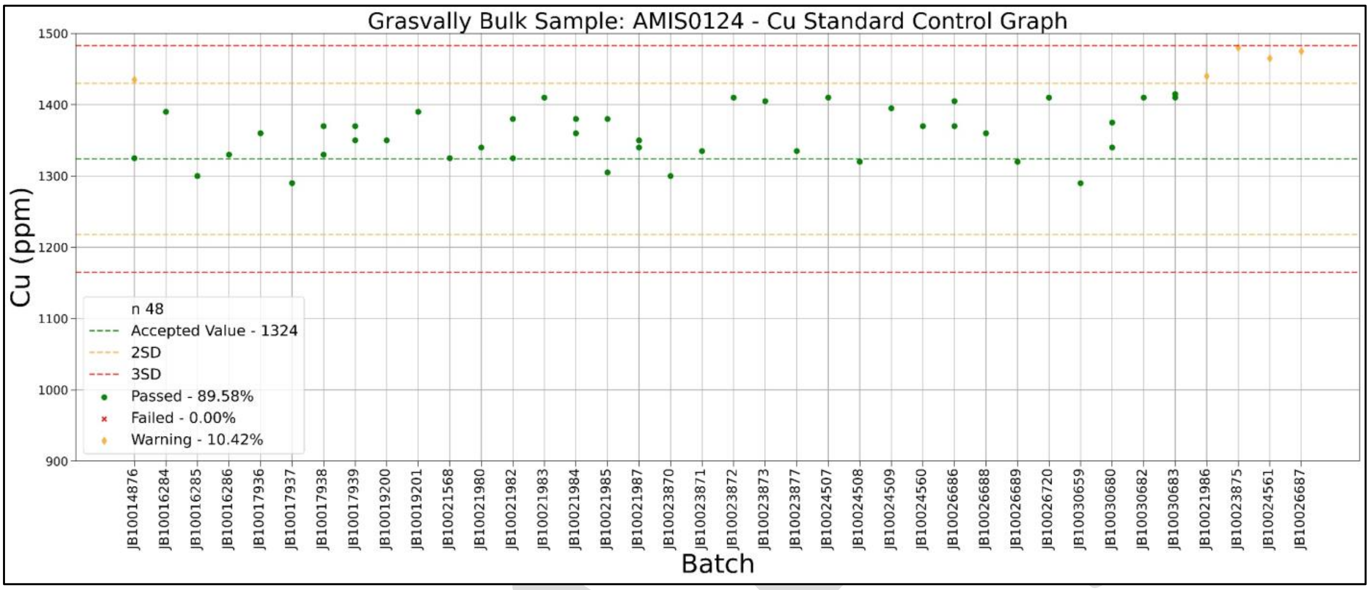

Figure 33 Bulk Sample AMIS0124 Control Graph for Cu

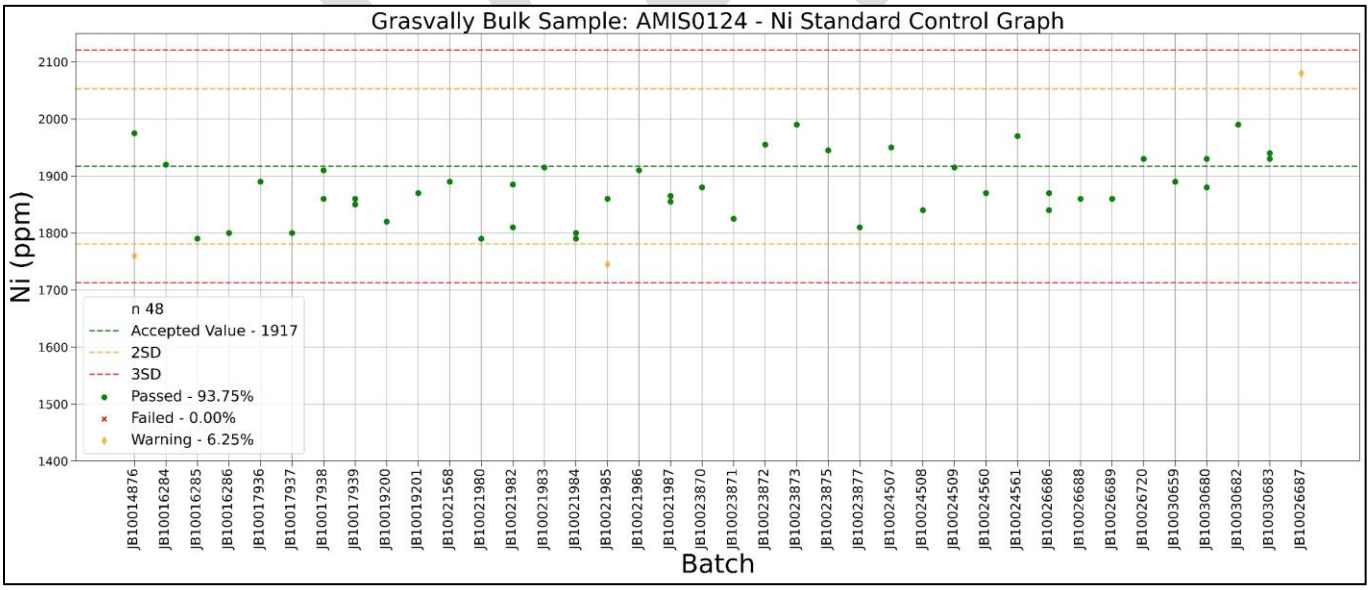

Figure 34 Bulk Sample AMIS0124 Control Graph for Ni

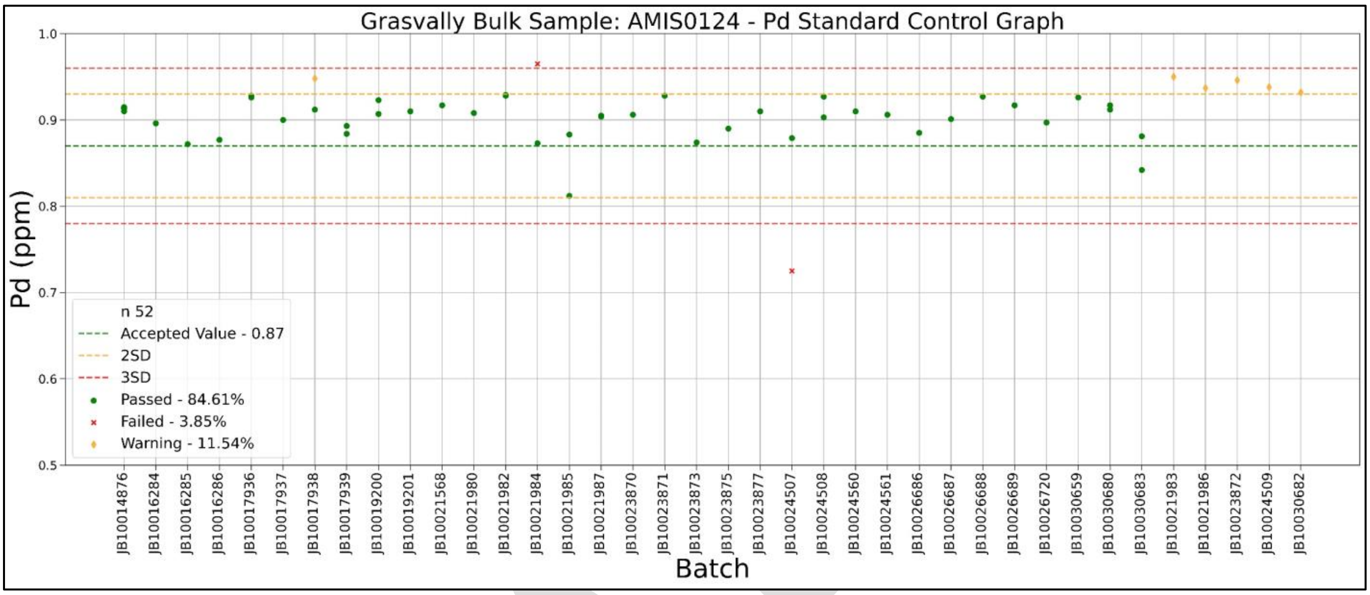

Figure 35 Bulk Sample AMIS0124 Control Graph for Pd

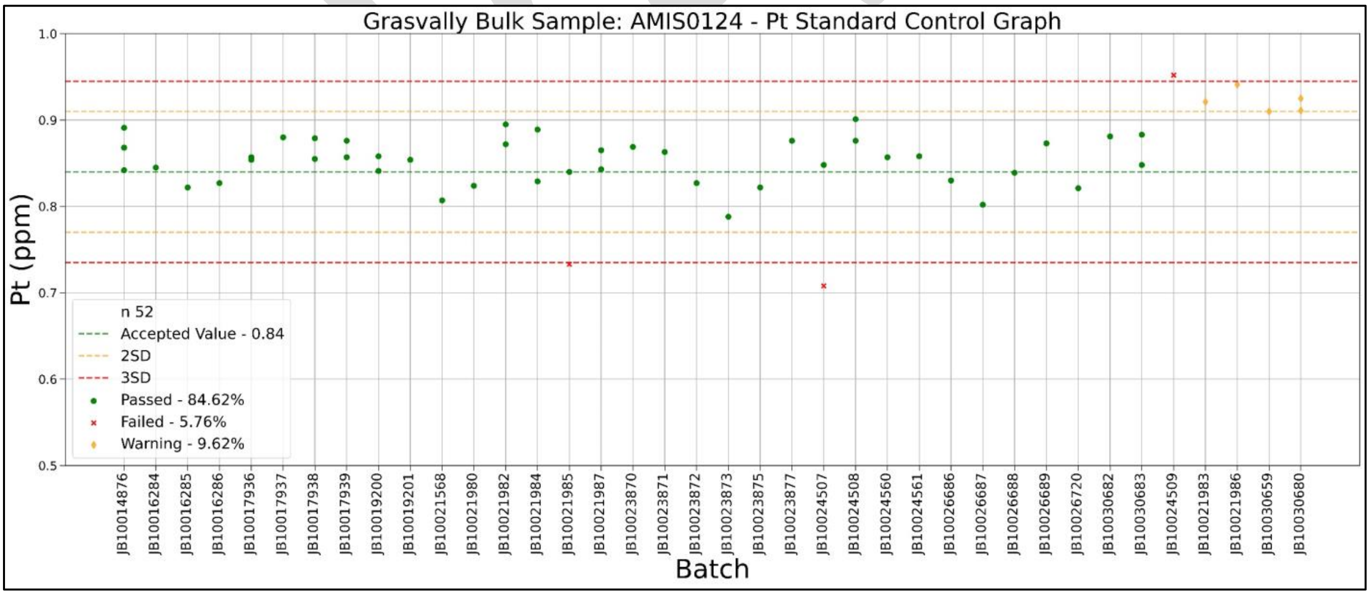

Figure 36 Bulk Sample AMIS0124 Control Graph for Pt

6.1.3 North Definition

6.1.3.1 Submitted Blanks

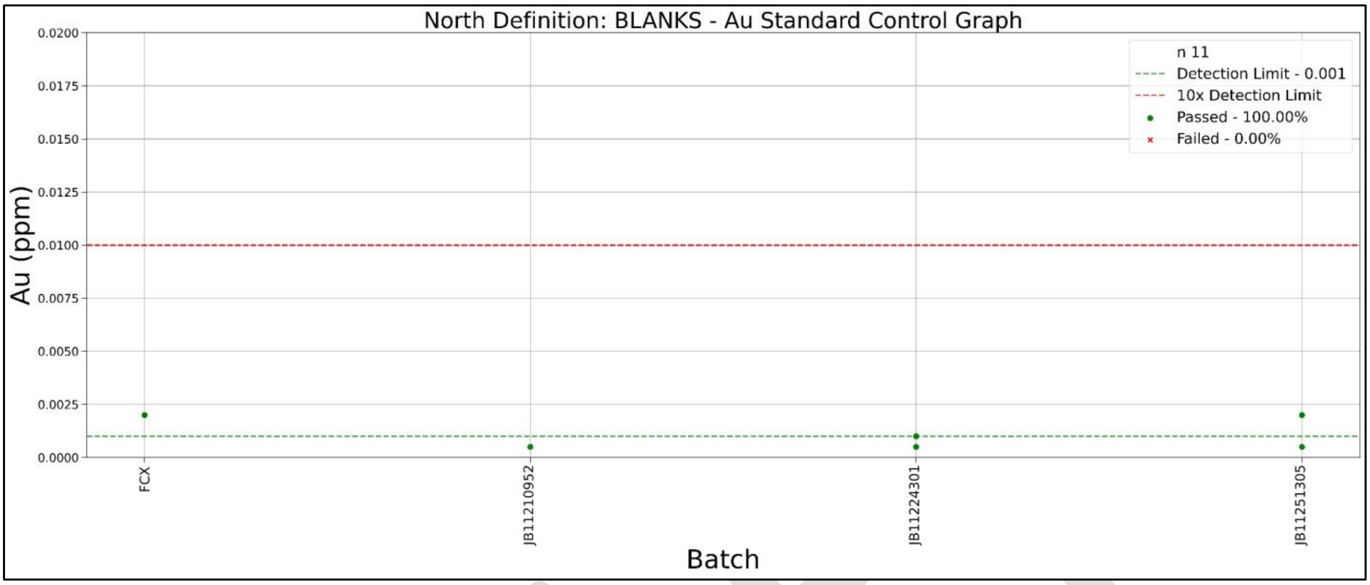

Figure 37 North Definition Blank Control Graph for Au

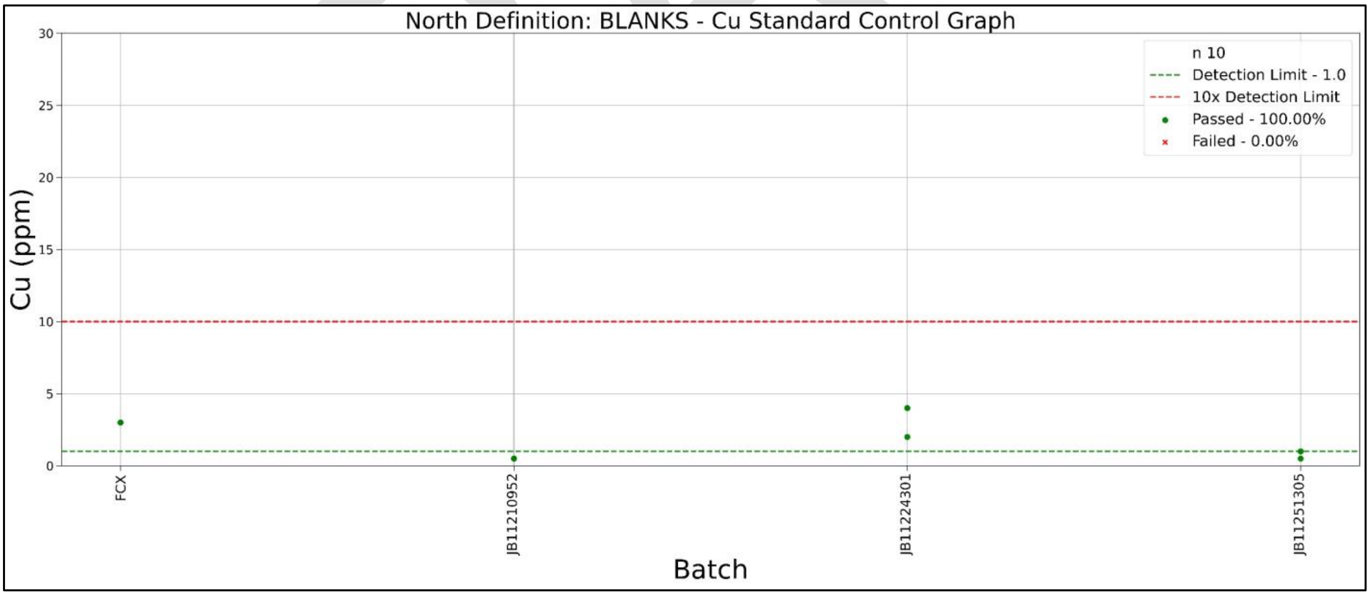

Figure 38 North Definition Blank Control Graph for Cu

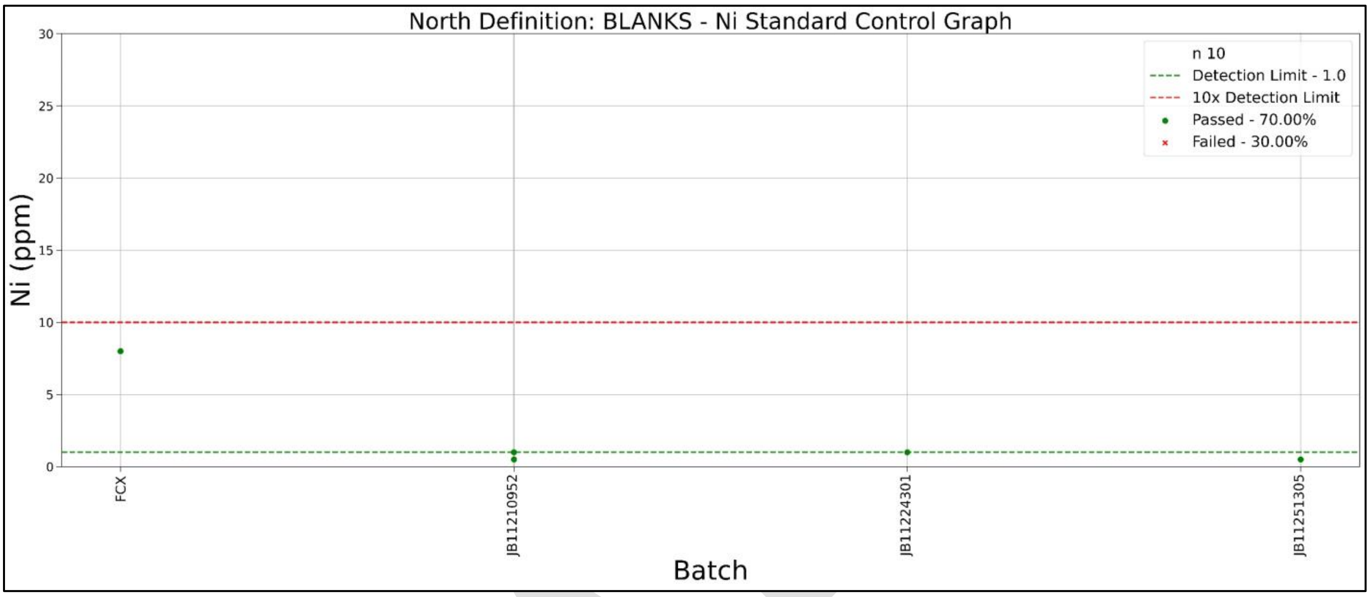

Figure 39 North Definition Blank Control Graph for Ni

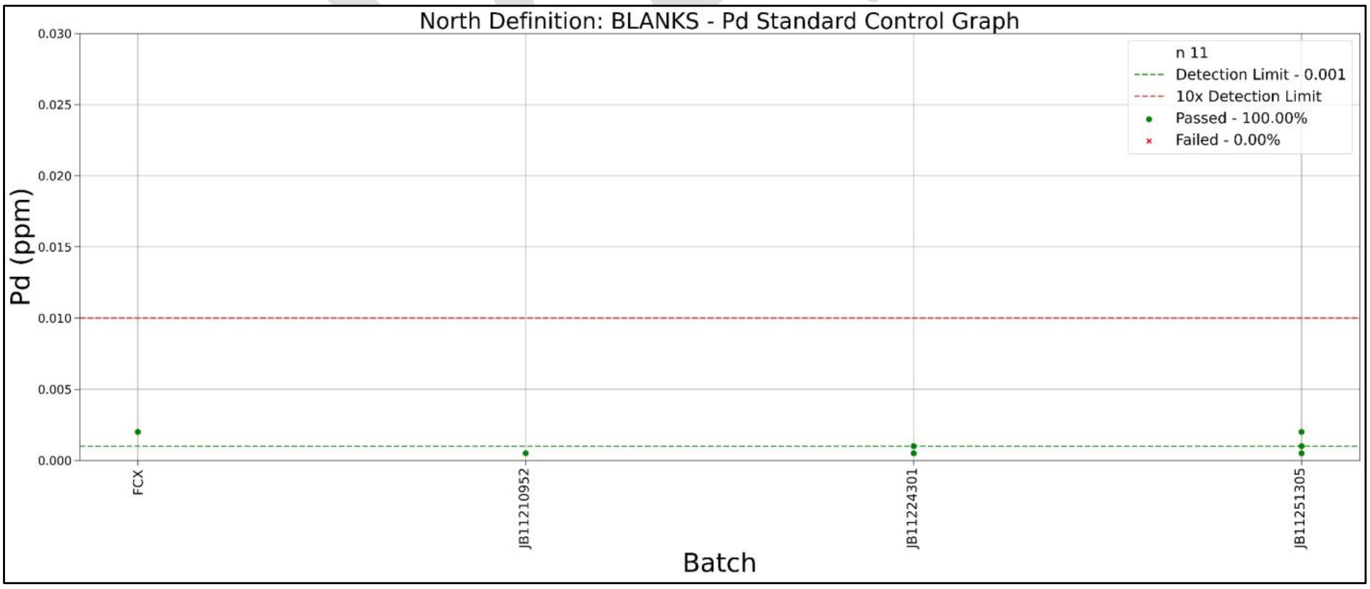

Figure 40 North Definition Blank Control Graph for Pd

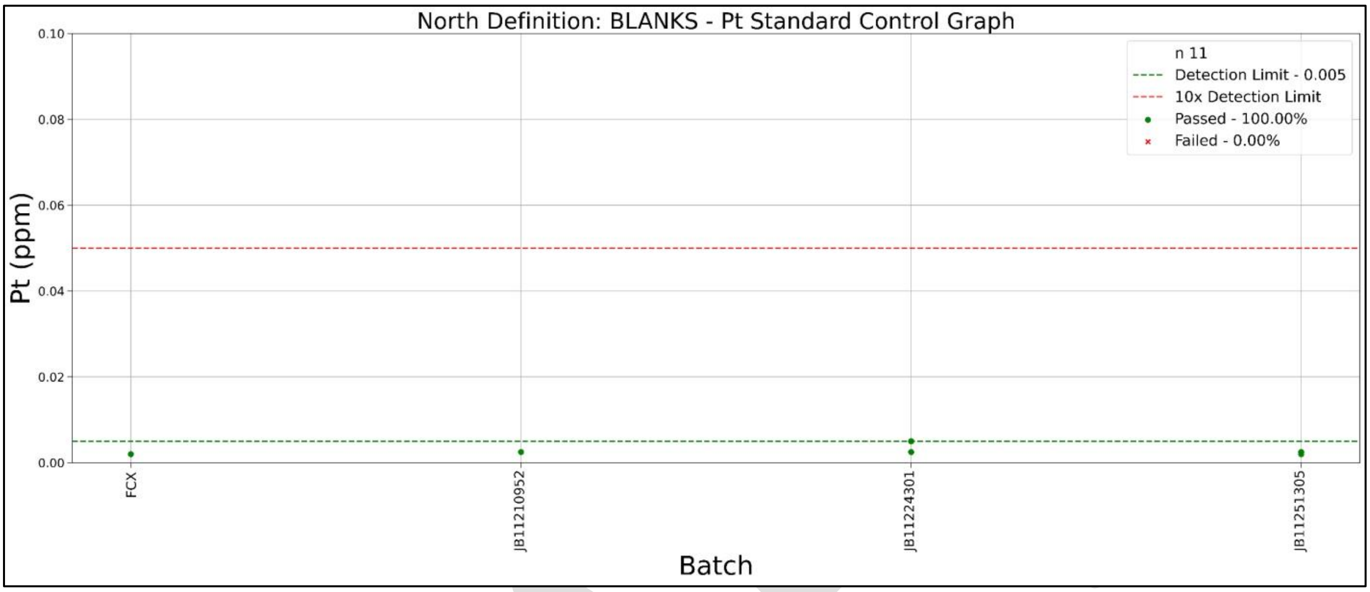

Figure 41 North Definition Blank Control Graph for Pt

6.1.3.2 AMIS0067

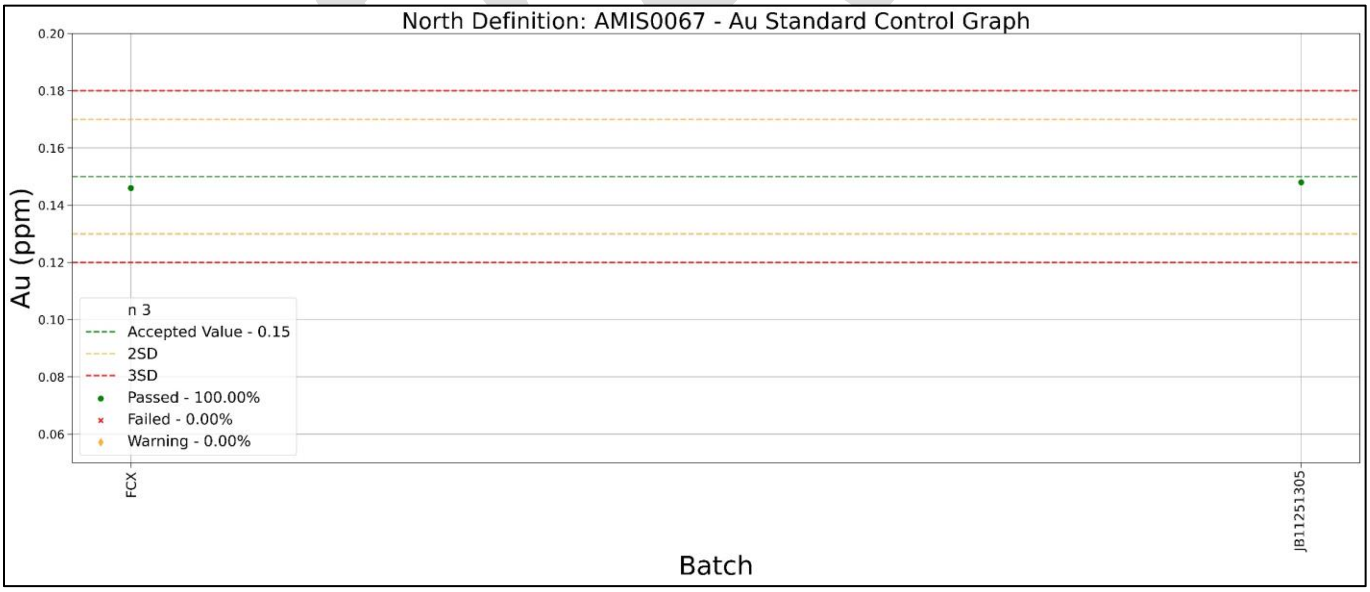

Figure 42 North Definition AMIS0067 Control Graph for Au

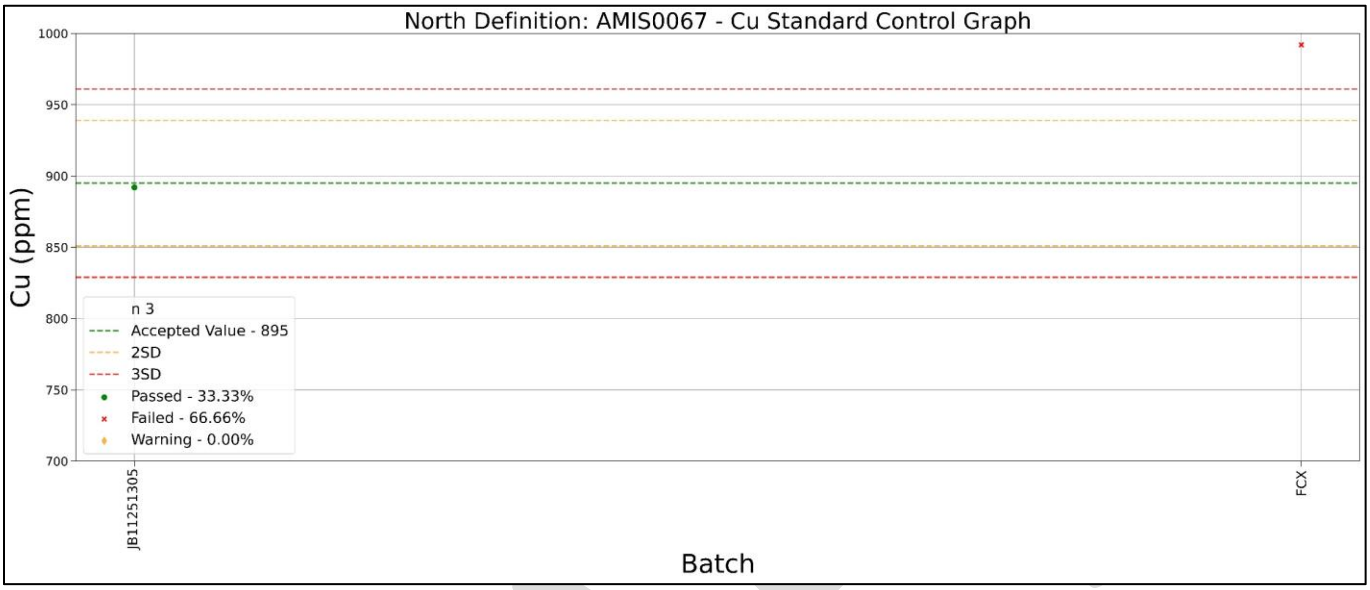

Figure 43 North Definition AMIS0067 Control Graph fo Cu

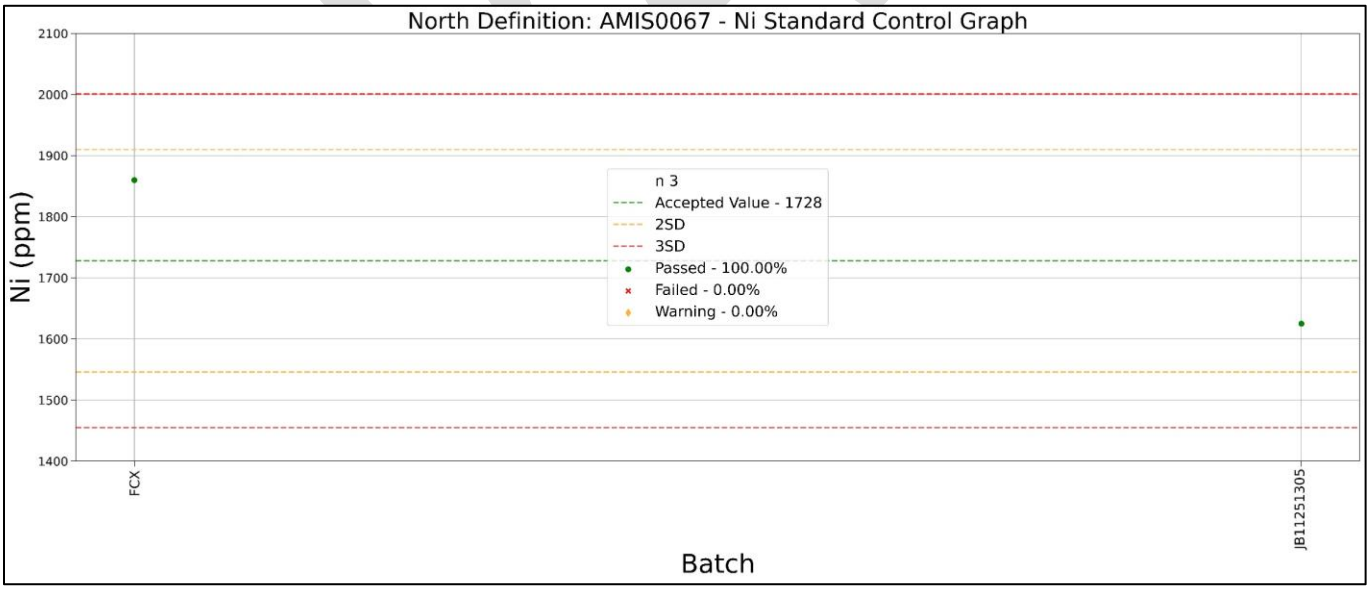

Figure 44 North Definition AMIS0067 Control Graph for Ni

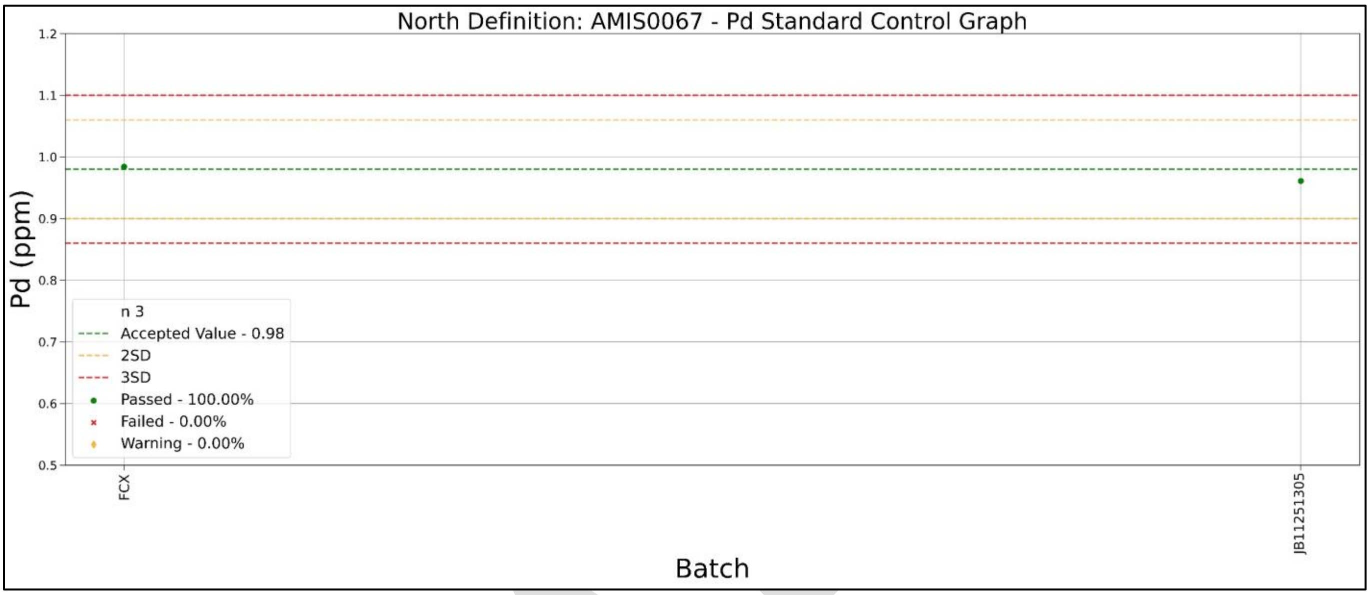

Figure 45 North Definition AMIS0067 Control Graph for Pd

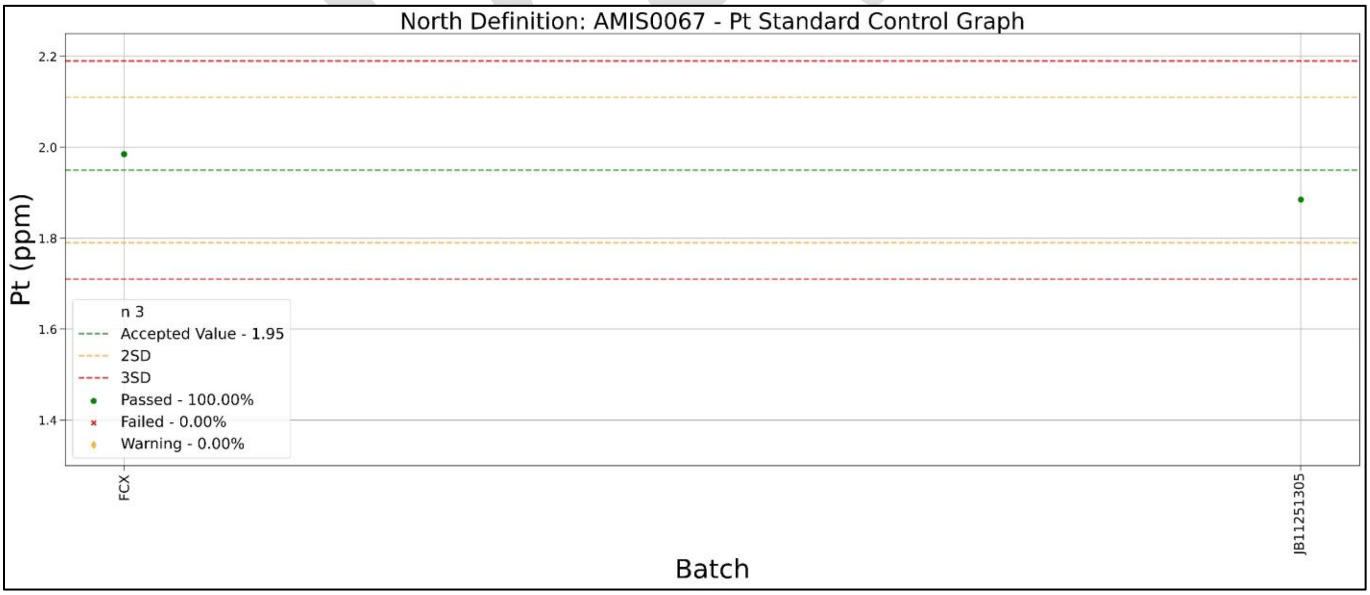

Figure 46 North Definition AMIS0067 Control Graph for Pt

6.1.3.3 AMIS0170

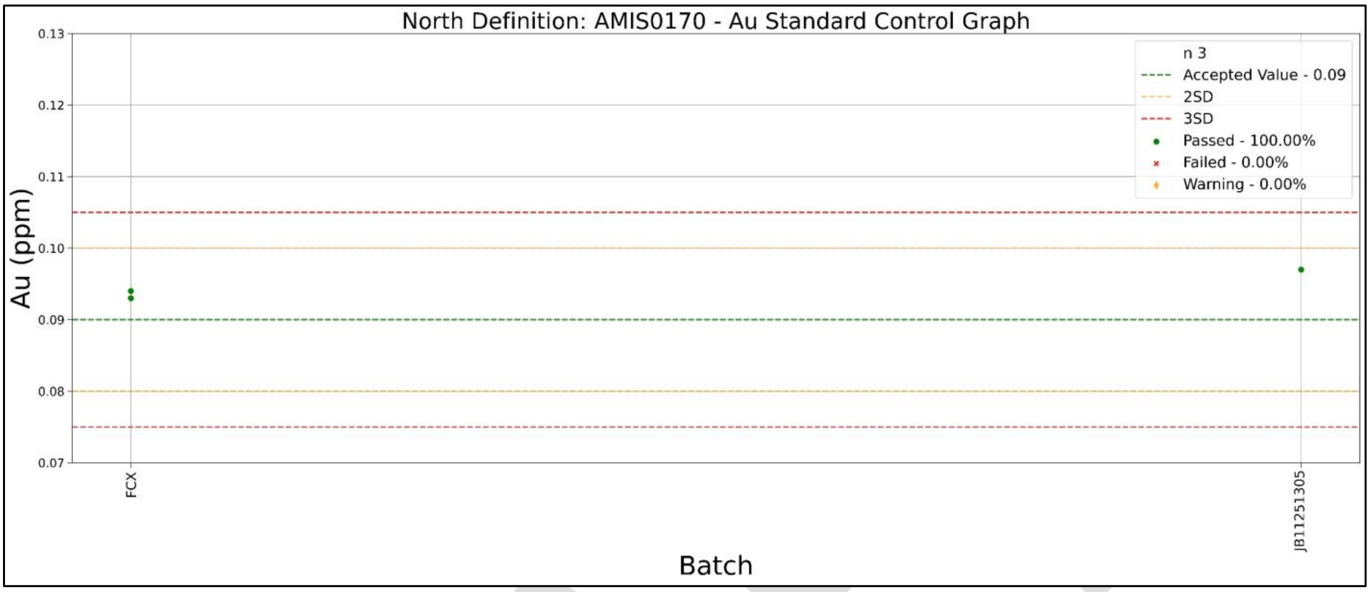

Figure 47 North Definition AMIS0170 Control Graph for Au

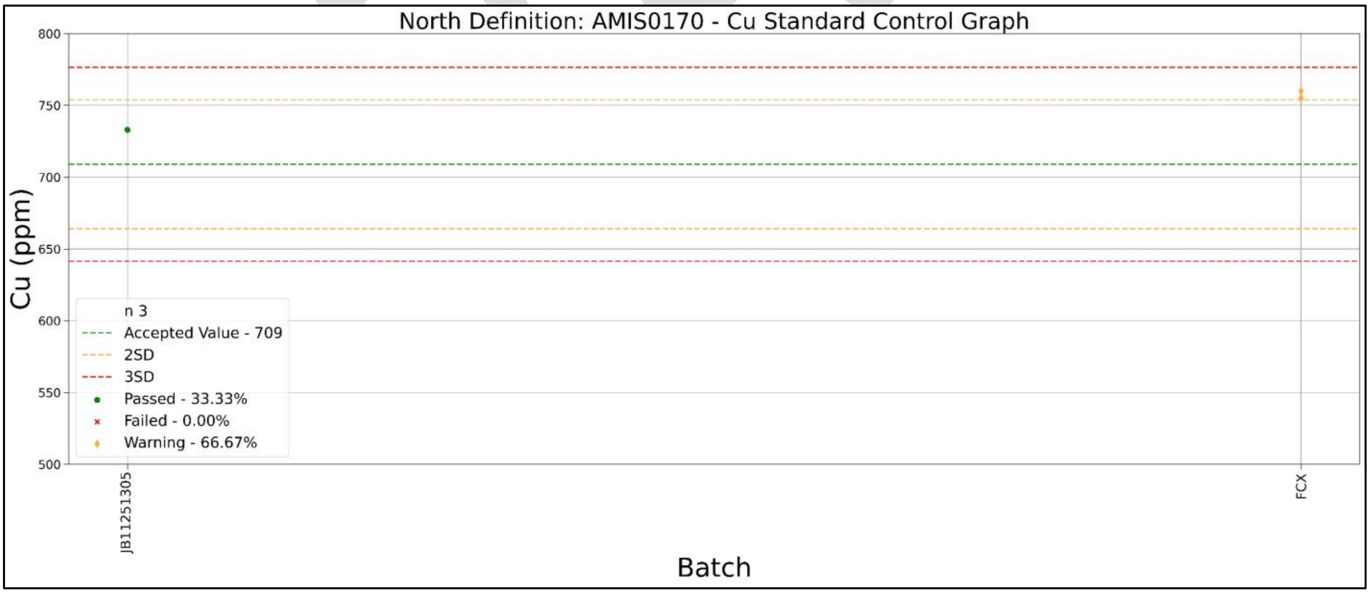

Figure 48 North Definition AMIS0170 Control Graph for Cu

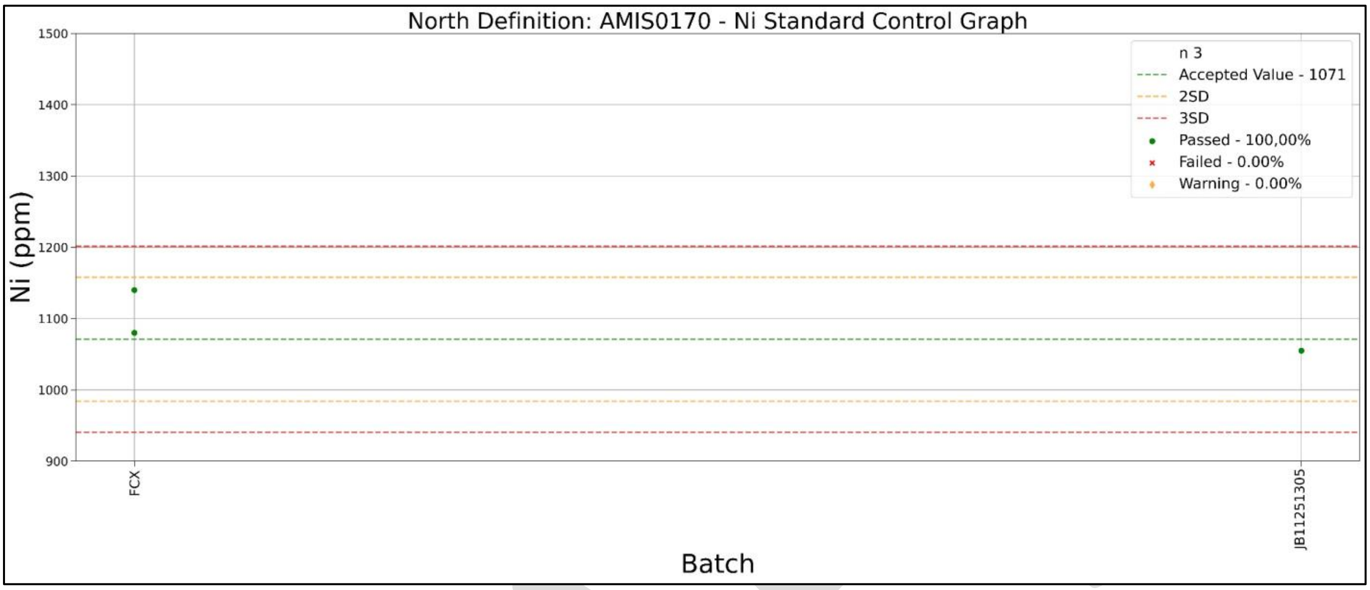

Figure 49 North Definition AMIS0170 Control Graph for Ni

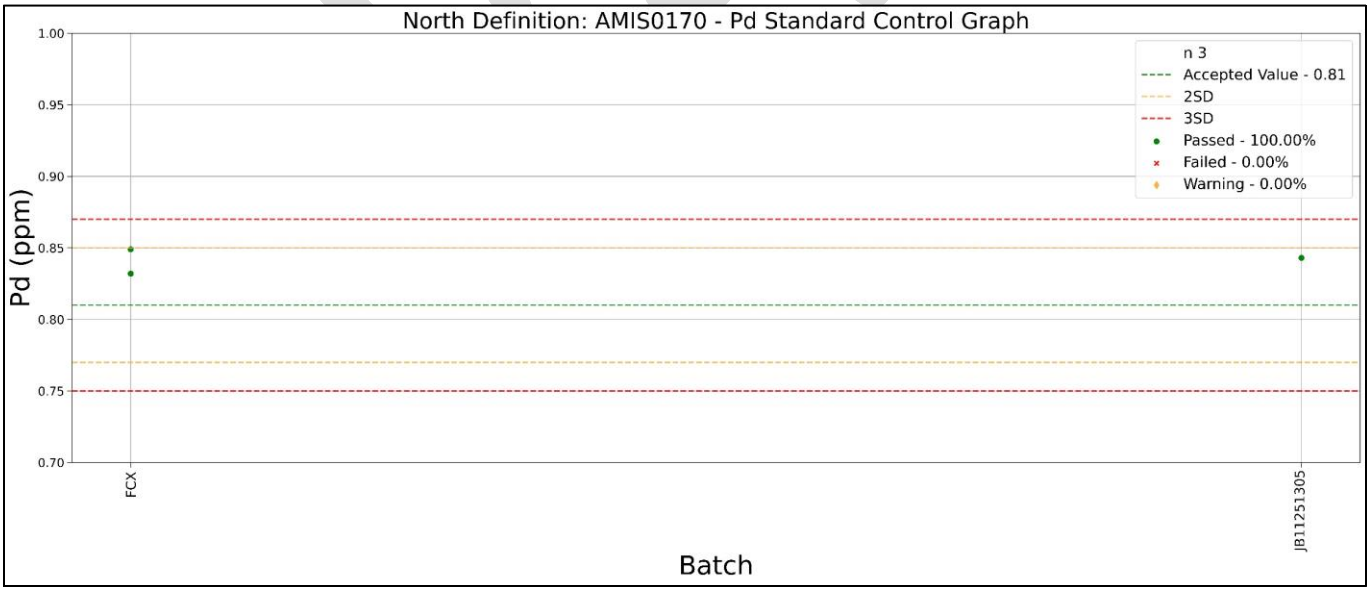

Figure 50 North Definition AMIS0170 Control Graph for Pd

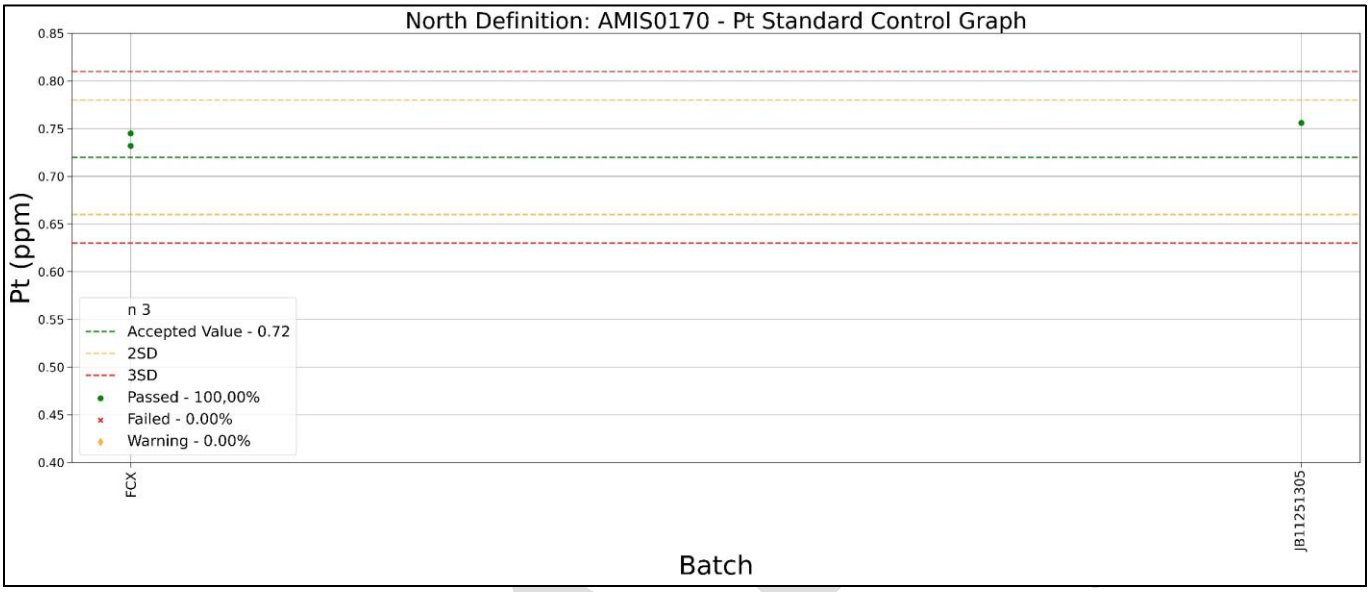

Figure 51 North Definition AMIS0170 Control Graph for Pt

6.1.4 Sterilisation

6.1.4.1 AMIS0099

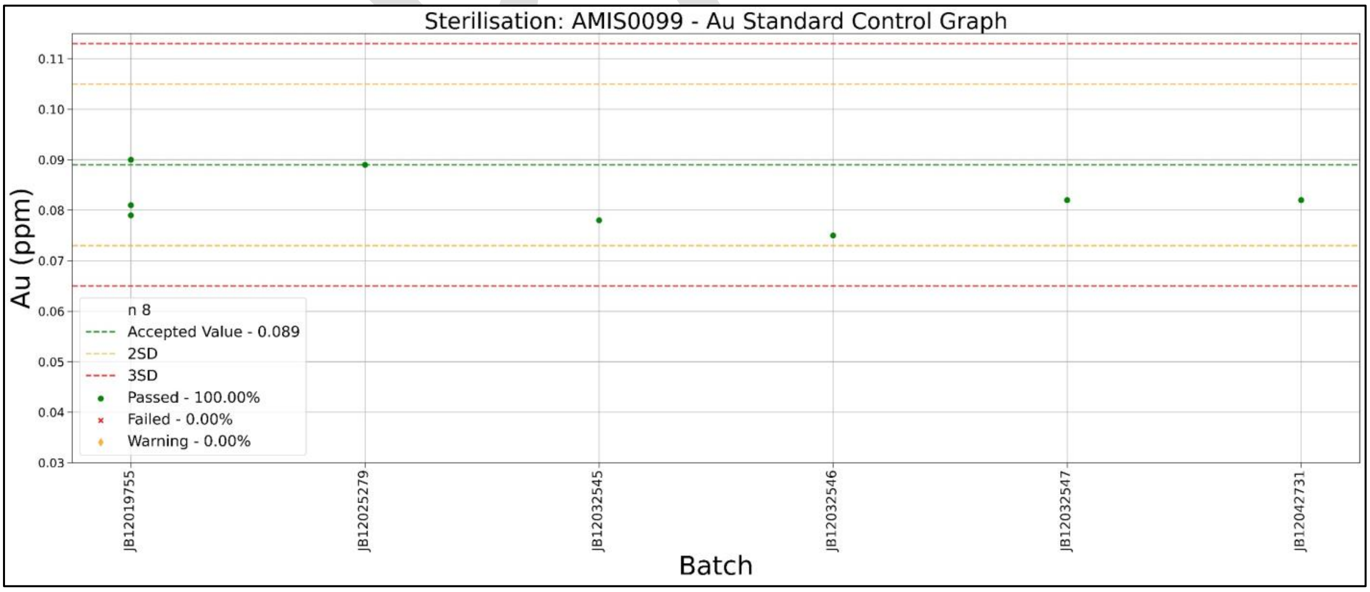

Figure 52 Sterilisation AMIS0099 Control Graph for Au

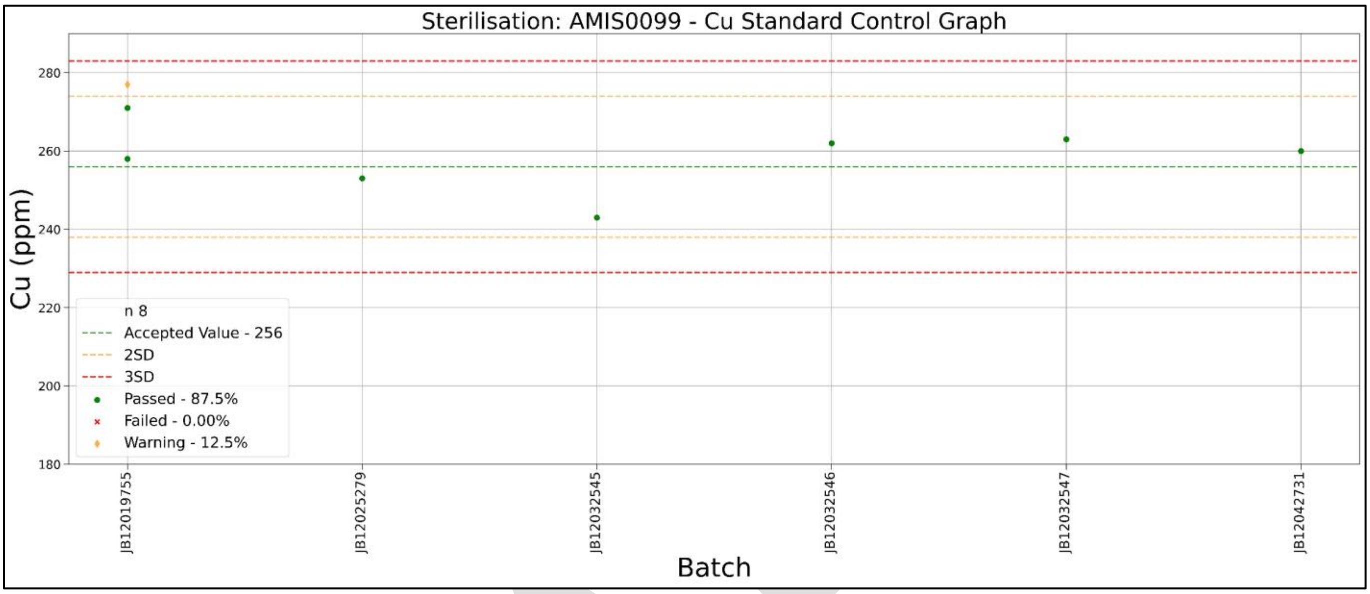

Figure 53 Sterilisation AMIS0099 Control Graph for Cu

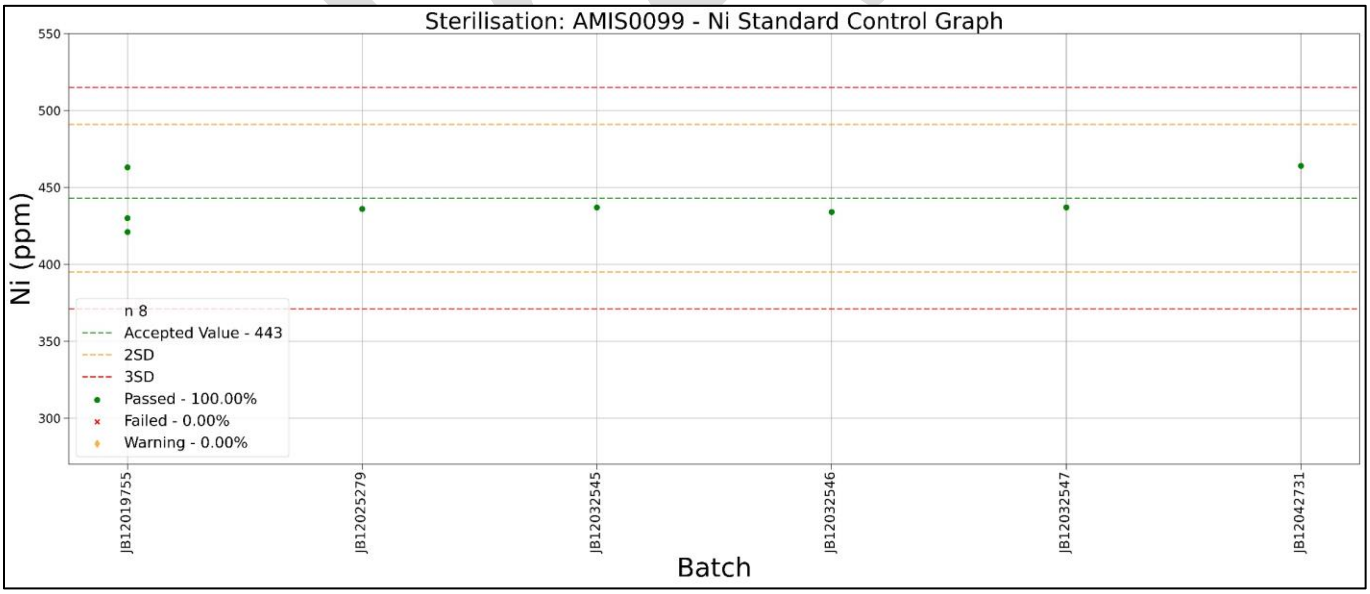

Figure 54 Sterilisation AMIS0099 Control Graph for Ni

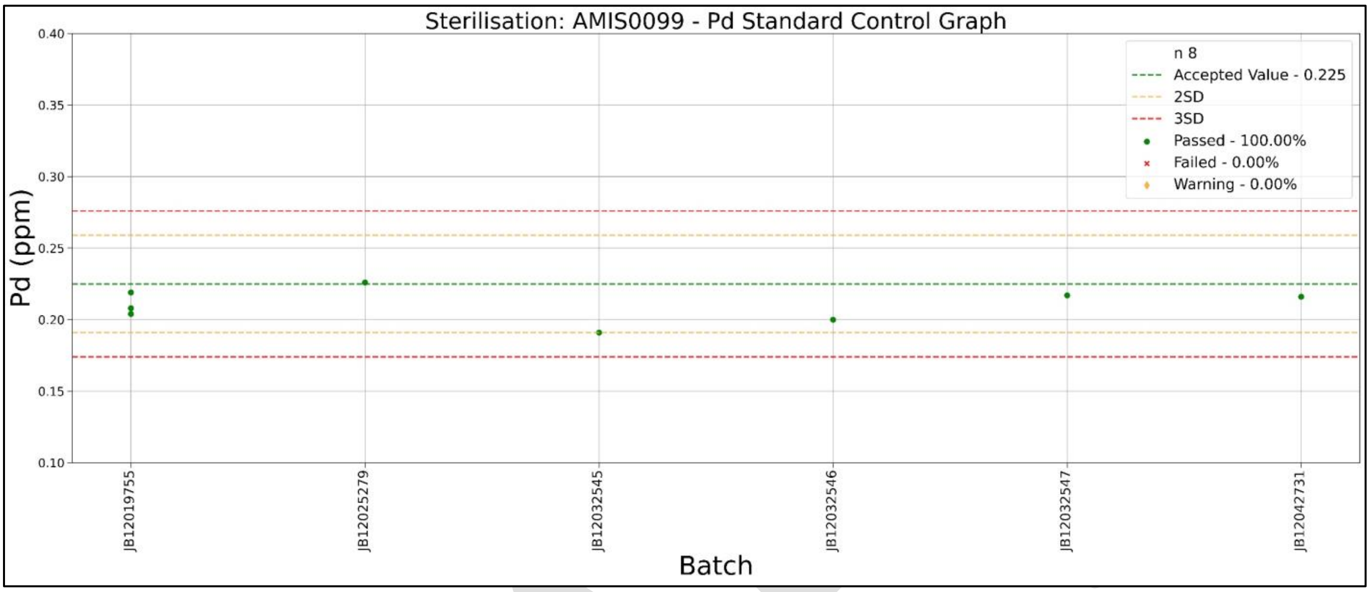

Figure 55 Sterilisation AMIS0099 Control Graph for Pd

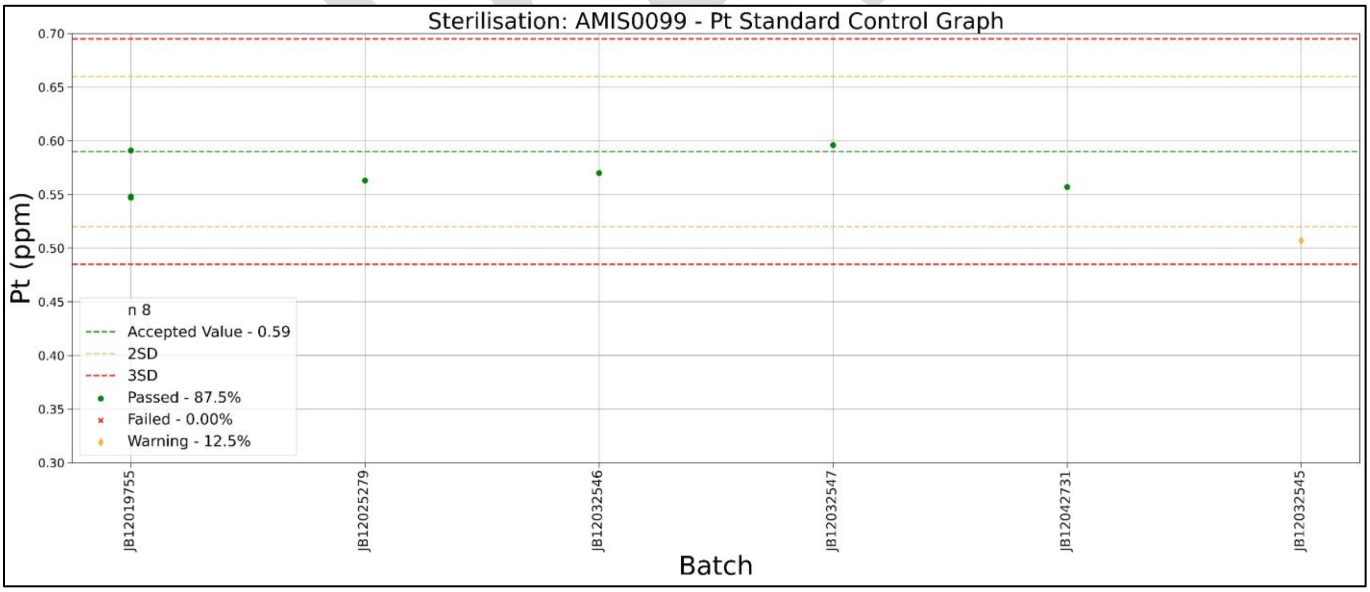

Figure 56 Sterilisation AMIS0099 Control Graph for Pt

6.1.4.2 AMIS0170

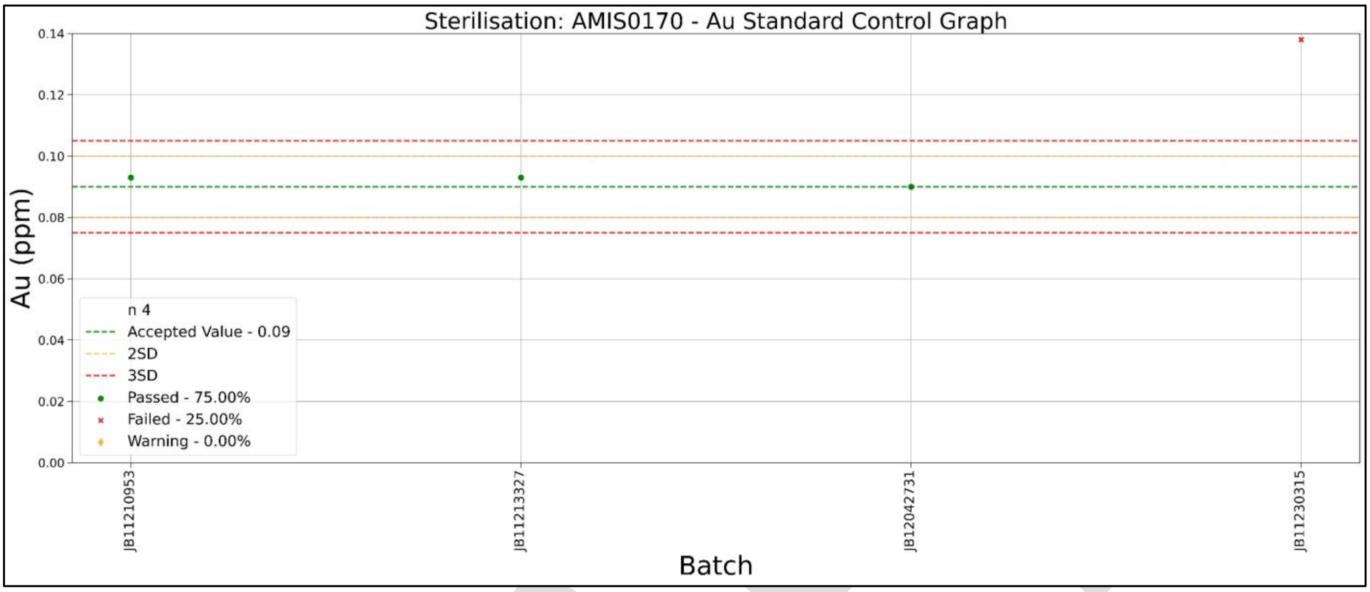

Figure 57 Sterilisation AMIS0170 Control Graph for Au

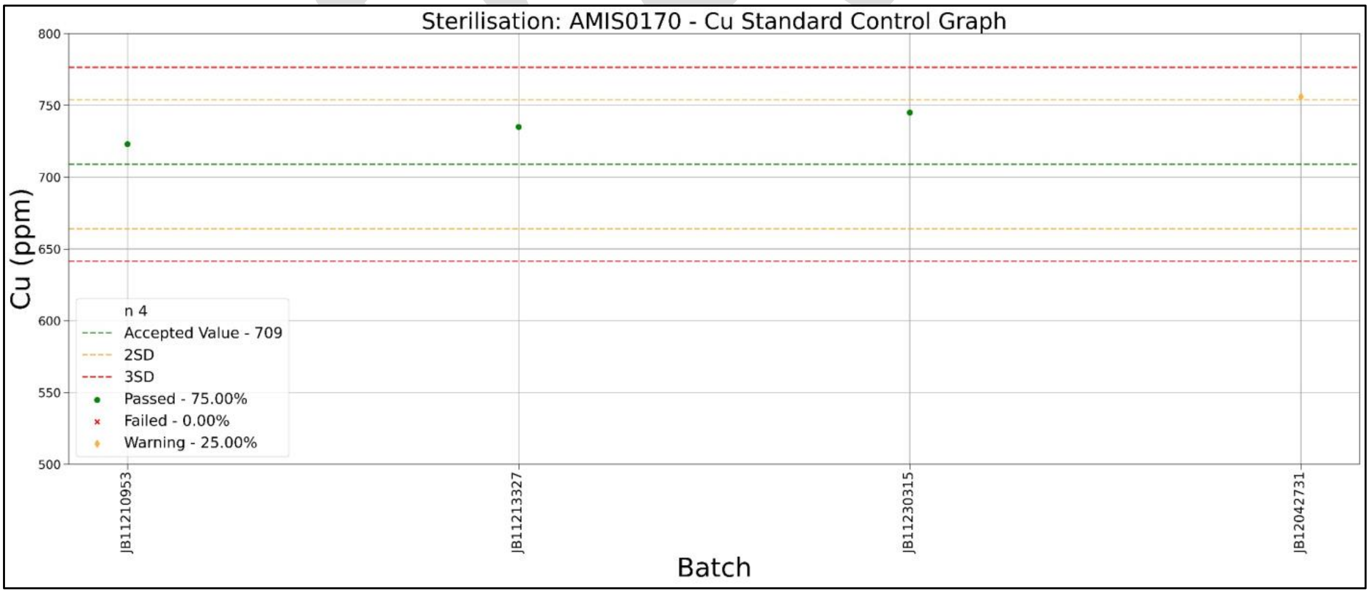

Figure 58 Sterilisation AMIS0170 Control Graph for Cu

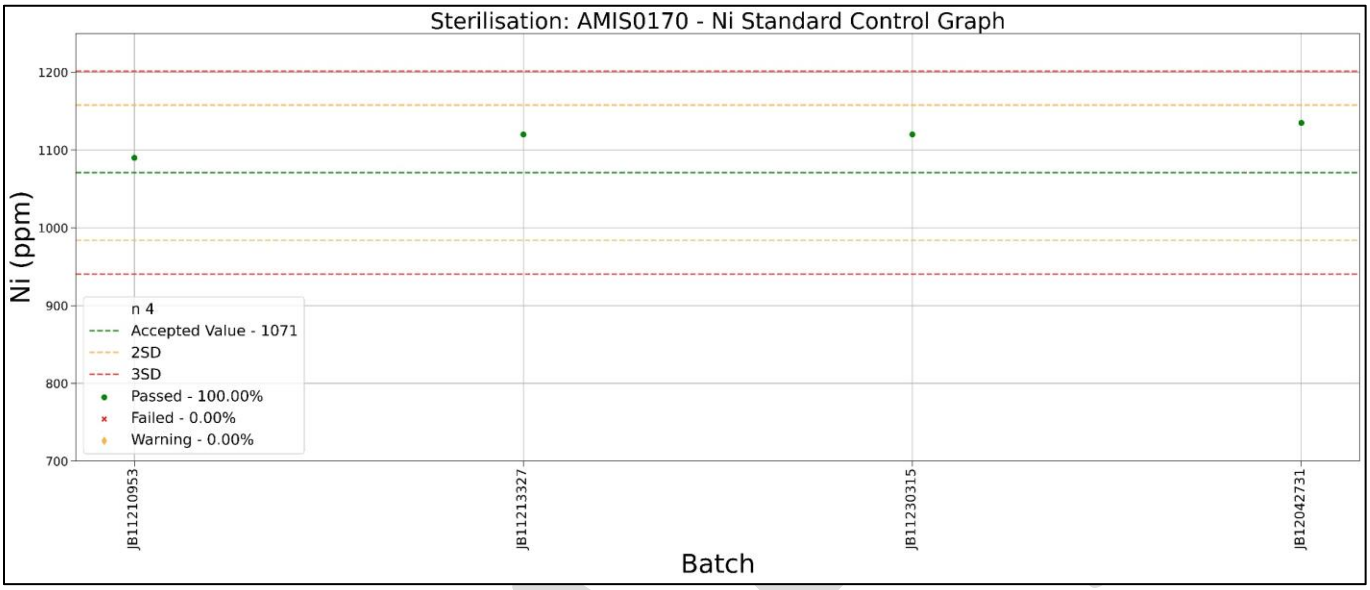

Figure 59 Sterilisation AMIS0170 Control Graph for Ni

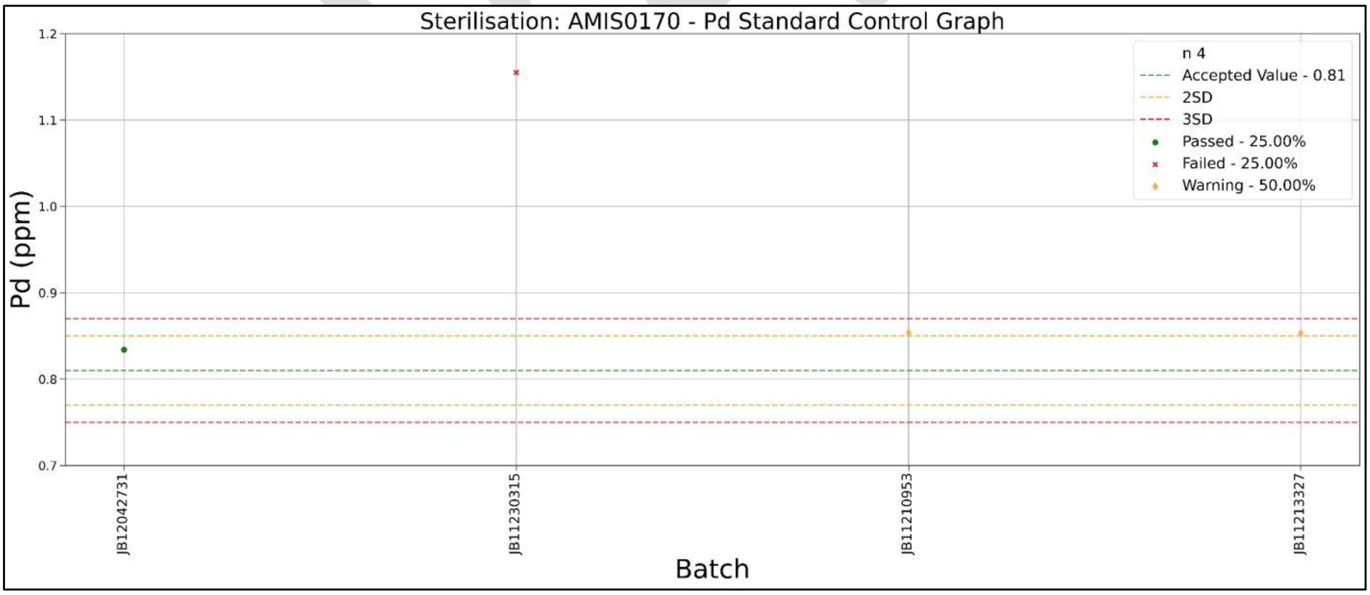

Figure 60 Sterilisation AMIS0170 Control Graph for Pd

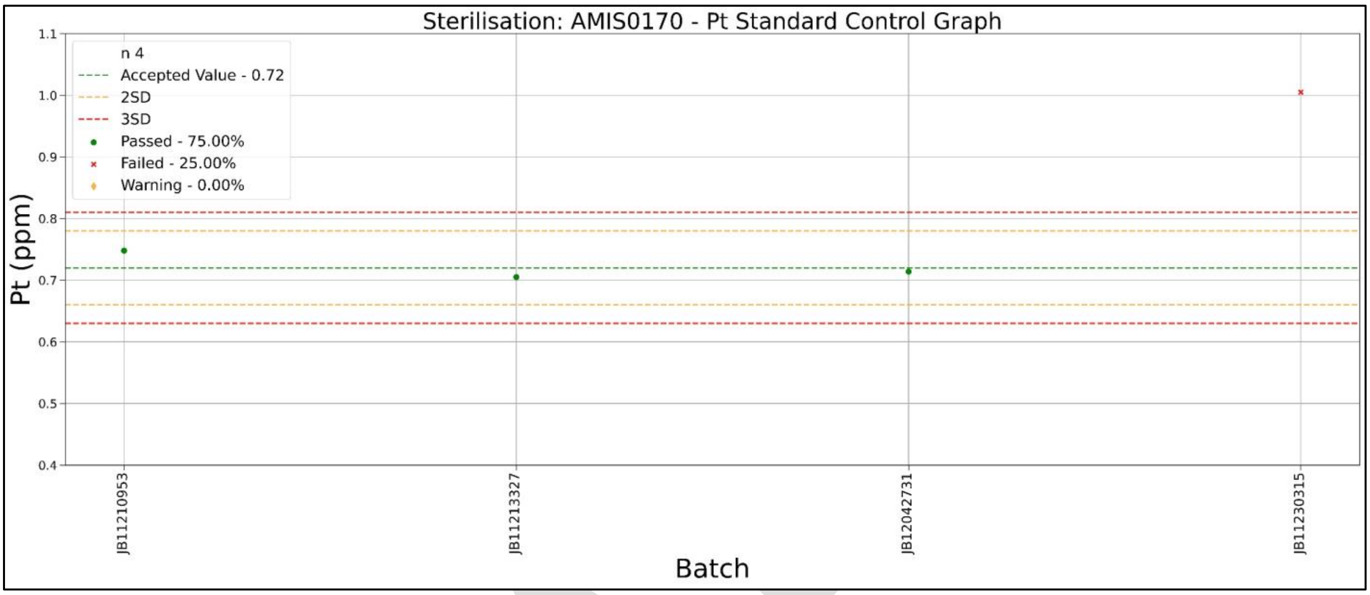

Figure 61 Sterilisation AMIS0170 Control Graph for Pt

6.1.4.3 Blanks

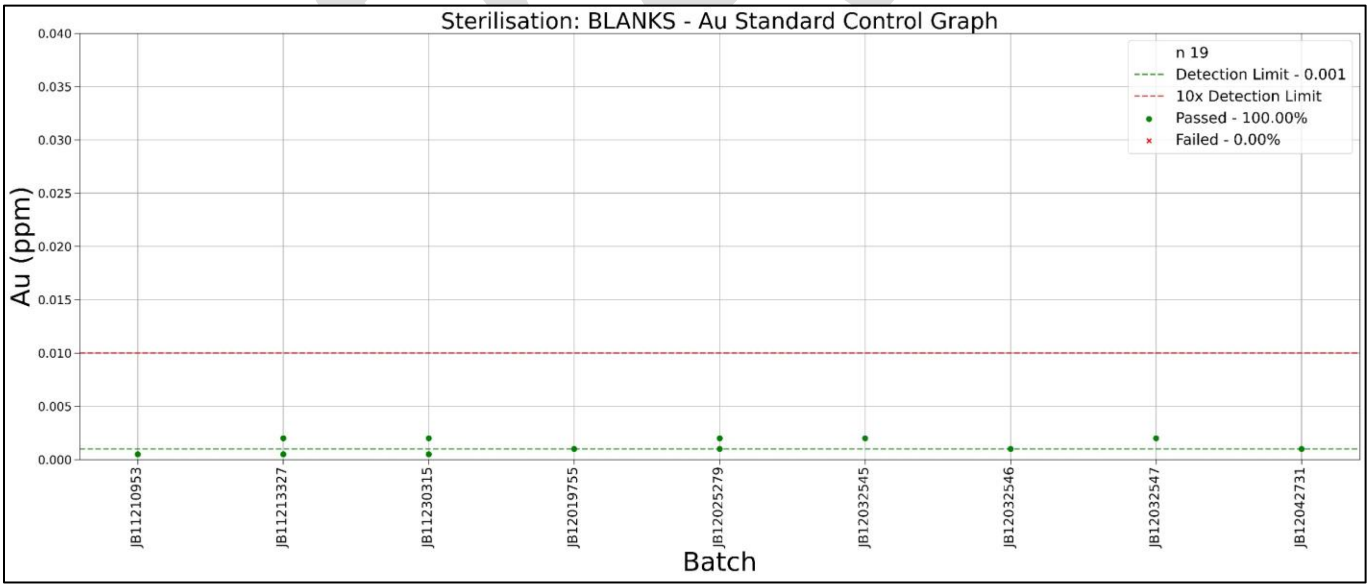

Figure 62 Sterilisation Blanks Control Graph for Au

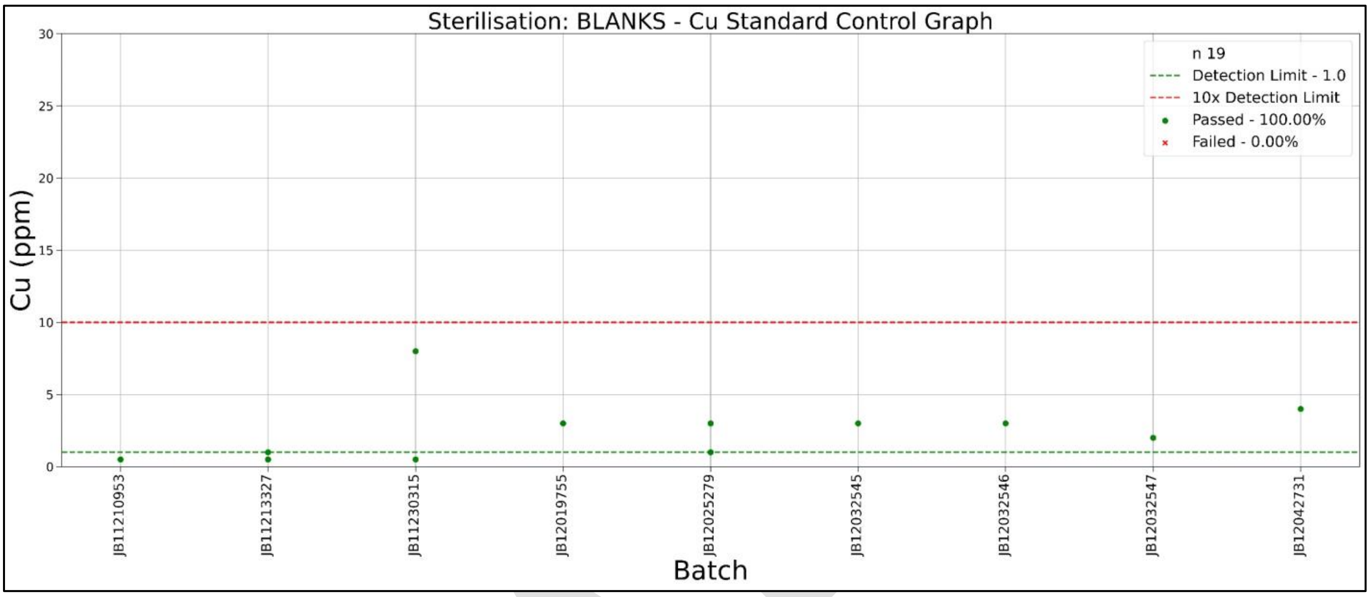

Figure 63 Sterilisation Blanks Control Graph for Cu

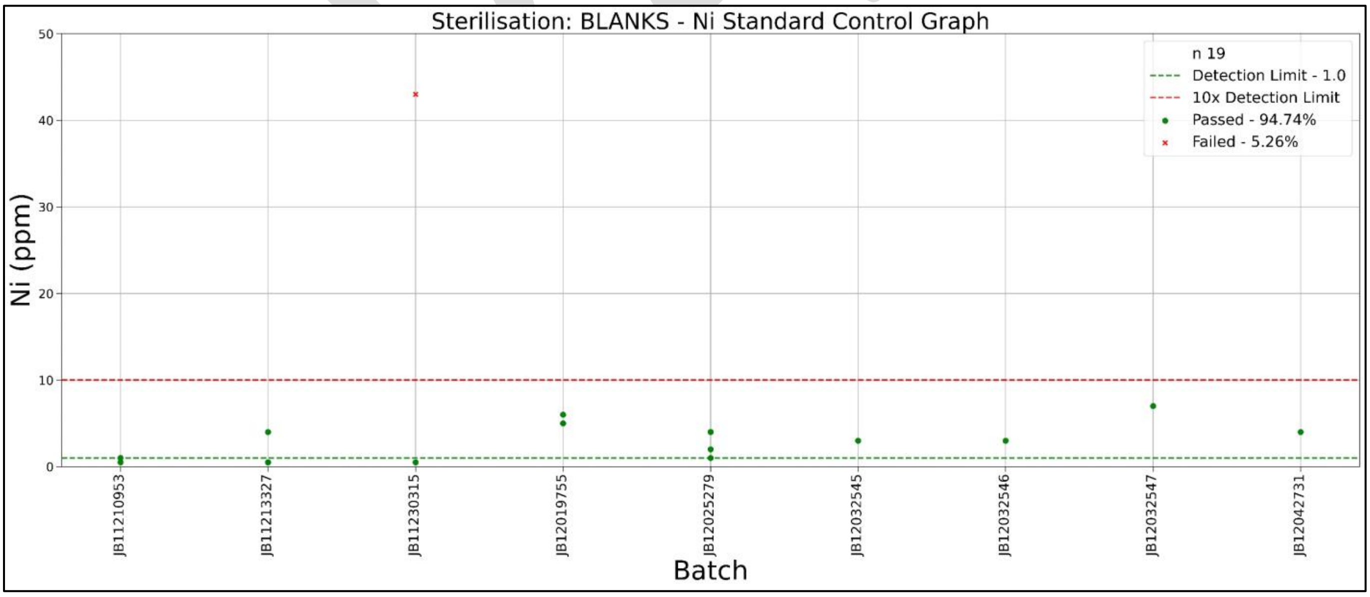

Figure 64 Sterilisation Blanks Control Graph for Ni

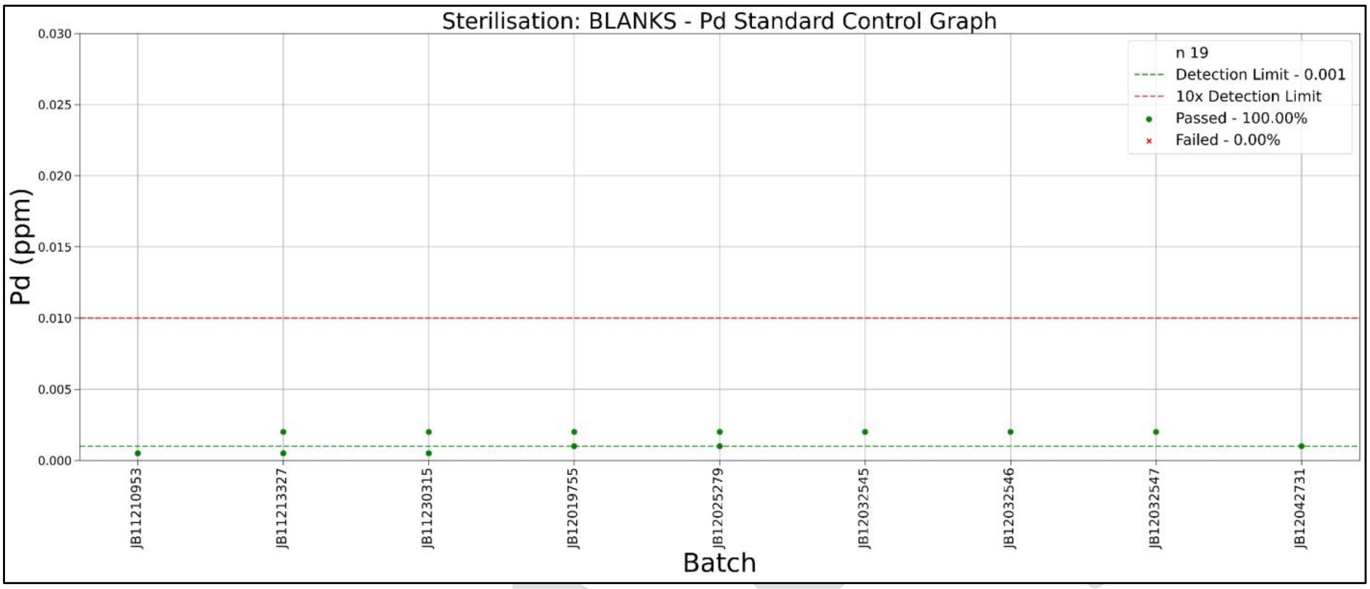

Figure 65 Sterilisation Blanks Control Graph for Pd

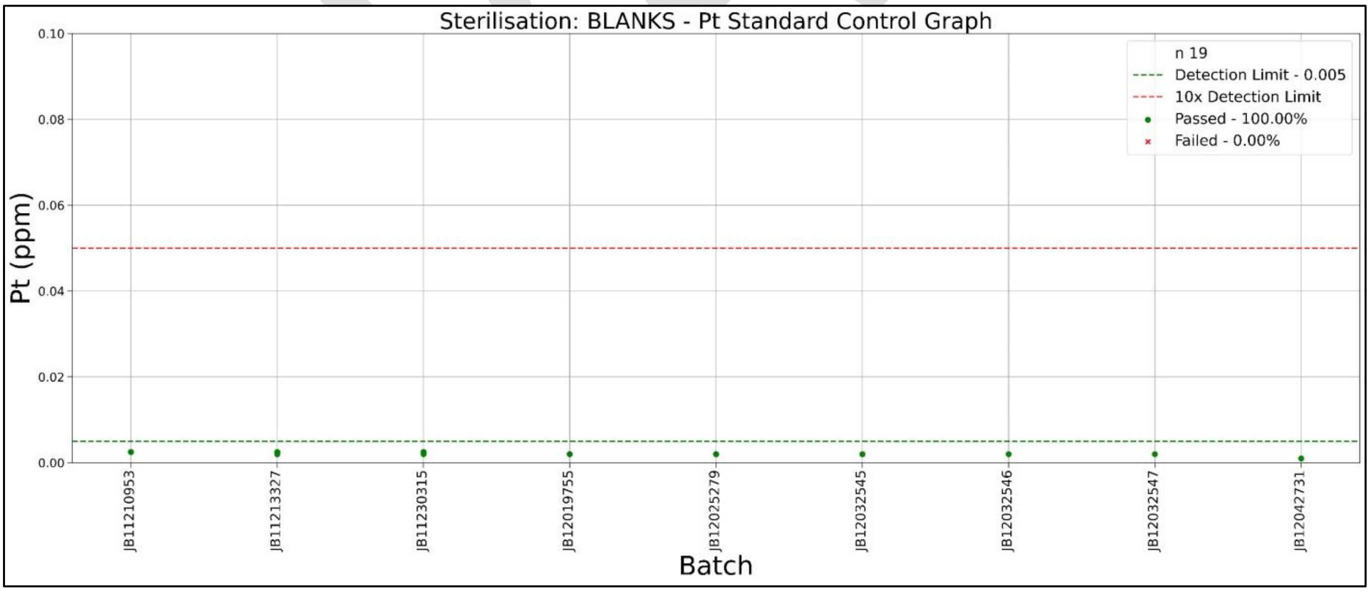

Figure 66 Sterilisation Blanks Control Graph for Pt

6.1.5 Summary of Accuracy Analyses

The results for the accuracy analysis are summarised in Table 1 below. A total of 1,626 control samples were analysed and have been separated into the respective projects and analytes. Platinum and palladium control results show good accuracy throughout the entire North Body, where 95.11% and 97.13% of the control samples fall within the tolerance limits respectively. However, the same cannot be said about the accuracy of gold, copper, and nickel, where 86.7%, 88.32%, and 80.76% of the control results fall within the accepted tolerance limits respectively. Since gold, copper, and nickel are expected to only make up a much lower value percentage than platinum and palladium for the North Body, the effect of a higher failure rate for these elements should be minimal. One consideration for why these results are less accurate than Pt and Pd, is that the type of certified materials that were used do not appropriately represent the ore being analysed. Another matter to consider is that a respectable amount of the CRMs were not certified for Au, Ni and Cu. Finally, the exploration sampling method and/or the laboratory analysis method for these elements were not subject to the proper protocols. This would introduce the risk of major batch contamination of the samples. This can be inferred by studying the blank control graphs produced for the Grasvally GVN project (Figures 2 – 4). It should be noted that the Grasvally GVN Project contained only two control materials, SARM7 and QC93, where QC93 was being used for exploration due to budget considerations as SARM7 was deemed too costly. QC93 was produced during the exploration campaign as an internal laboratory reference material and is made up of earlier Volspruit drill hole samples. The composition and accepted values for this reference material are not known and uncertified. The analytical approach for this control was to use the mean value as the accepted value with failure set around two standard deviations or 10% of the mean instead of three standard deviations. This was done to lower the tolerance limits around an unknown sample without having to completely fail the accuracy on all samples.

Table 1 Summary of control samples analyses for accuracy analysis indicating the total percentage of failed samples per element.

Project	No. of Samples	Au Samples		Cu Samples		Ni Samples		Pt Samples		Pd Samples	
		n	Failed (%)	n	Failed (%)	n	Failed (%)	n	Failed (%)	n	Failed (%)
Grasvally GVN	1389.00	1063.00	15.80	1286.00	13.30	1372.00	20.04	1065.00	5.35	1065.00	3.10
Grasvally Bulk Sample	176.00	175.00	1.14	166.00	1.20	166.00	15.66	175.00	2.86	175.00	1.71
North Definition	21.00	17.00	0.00	16.00	12.50	16.00	18.75	17.00	0.00	17.00	0.00
Sterilisation	40.00	31.00	3.23	31.00	0.00	31.00	3.23	31.00	3.23	31.00	3.23
Total North Body	**1626.00**	**1286.00**	**13.30**	**1499.00**	**11.68**	**1585.00**	**19.24**	**1288.00**	**4.89**	**1288.00**	**2.87**

	<5% Failures
	<10% Failures
	>10% Failures

6.2 Precision Analysis

The historic database for which the precision analysis has been conducted only included duplicate sample data provided by the laboratories internal QAQC protocols. This data was also not recorded onto the database into the standard sampling tables. Additionally, these duplicate samples were also recorded with identical sample IDs to the original reported result. The twinstream results have been graphically presented in the following sections, where XY plots show regressions with 95% confidence intervals displayed in lightly shaded areas around the regression line. Twinstream results have also been analysed using the Half Absolute Relative Difference method. Analyses have been separated into their respective elements including Gold (Au), Copper (Cu), Nickel (Ni), Platinum (Pt), and Palladium (Pd). Duplicate result analysis has only been concluded for the Grasvally GVN and Bulk Sample Projects, as no results have been recorded for North Definition and less than 10 results for Sterilisation. The results have been graphically represented in the sections below.

6.2.1 Grasvally GVN

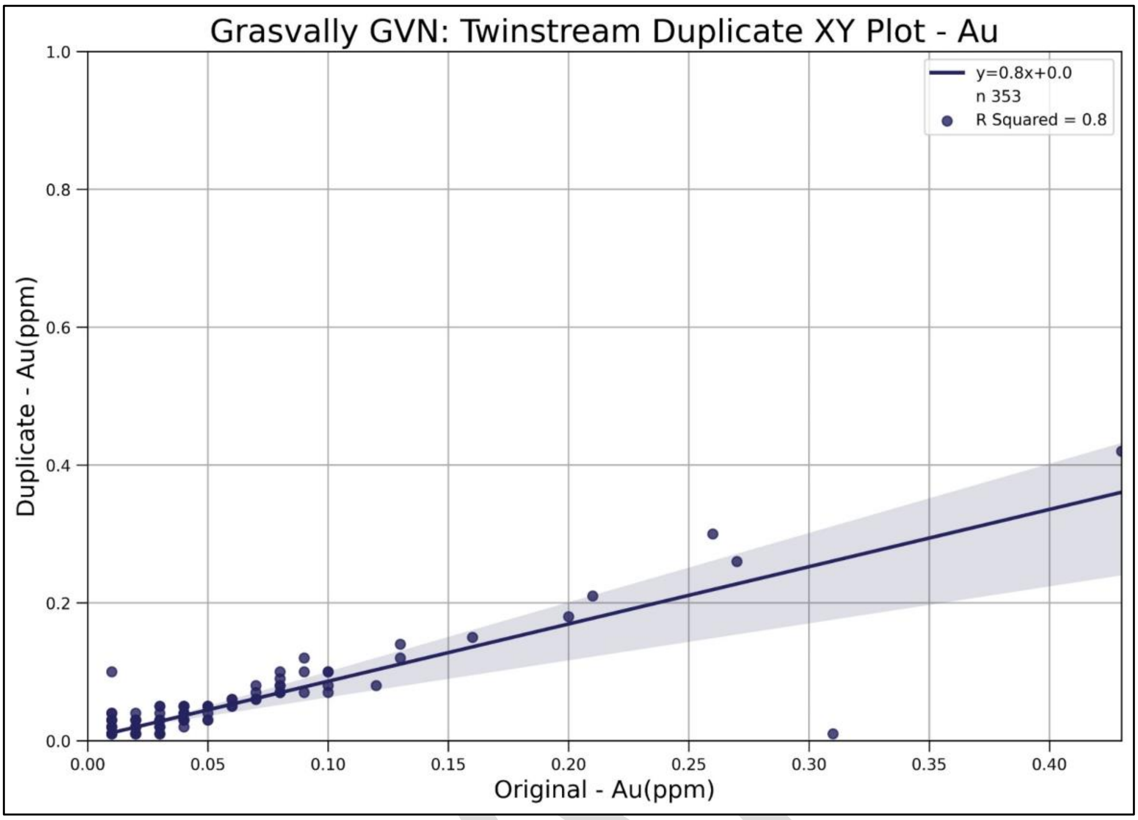

Figure 67 GVN Lab Duplicate Twinstream XY Plot for Au

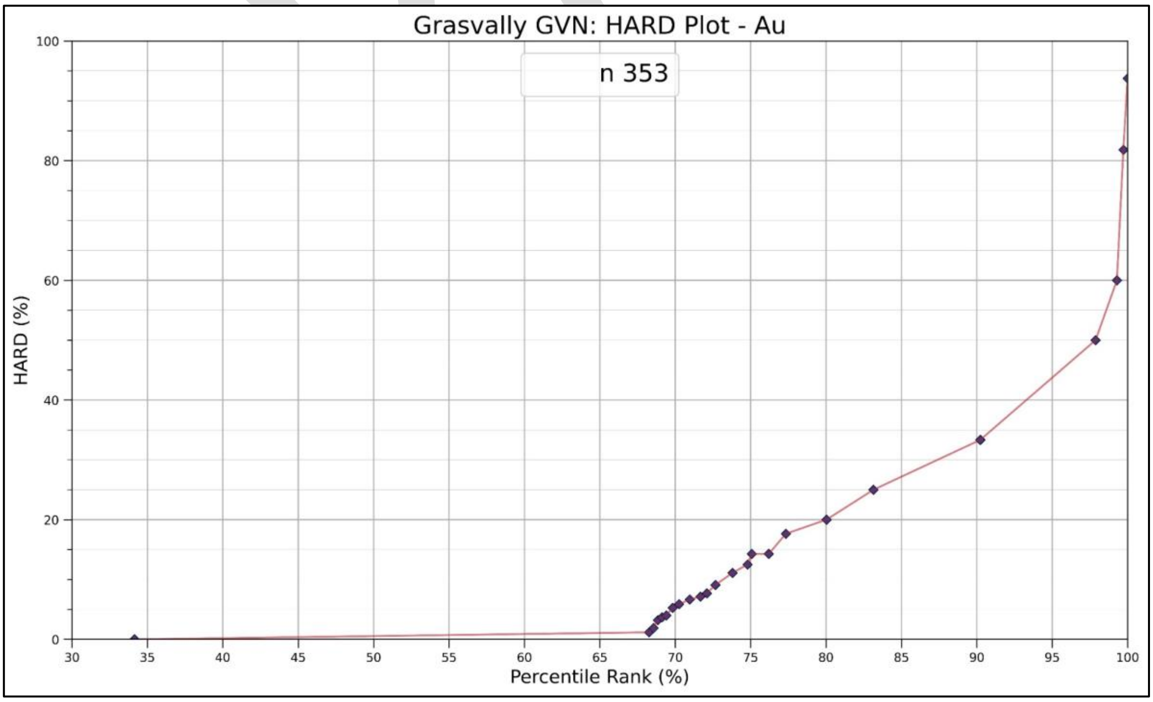

Figure 68 GVN Twinstream Half Absolute Relative Difference Plot for Au

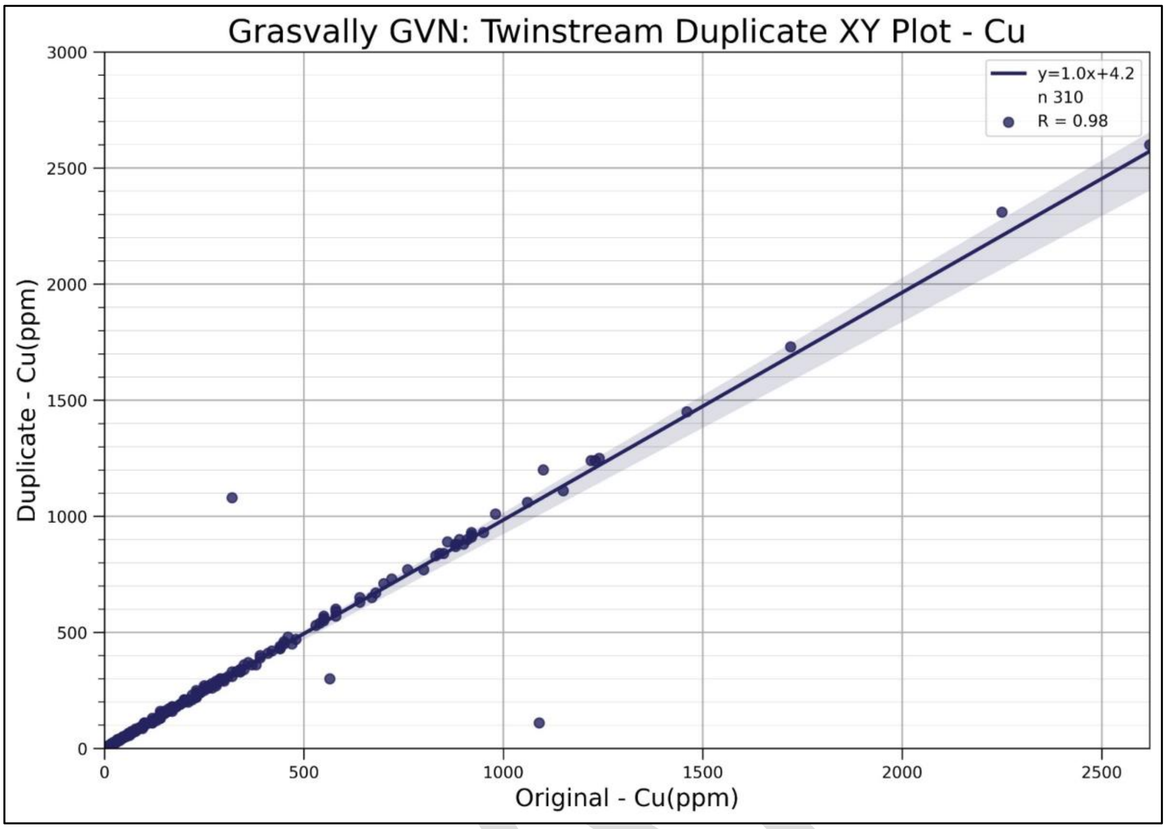

Figure 69 GVN Lab Duplicate Twinstream XY Plot for Cu

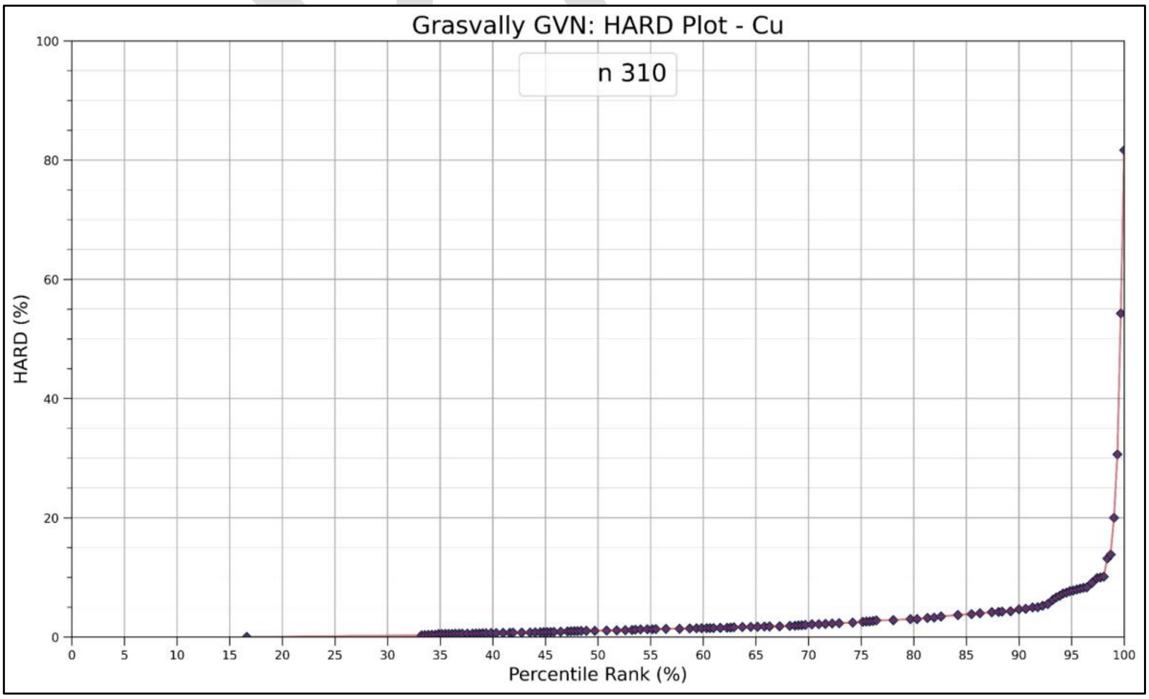

Figure 70 GVN Twinstream Half Absolute Relative Difference Plot for Cu

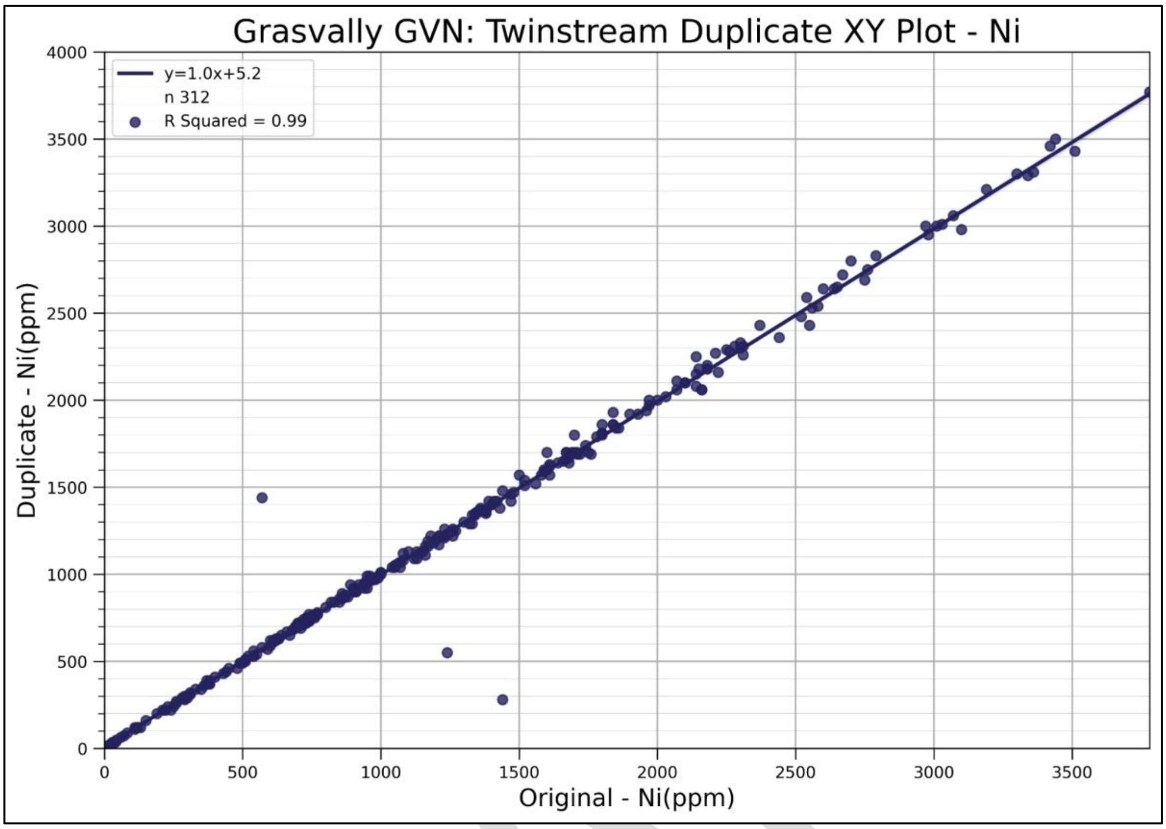

Figure 71 GVN Lab Duplicate Twinstream XY Plot for Ni

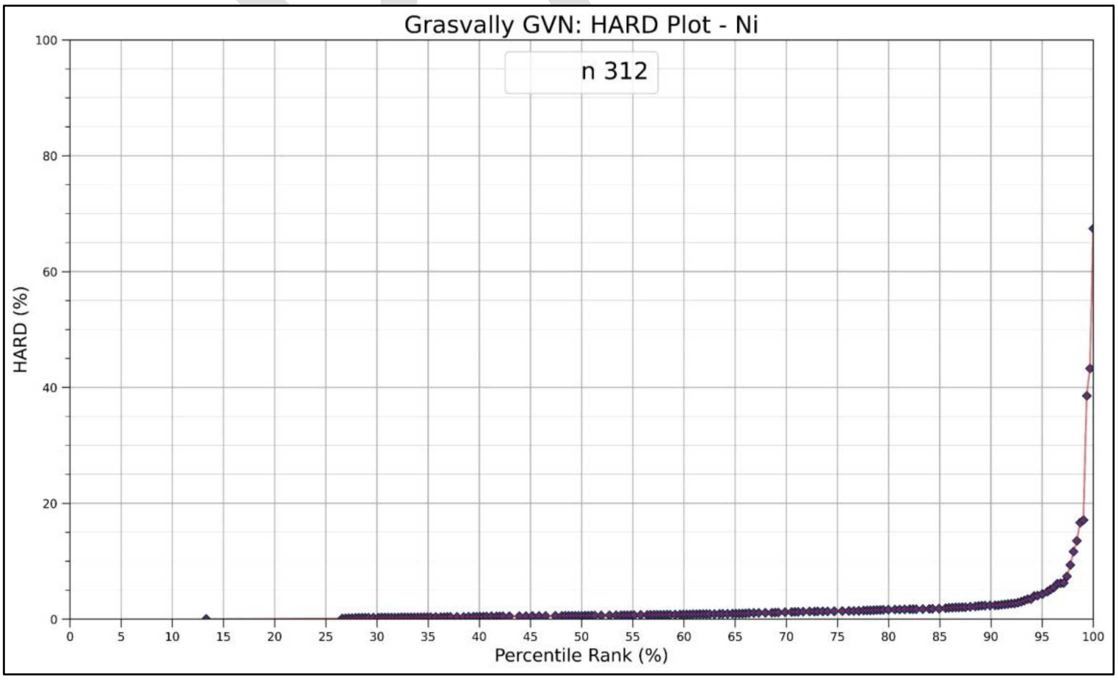

Figure 72 GVN Twinstream Half Absolute Relative Difference Plot for Ni

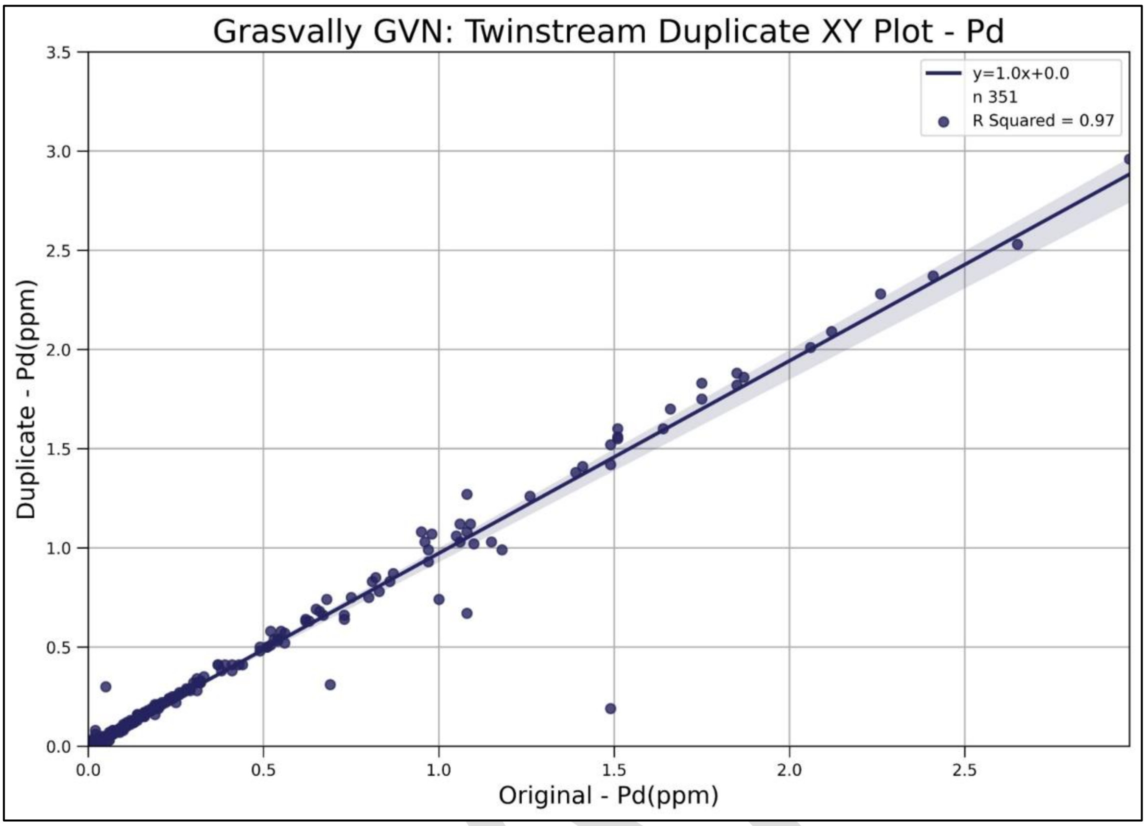

Figure 73 GVN Lab Duplicate Twinstream XY Plot for Pd

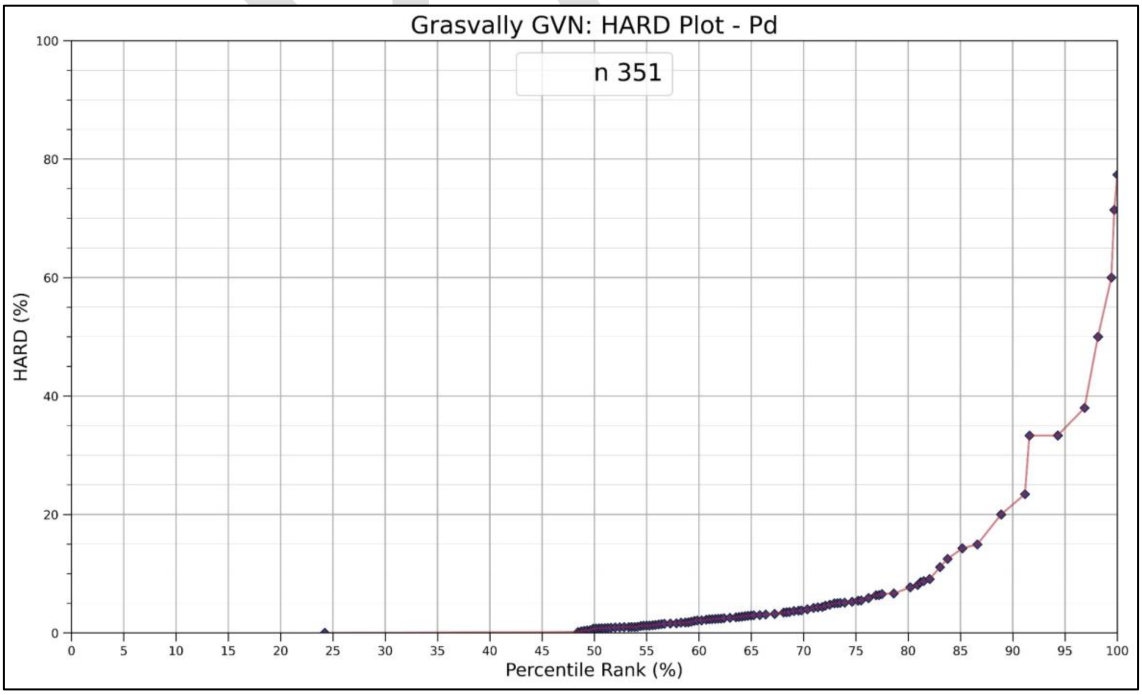

Figure 74 GVN Twinstream Half Absolute Relative Difference Plot for Pd

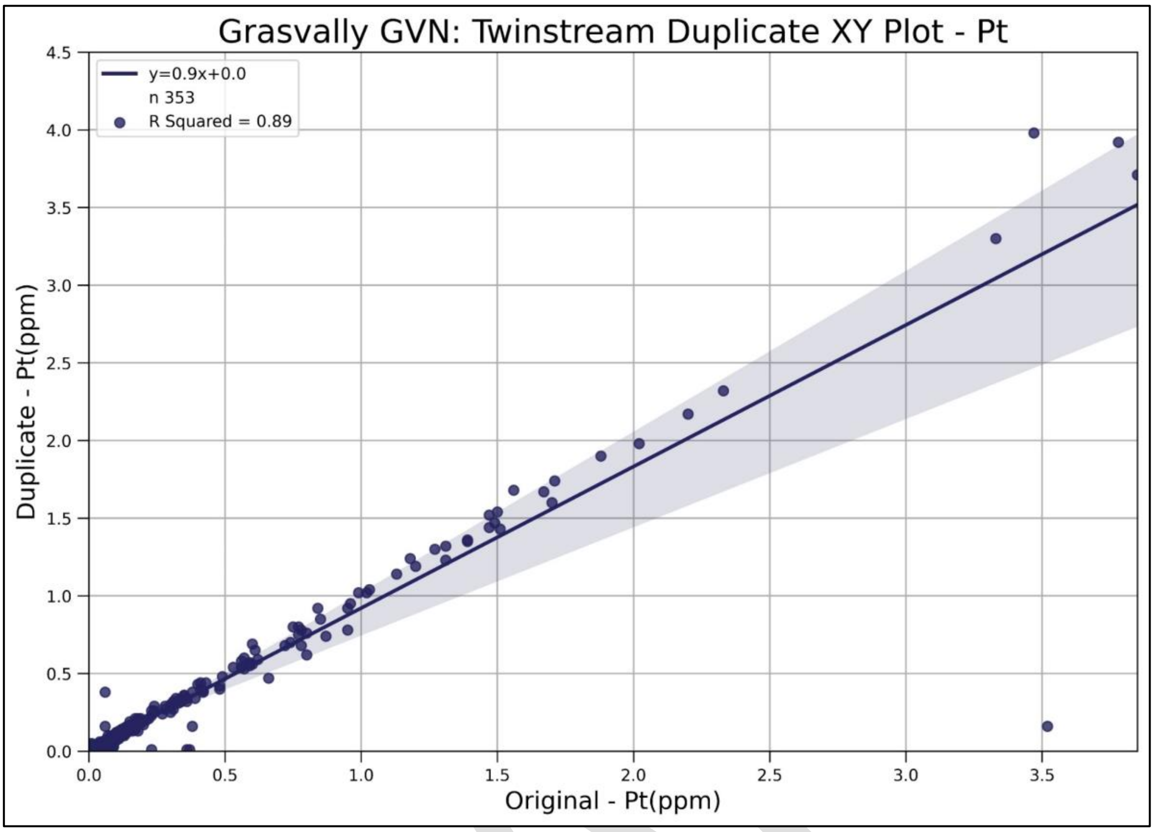

Figure 75 GVN Lab Duplicate Twinstream XY Plot for Pt

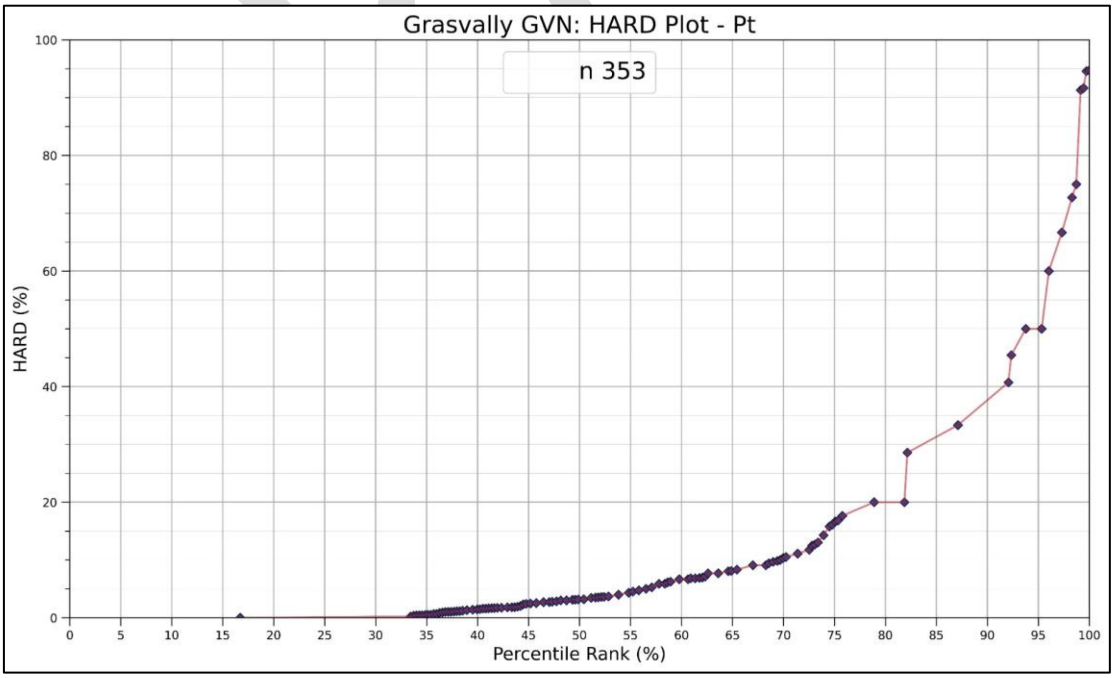

Figure 76 GVN Twinstream Half Absolute Relative Difference Plot for Pt

6.2.2 Grasvally Bulk Sample

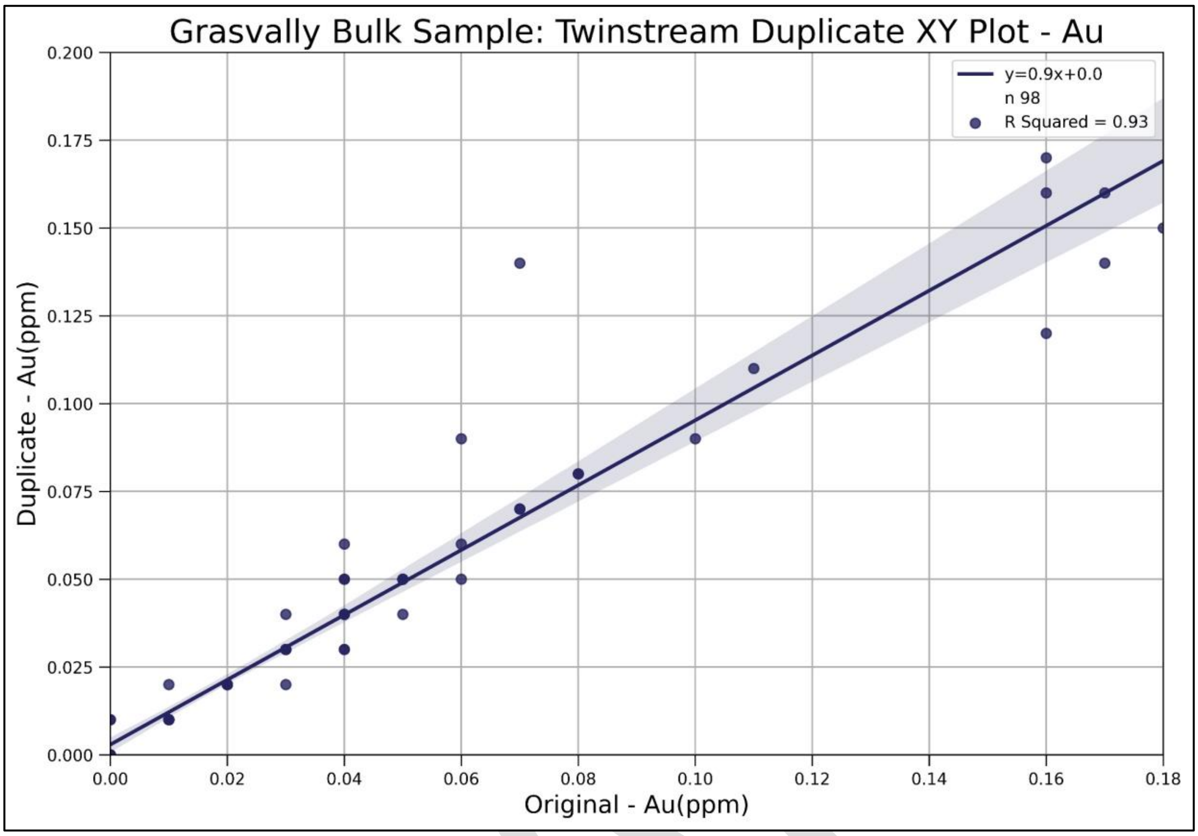

Figure 77 Bulk Sample Lab Duplicate XY Plot for Au

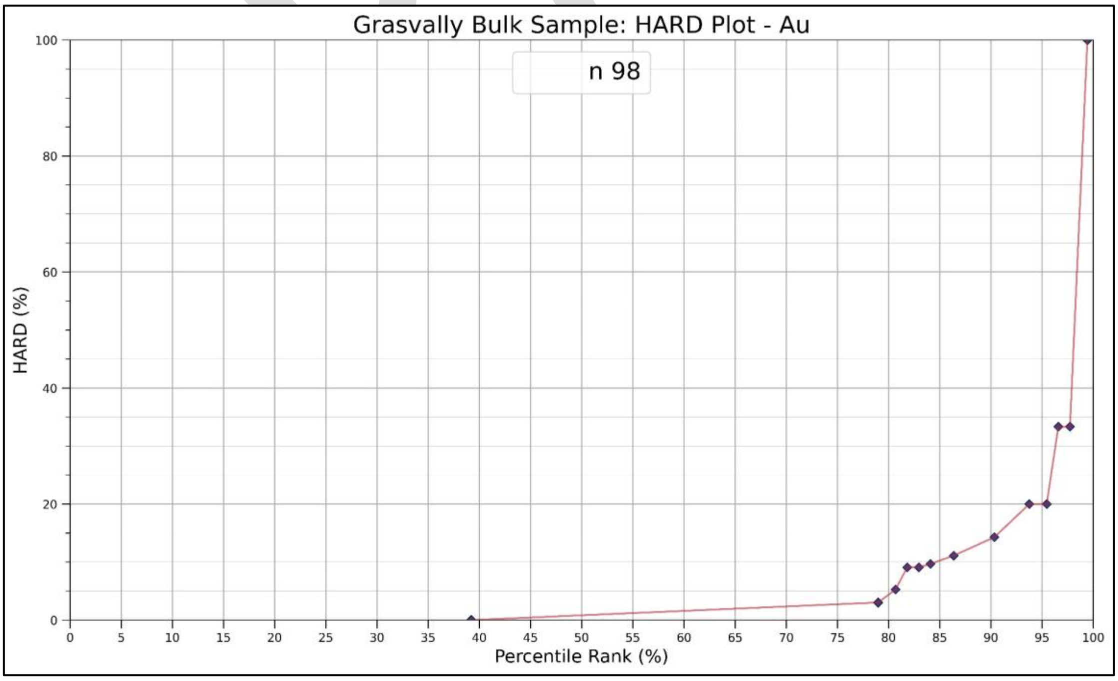

Figure 78 Bulk Sample Twinstream Half Absolute Relative Difference Plot for Au

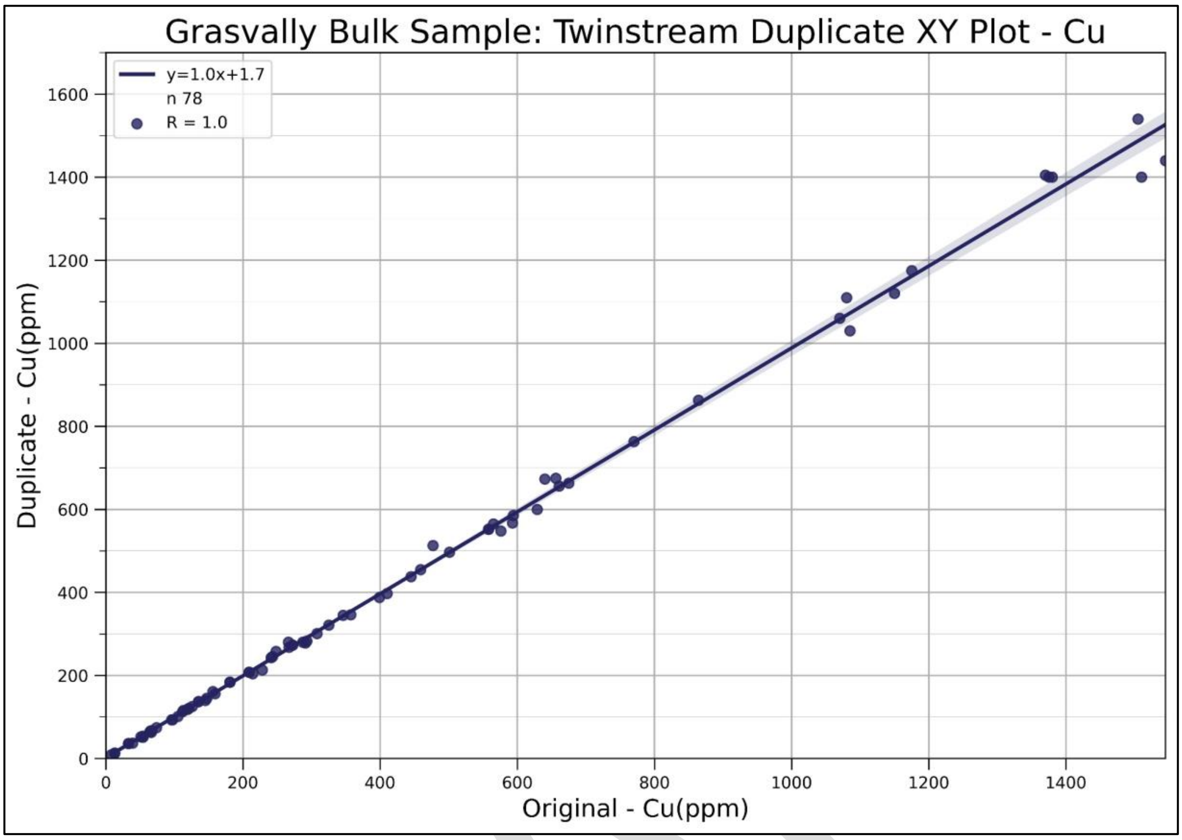

Figure 79 Bulk Sample Lab Duplicate XY Plot for Cu

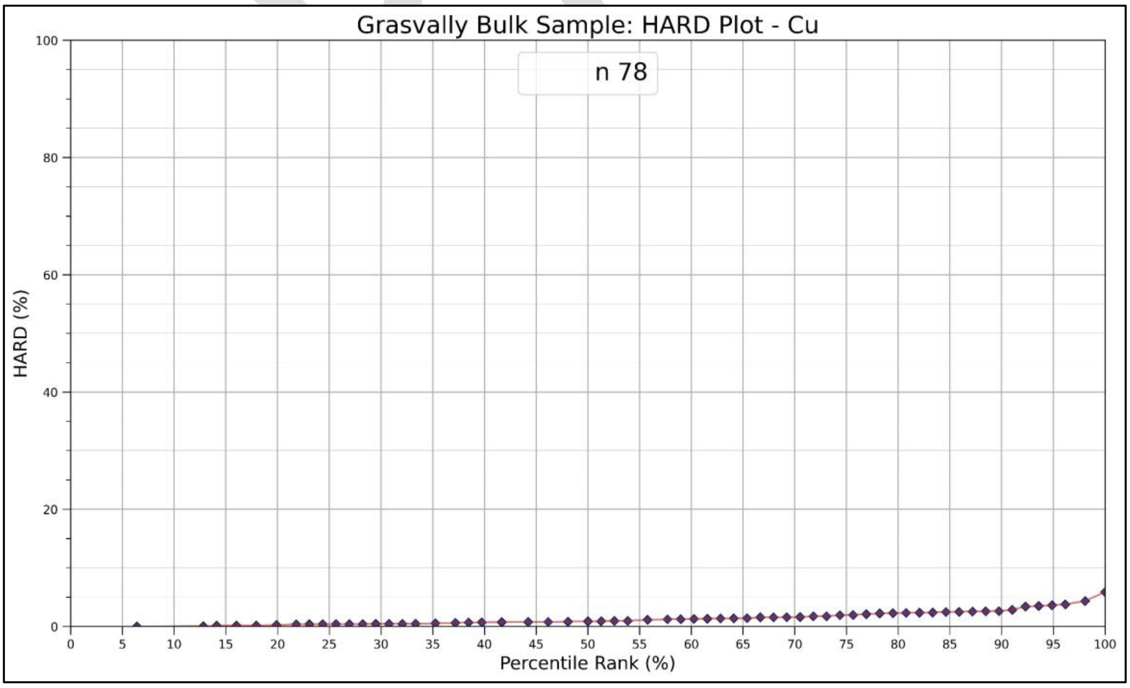

Figure 80 Bulk Sample Twinstream Half Absolute Relative Difference Plot for Cu

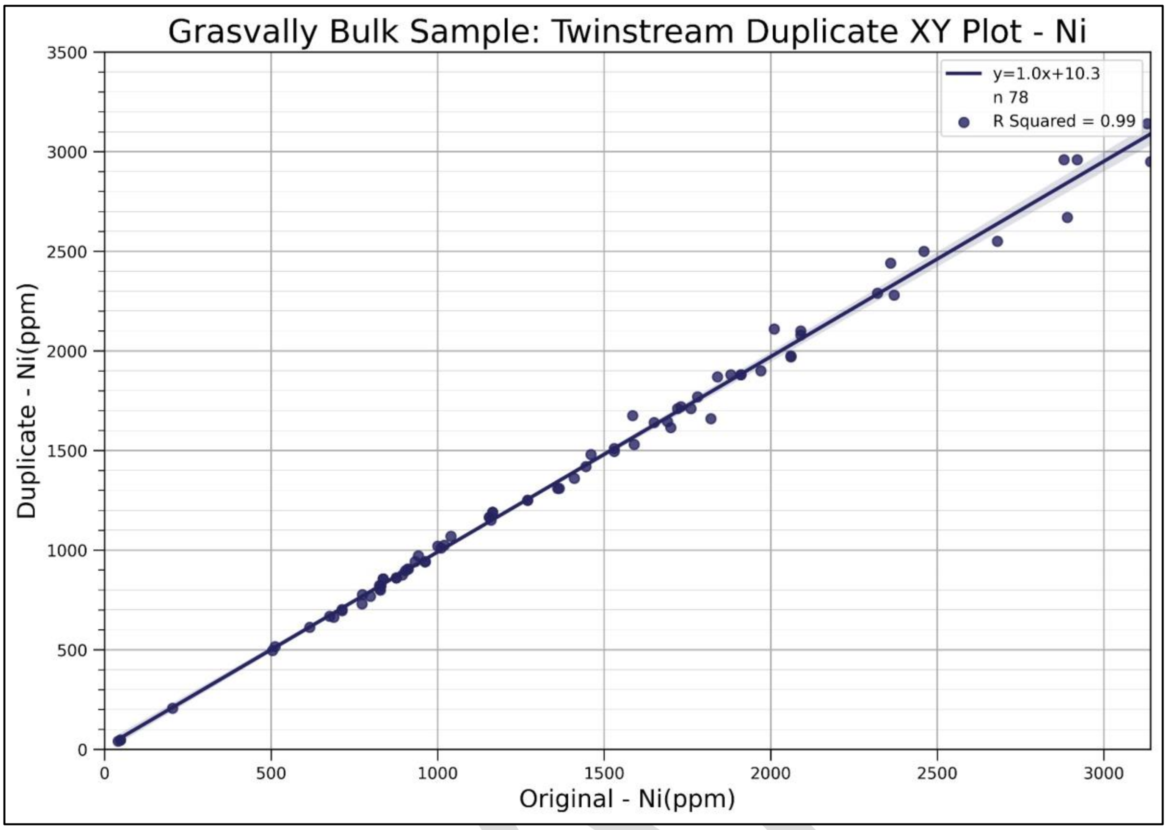

Figure 81 Bulk Sample Lab Duplicate XY Plot for Ni

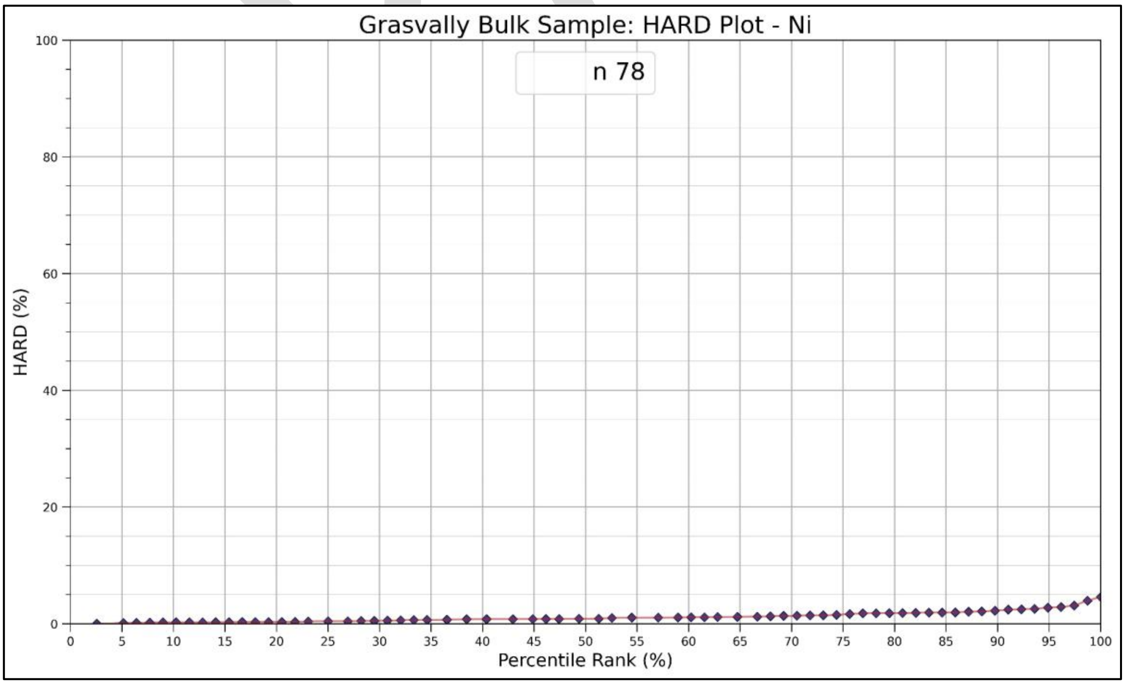

Figure 82 Bulk Sample Twinstream Half Absolute Relative Difference Plot for Ni

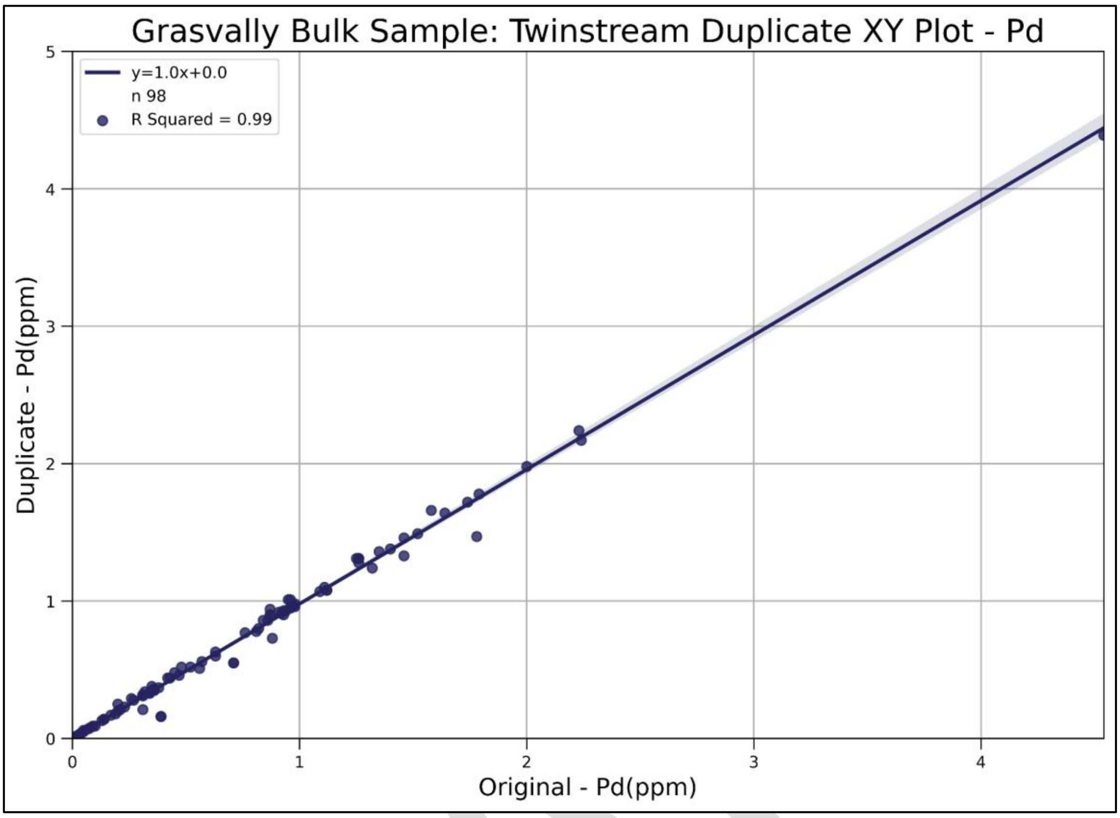

Figure 83 Bulk Sample Lab Duplicate XY Plot for Pd

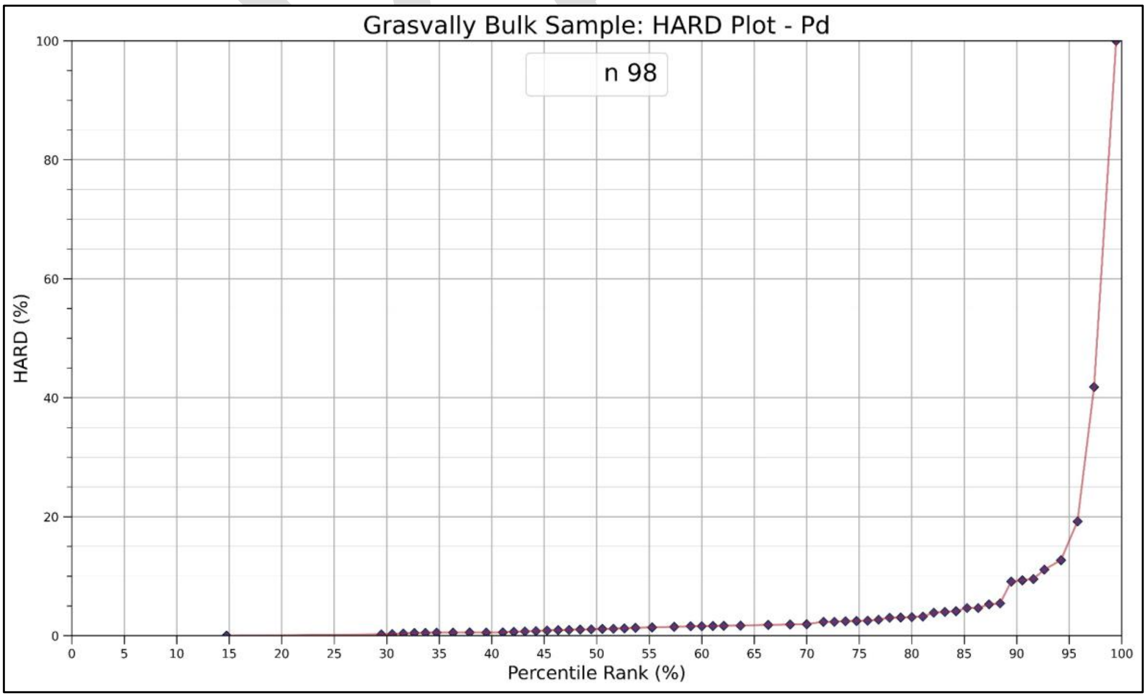

Figure 84 Bulk Sample Twinstream Half Absolute Relative Difference Plot for Pd

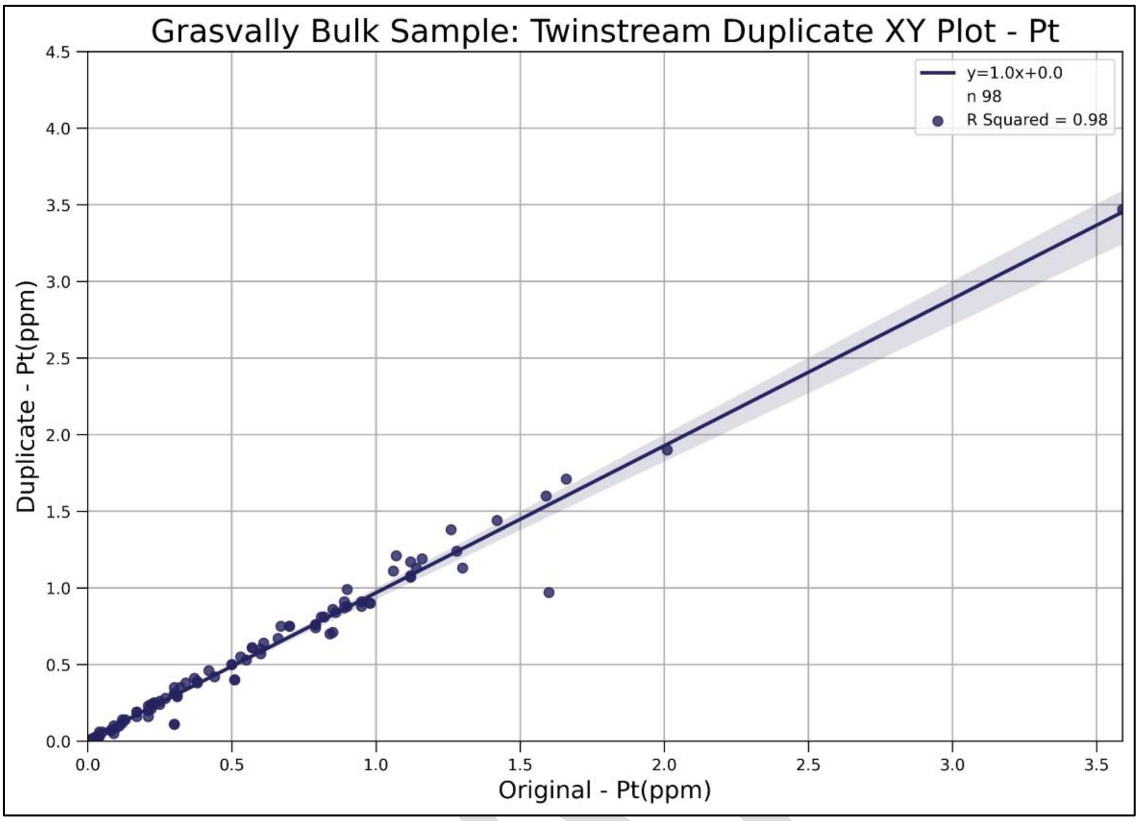

Figure 85 Bulk Sample Lab Duplicate XY Plot for Pt

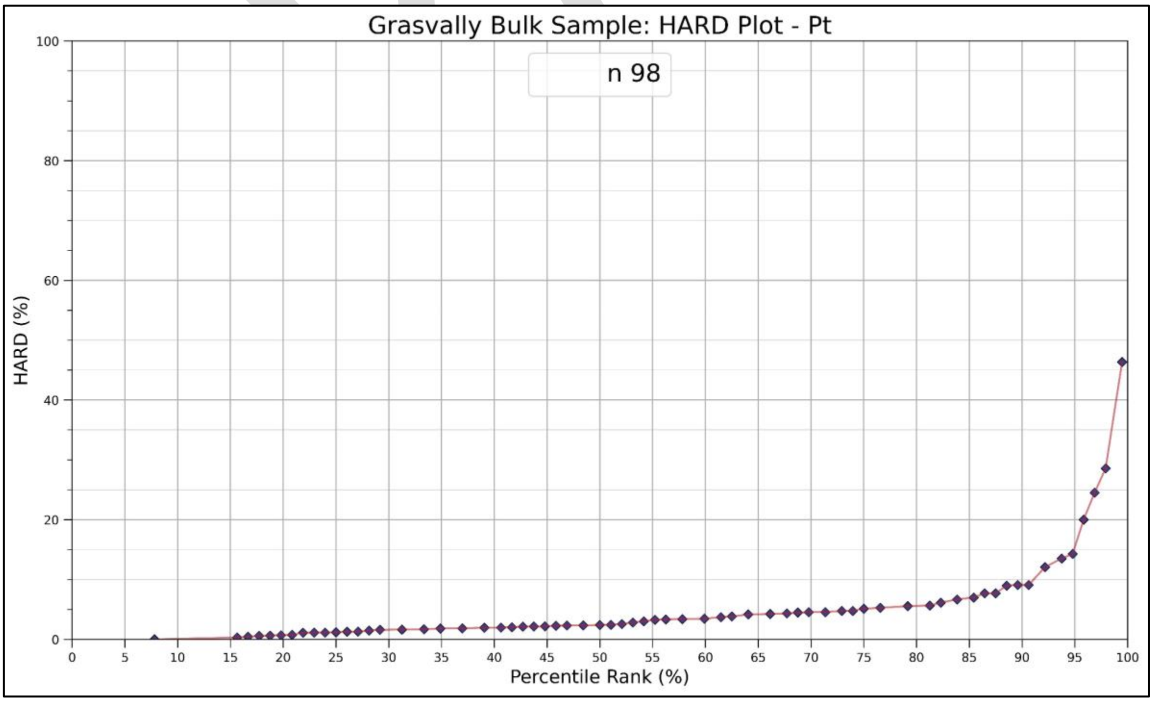

Figure 86 Bulk Sample Twinstream Half Absolute Relative Difference Plot for Pt

6.2.3 Summary of Precision Analysis

Overall, the results analysed show that the repeatability and precision of the assay results are highly variable. Ni and Cu show excellent repeatability from both projects with 97 – 100% of duplicate samples falling within 10% absolute difference. However, the results for the PGE elements are less precise.

Between the two projects, 72 – 84% of the Au duplicate results, 82 – 92% of the Pd duplicate results, and only 69 – 90% of the Pt duplicate results fall within 10% absolute difference. These results are cause for concern when assessing the quality of the results of the PGEs. Although the accuracy of the results for the PGE is shown to be relatively good, the precision of these data is low.

The cause of this error cannot be considered a flaw by internal laboratory methodology and controls, and only as a result of random errors being introduced outside the control of the measurements. These random errors may arise when capturing the data into the database at the time of importing the assay results or as a result of not capturing these data into the correct format as is stated in the section above. Unfortunately, due to the inherent nature of the database used to perform this analysis, no further investigation can be launched to remove truly unprecise data, as the method of capture cannot be validated.

Table 2 Summary of North Body twinstream results using Half Absolute Relative Difference outlier method.

Project	Element	No. of Samples	Mean Original	Mean Duplicate	|Mean Difference|	Within 10%	No. of Outliers	Outliers (%)
Grasvally GVN	*Au*	353.00	0.03	0.02	0.01	72.66	96.00	27.20
	Cu	310.00	243.79	243.13	11.22	97.74	7.00	2.26
	Ni	312.00	1191.37	1188.44	25.80	97.76	7.00	2.24
	Pd	351.00	0.28	0.28	0.02	82.05	62.00	17.66
	Pt	353.00	0.28	0.27	0.03	69.69	107.00	30.31
Grasvally Bulk Sample	*Au*	98.00	0.04	0.04	0.00	84.09	14.00	14.29
	Cu	78.00	421.96	418.15	11.29	100.00	0.00	0.00
	Ni	78.00	1381.59	1364.87	34.97	100.00	0.00	0.00
	Pd	98.00	0.75	0.73	0.03	91.58	8.00	8.16
	Pt	98.00	0.58	0.57	0.04	90.63	9.00	9.18

	>95%
	>90%
	<90%

7 APPENDIX

7.1 Evaluation Methodology

Customised geostatistical scripts were developed by Earthlabs Database Manager using Python 3.9.0. to evaluate the quality assurance and quality control for the North Body deposit. The following methods were undertaken to perform the analysis.

7.1.1 Accuracy Analysis

The accuracy results contain all data on inserted control samples throughout the geological exploration campaigns for the North Body and include certified reference materials (CRMs), un-certified reference materials, and blanks. The following steps were taken to do their analysis:

- Extract the relevant datasets from the historic Database and convert them to comma-separated value format
- Reading and manipulation of data is done using NumPy & Pandas libraries
- Merge control sample data with assay result data using unique sample IDs
- Data cleaning and sorting
- Specify parameters and tolerance limits for the analysis using certificates of the reference materials used
- Determine samples that are out of statistical control
- Plotting of control charts using Matplotlib and Seaborn libraries
- Create a list of all failed samples based on each element
- Tabulate accuracy data summary

7.1.2 Twinstream Analysis

Twinstream data analysis of duplicates vs original samples assessing the precision of the data measurements. The following steps were taken to perform this analysis:

- Extract the relevant datasets from the historic Database and convert them to comma-separated value format
- Reading and manipulation of the data using NumPy & Pandas library
- Custom data sorting to identify duplicate samples and their corresponding primary samples
- Further data cleaning
- Specify the parameters for the analysis
- Calculate the percentage difference using the Half Absolute Relative Difference (HARD) method
- Ordering of data by percentile rankings
- Determination of outlier percentage
- Plotting of both duplicate vs original data with regressions, and HARD vs percentile rankings
- Tabulation of the precision data summary

7.2 Definitions

Term	Description
Accepted Value	The concentration (usually ppm) of the certified element based on the specific certified reference material used
Accuracy	A measure of how close a datum result is to the true value.
Blanks	Reference material (often certified) containing negligible concentrations of the suite of elements being analysed in a specific exploration campaign. They are used to assess laboratory contamination. Tolerance limits are set at 10x the detection limits of the laboratory's equipment.
Certified Reference Material (CRMs)	Samples with known grades were made according to relevant ISO standards. They are inserted without labels randomly in a batch of samples to test the accuracy of the results reported by the laboratories.
Confidence Interval	A range of values is so defined that there is a specified probability that the value of a parameter lies within it.
Detection Limit	The lowest possible limit at which the grade of a sample can be detected. The detection limit is dependent on the laboratory and the analytical method used to report the assay results.
HARD	HARD stands for Half the Absolute Relative Difference between twinstream data. It is used to quantify and measure the percentage of the difference between two given values.
Matplotlib: Python plotting	Matplotlib is a plotting library for the Python programming language and its numerical mathematics extension NumPy.
NumPy	NumPy is a library for the Python programming language, adding support for large, multi-dimensional arrays and matrices, along with a large collection of high-level mathematical functions and operations to these arrays.
Outliers	Records or observations that fall outside the specified parameters for a specific element. Various methods can be used in determining the outliers of a given dataset
Pandas	Pandas is a software library for the Python programming language for large data manipulation and analysis. In particular, it offers data structures and operations for manipulating numerical tables and time series. It is heavily based on NumPy operations.
Precision	Precision, or repeatability, is an assessment of how close several data are to each other after repeated analysis.
Python	Python is an interpreted high-level general-purpose programming language. Its design philosophy emphasises code readability with its use of significant indentation. Its language constructs as well as its object-oriented approach aim to help programmers write clear, logical code for small – large scale projects.
SABLE	SABLE stands for Standardised Approach to Borehole Logging in Exploration. It is the geological database that contains all the geological and analytical data taken from the boreholes during exploration.
Standard Deviation	The quantity expressing by how much the members of a group differ from the mean value of the group
Standards	Certified reference materials with known compositions of specific elements were sent to the laboratories to detect anomalous analyses produced during assaying.
Twinstream	Records or observations of samples that have been prepared, split and analysed separately for precision analysis.

7.3 Tolerance Limits

Table 3 Accuracy Analysis Acceptance Criteria for CRMs.

Certified Reference Materials (CRMs)		
Acceptance/Passed	Warning	Failure/Suspect
Within ±3 Std. Dev. of the Accepted Value	Outside ±2 Std. Dev & Within ±3 Std. Dev. From the Accepted Value	Outside ±3 Std. Dev. From the Accepted Value
SARM7 and QC93 Exceptions. (QC93 has no accepted values, where the mean has been used instead)		
Acceptance/Passed	Warning	Failure/Suspect
SARM7: Within 15% of the accepted value above and below	SARM7: Outside 10% of the accepted value & with 15% of the accepted value	SARM7: Outside 15% of the accepted value above and below
QC93: Within 10% of the accepted value above and below	QC93: Outside 5% of the accepted value & within 10% of the accepted value	QC93: Outside 10% of the accepted value above and below

Table 4 Accuracy Analysis Acceptance Criteria for Blank Samples

Blank Sample Insertions	
Acceptance/Passed	Failure/Suspect
Within 10x Detection Limit of the Laboratory Equipment	Above 10x Detection Limit of the Laboratory Equipment

7.4 Additional Information

All additional information regarding the raw data, clean data, high resolution images as well as CRM certificates will be made available upon request.