

Cover Page

Order ID : P5279

Project ID : MTA Rockaway Park

Client : Tully Construction Co., Inc.

Lab Sample Number

P5279-01
P5279-02
P5279-03

Client Sample Number

ROCKAWAY-PARK
ROCKAWAY-PARK
ROCKAWAY-PARK

I certify that the data package is in compliance with the terms and conditions of the contract, both technically and for completeness, for other than the conditions detailed above. Release of the data contained in this hard copy data package has been authorized by the laboratory manager or his designee, as verified by the following signature.

Signature : _____

Date: 12/24/2024

NYDOH CERTIFICATION NO - 11376

NJDEP CERTIFICATION NO - 20012

DATA REPORTING QUALIFIERS- INORGANIC

For reporting results, the following “ Results Qualifiers” are used:

J	Indicates the reported value was obtained from a reading that was less than the Contract Required Detection Limit (CRDL), but greater than or equal to the Instrument Detection Limit (IDL).
U	Indicates the analyte was analyzed for, but not detected.
ND	Indicates the analyte was analyzed for, but not detected
E	Indicates the reported value is estimated because of the presence of interference
M	Indicates Duplicate injection precision not met.
N	Indicates the spiked sample recovery is not within control limits.
S	Indicates the reported value was determined by the Method of Standard Addition (MSA).
*	Indicates that the duplicate analysis is not within control limits.
+	Indicates the correlation coefficient for the MSA is less than 0.995.
D	Indicates the reported value is from a secondary analysis with a dilution factor. The original analysis exceeded the calibration range.
M	Method qualifiers “P” for ICP instrument “PM” for ICP when Microwave Digestion is used “CV” for Manual Cold Vapor AA “AV” for automated Cold Vapor AA “CA” for MIDI-Distillation Spectrophotometric “AS” for Semi -Automated Spectrophotometric “C” for Manual Spectrophotometric “T” for Titrimetric “NR” for analyte not required to be analyzed
OR	Indicates the analyte’s concentration exceeds the calibrated range of the instrument for that specific analysis.
Q	Indicates the LCS did not meet the control limits requirements
H	Sample Analysis Out Of Hold Time

APPENDIX A

QA REVIEW GENERAL DOCUMENTATION

Project #: P5279

Completed

For thorough review, the report must have the following:

GENERAL:

Are all original paperwork present (chain of custody, record of communication,airbill, sample management lab chronicle, login page)

✓

Check chain-of-custody for proper relinquish/return of samples

✓

Is the chain of custody signed and complete

✓

Check internal chain-of-custody for proper relinquish/return of samples /sample extracts

✓

Collect information for each project id from server. Were all requirements followed

✓

COVER PAGE:

Do numbers of samples correspond to the number of samples in the Chain of Custody on login page

✓

Do lab numbers and client Ids on cover page agree with the Chain of Custody

✓

CHAIN OF CUSTODY:

Do requested analyses on Chain of Custody agree with form I results

✓

Do requested analyses on Chain of Custody agree with the log-in page

✓

Were the correct method log-in for analysis according to the Analytical Request and Chain of Castody

✓

Were the samples received within hold time

✓

Were any problems found with the samples at arrival recorded in the Sample Management Laboratory Chronicle

✓

ANALYTICAL:

Was method requirement followed?

✓

Was client requirement followed?

✓

Does the case narrative summarize all QC failure?

✓

All runlogs and manual integration are reviewed for requirements

✓

All manual calculations and /or hand notations verified

✓

QA Review Signature: KETAN PATEL

Date: 12/24/2024

LAB CHRONICLE

OrderID:	P5279	OrderDate:	12/13/2024 12:03:00 PM
Client:	Tully Construction Co., Inc.	Project:	MTA Rockaway Park
Contact:	Dean Devoe	Location:	L51,VOA Ref. #2 Soil

LabID	ClientID	Matrix	Test	Method	Sample Date	Prep Date	Anal Date	Received
P5279-01	ROCKAWAY-PARK	SOIL			12/13/24			12/13/24
			Mercury	7471B		12/16/24	12/16/24	
			Metals ICP-TAL	6010D		12/13/24	12/16/24	
P5279-02	ROCKAWAY-PARK	TCLP			12/13/24			12/13/24
			TCLP ICP Metals	6010D		12/18/24	12/20/24	
			TCLP Mercury	7470A		12/19/24	12/19/24	



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Hit Summary Sheet
SW-846

SDG No.: P5279

Order ID: P5279

Client: Tully Construction Co., Inc.

Project ID: MTA Rockaway Park

Sample ID	Client ID	Matrix	Parameter	Concentration	C	MDL	RDL	Units
Client ID : ROCKAWAY-PARK								
P5279-02	ROCKAWAY-PARK	TCLP	Barium	629		62.8	500	ug/L
P5279-02	ROCKAWAY-PARK	TCLP	Cadmium	1.07	J	0.94	30.0	ug/L
P5279-02	ROCKAWAY-PARK	TCLP	Chromium	8.27	J	6.60	50.0	ug/L
P5279-02	ROCKAWAY-PARK	TCLP	Lead	37.6	J	35.1	60.0	ug/L



SAMPLE DATA

Report of Analysis

Client:	Tully Construction Co., Inc.	Date Collected:	12/13/24
Project:	MTA Rockaway Park	Date Received:	12/13/24
Client Sample ID:	ROCKAWAY-PARK	SDG No.:	P5279
Lab Sample ID:	P5279-02	Matrix:	TCLP
Level (low/med):	low	% Solid:	0

Cas	Parameter	Conc.	Qua.	DF	MDL	LOQ / CRQL	Units	Prep Date	Date Ana.	Ana Met.	Prep Met.
7440-38-2	Arsenic	34.8	U	1	34.8	100	ug/L	12/18/24 12:00	12/20/24 17:16	SW6010	SW3050
7440-39-3	Barium	629		1	62.8	500	ug/L	12/18/24 12:00	12/20/24 17:16	SW6010	SW3050
7440-43-9	Cadmium	1.07	J	1	0.94	30.0	ug/L	12/18/24 12:00	12/20/24 17:16	SW6010	SW3050
7440-47-3	Chromium	8.27	J	1	6.60	50.0	ug/L	12/18/24 12:00	12/20/24 17:16	SW6010	SW3050
7439-92-1	Lead	37.6	J	1	35.1	60.0	ug/L	12/18/24 12:00	12/20/24 17:16	SW6010	SW3050
7439-97-6	Mercury	0.81	UN	1	0.81	2.00	ug/L	12/19/24 07:58	12/19/24 12:41	SW7470A	
7782-49-2	Selenium	58.8	U	1	58.8	100	ug/L	12/18/24 12:00	12/20/24 17:16	SW6010	SW3050
7440-22-4	Silver	5.80	UN	1	5.80	50.0	ug/L	12/18/24 12:00	12/20/24 17:16	SW6010	SW3050

Color Before:	Colorless	Clarity Before:	Clear	Texture:
Color After:	Colorless	Clarity After:	Clear	Artifacts:
Comments:	TCLP METALS			

U = Not Detected
 LOQ = Limit of Quantitation
 MDL = Method Detection Limit
 LOD = Limit of Detection
 D = Dilution
 Q = indicates LCS control criteria did not meet requirements

J = Estimated Value
 B = Analyte Found in Associated Method Blank
 * = indicates the duplicate analysis is not within control limits.
 E = Indicates the reported value is estimated because of the presence of interference.
 OR = Over Range
 N = Spiked sample recovery not within control limits



METAL CALIBRATION DATA

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tully Construction Co., Inc. **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
Initial Calibration Source: EPA
Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV25	Mercury	3.84	4.0	96	90 - 110	CV	12/19/2024	11:58	LB134010

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tully Construction Co., Inc. **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
Initial Calibration Source: EPA
Continuing Calibration Source: PLASMA-PURE

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV46	Mercury	4.72	5.0	94	90 - 110	CV	12/19/2024	12:03	LB134010
CCV47	Mercury	5.07	5.0	102	90 - 110	CV	12/19/2024	12:58	LB134010
CCV48	Mercury	4.90	5.0	98	90 - 110	CV	12/19/2024	13:36	LB134010
CCV49	Mercury	4.76	5.0	95	90 - 110	CV	12/19/2024	14:00	LB134010
CCV50	Mercury	4.80	5.0	96	90 - 110	CV	12/19/2024	14:28	LB134010

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tully Construction Co., Inc. **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
ICV01	Arsenic	1020	1000	102	95 - 105	P	12/20/2024	16:07	LB134054
	Barium	471	520	91	95 - 105	P	12/20/2024	16:07	LB134054
	Cadmium	502	510	98	95 - 105	P	12/20/2024	16:07	LB134054
	Chromium	534	520	103	95 - 105	P	12/20/2024	16:07	LB134054
	Lead	1000	1000	100	95 - 105	P	12/20/2024	16:07	LB134054
	Selenium	1020	1000	102	95 - 105	P	12/20/2024	16:07	LB134054
	Silver	251	250	100	95 - 105	P	12/20/2024	16:07	LB134054

Metals

- 2a -

INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tully Construction Co., Inc. **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
LLICV01	Arsenic	19.0	20.0	95	80 - 120	P	12/20/2024	16:11	LB134054
	Barium	87.9	100	88	80 - 120	P	12/20/2024	16:11	LB134054
	Cadmium	5.80	6.0	97	80 - 120	P	12/20/2024	16:11	LB134054
	Chromium	9.98	10.0	100	80 - 120	P	12/20/2024	16:11	LB134054
	Lead	12.1	12.0	101	80 - 120	P	12/20/2024	16:11	LB134054
	Selenium	19.7	20.0	98	80 - 120	P	12/20/2024	16:11	LB134054
	Silver	10.3	10.0	103	80 - 120	P	12/20/2024	16:11	LB134054

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tully Construction Co., Inc. **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
Initial Calibration Source: EPA
Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV01	Arsenic	4800	5000	96	90 - 110	P	12/20/2024	16:47	LB134054
	Barium	9130	10000	91	90 - 110	P	12/20/2024	16:47	LB134054
	Cadmium	2420	2500	97	90 - 110	P	12/20/2024	16:47	LB134054
	Chromium	1000	1000	100	90 - 110	P	12/20/2024	16:47	LB134054
	Lead	4830	5000	96	90 - 110	P	12/20/2024	16:47	LB134054
	Selenium	4790	5000	96	90 - 110	P	12/20/2024	16:47	LB134054
	Silver	1220	1250	98	90 - 110	P	12/20/2024	16:47	LB134054
CCV02	Arsenic	5010	5000	100	90 - 110	P	12/20/2024	17:29	LB134054
	Barium	9240	10000	92	90 - 110	P	12/20/2024	17:29	LB134054
	Cadmium	2490	2500	100	90 - 110	P	12/20/2024	17:29	LB134054
	Chromium	1020	1000	102	90 - 110	P	12/20/2024	17:29	LB134054
	Lead	4970	5000	99	90 - 110	P	12/20/2024	17:29	LB134054
	Selenium	5020	5000	100	90 - 110	P	12/20/2024	17:29	LB134054
	Silver	1250	1250	100	90 - 110	P	12/20/2024	17:29	LB134054
CCV03	Arsenic	4960	5000	99	90 - 110	P	12/20/2024	18:12	LB134054
	Barium	9430	10000	94	90 - 110	P	12/20/2024	18:12	LB134054
	Cadmium	2480	2500	99	90 - 110	P	12/20/2024	18:12	LB134054
	Chromium	1020	1000	102	90 - 110	P	12/20/2024	18:12	LB134054
	Lead	4950	5000	99	90 - 110	P	12/20/2024	18:12	LB134054
	Selenium	4960	5000	99	90 - 110	P	12/20/2024	18:12	LB134054
	Silver	1250	1250	100	90 - 110	P	12/20/2024	18:12	LB134054
CCV04	Arsenic	4910	5000	98	90 - 110	P	12/20/2024	19:02	LB134054
	Barium	9150	10000	92	90 - 110	P	12/20/2024	19:02	LB134054
	Cadmium	2440	2500	98	90 - 110	P	12/20/2024	19:02	LB134054
	Chromium	1010	1000	101	90 - 110	P	12/20/2024	19:02	LB134054
	Lead	4890	5000	98	90 - 110	P	12/20/2024	19:02	LB134054
	Selenium	4920	5000	98	90 - 110	P	12/20/2024	19:02	LB134054
	Silver	1240	1250	99	90 - 110	P	12/20/2024	19:02	LB134054
CCV05	Arsenic	5060	5000	101	90 - 110	P	12/20/2024	19:57	LB134054
	Barium	9370	10000	94	90 - 110	P	12/20/2024	19:57	LB134054
	Cadmium	2510	2500	100	90 - 110	P	12/20/2024	19:57	LB134054
	Chromium	1030	1000	103	90 - 110	P	12/20/2024	19:57	LB134054
	Lead	5020	5000	100	90 - 110	P	12/20/2024	19:57	LB134054
	Selenium	5070	5000	102	90 - 110	P	12/20/2024	19:57	LB134054

Metals

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INITIAL AND CONTINUING CALIBRATION VERIFICATION

Client: Tully Construction Co., Inc. **SDG No.:** P5279

Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279

Initial Calibration Source: EPA

Continuing Calibration Source: Inorganic Ventures

Sample ID	Analyte	Result ug/L	True Value	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CCV05	Silver	1260	1250	101	90 - 110	P	12/20/2024	19:57	LB134054
CCV06	Arsenic	4830	5000	96	90 - 110	P	12/20/2024	20:47	LB134054
	Barium	9020	10000	90	90 - 110	P	12/20/2024	20:47	LB134054
	Cadmium	2410	2500	96	90 - 110	P	12/20/2024	20:47	LB134054
	Chromium	995	1000	100	90 - 110	P	12/20/2024	20:47	LB134054
	Lead	4800	5000	96	90 - 110	P	12/20/2024	20:47	LB134054
	Selenium	4830	5000	97	90 - 110	P	12/20/2024	20:47	LB134054
	Silver	1210	1250	97	90 - 110	P	12/20/2024	20:47	LB134054
CCV07	Arsenic	4880	5000	98	90 - 110	P	12/20/2024	21:37	LB134054
	Barium	9110	10000	91	90 - 110	P	12/20/2024	21:37	LB134054
	Cadmium	2430	2500	97	90 - 110	P	12/20/2024	21:37	LB134054
	Chromium	1010	1000	101	90 - 110	P	12/20/2024	21:37	LB134054
	Lead	4860	5000	97	90 - 110	P	12/20/2024	21:37	LB134054
	Selenium	4890	5000	98	90 - 110	P	12/20/2024	21:37	LB134054
	Silver	1230	1250	99	90 - 110	P	12/20/2024	21:37	LB134054
CCV08	Arsenic	5020	5000	100	90 - 110	P	12/20/2024	23:01	LB134054
	Barium	9290	10000	93	90 - 110	P	12/20/2024	23:01	LB134054
	Cadmium	2480	2500	99	90 - 110	P	12/20/2024	23:01	LB134054
	Chromium	1020	1000	102	90 - 110	P	12/20/2024	23:01	LB134054
	Lead	4960	5000	99	90 - 110	P	12/20/2024	23:01	LB134054
	Selenium	5050	5000	101	90 - 110	P	12/20/2024	23:01	LB134054
	Silver	1250	1250	100	90 - 110	P	12/20/2024	23:01	LB134054
CCV09	Arsenic	4940	5000	99	90 - 110	P	12/20/2024	23:55	LB134054
	Barium	9220	10000	92	90 - 110	P	12/20/2024	23:55	LB134054
	Cadmium	2450	2500	98	90 - 110	P	12/20/2024	23:55	LB134054
	Chromium	1020	1000	102	90 - 110	P	12/20/2024	23:55	LB134054
	Lead	4900	5000	98	90 - 110	P	12/20/2024	23:55	LB134054
	Selenium	4950	5000	99	90 - 110	P	12/20/2024	23:55	LB134054
	Silver	1240	1250	99	90 - 110	P	12/20/2024	23:55	LB134054



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Metals

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CRDL STANDARD FOR AA & ICP

Client: Tully Construction Co., Inc.

SDG No.: P5279

Contract: TULL02

Lab Code: CHEM

Case No.: P5279

SAS No.: P5279

Initial Calibration Source: _____

Continuing Calibration Source: _____

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Acceptance Window (%R)	M	Analysis Date	Analysis Time	Run Number
CRA	Mercury	0.17	0.2	85	40 - 160	CV	12/19/2024	12:07	LB134010
CRI01	Arsenic	21.1	20.0	106	40 - 160	P	12/20/2024	16:26	LB134054
	Barium	87.8	100	88	40 - 160	P	12/20/2024	16:26	LB134054
	Cadmium	5.88	6.0	98	40 - 160	P	12/20/2024	16:26	LB134054
	Chromium	10.2	10.0	102	40 - 160	P	12/20/2024	16:26	LB134054
	Lead	11.1	12.0	93	40 - 160	P	12/20/2024	16:26	LB134054
	Selenium	18.3	20.0	92	40 - 160	P	12/20/2024	16:26	LB134054
	Silver	10.3	10.0	103	40 - 160	P	12/20/2024	16:26	LB134054



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Fax : 908 789 8922

Metals

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INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tully Construction Co., Inc.

SDG No.: P5279

Contract: TULL02

Lab Code: CHEM

Case No.: P5279

SAS No.: P5279

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB25	Mercury	0.20	+/-0.20	U	0.20	CV	12/19/2024	12:00	LB134010

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tully Construction Co., Inc.

SDG No.: P5279

Contract: TULL02

Lab Code: CHEM

Case No.: P5279

SAS No.: P5279

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB46	Mercury	0.20	+/-0.20	U	0.20	CV	12/19/2024	12:05	LB134010
CCB47	Mercury	0.20	+/-0.20	U	0.20	CV	12/19/2024	13:01	LB134010
CCB48	Mercury	0.20	+/-0.20	U	0.20	CV	12/19/2024	13:38	LB134010
CCB49	Mercury	0.20	+/-0.20	U	0.20	CV	12/19/2024	14:02	LB134010
CCB50	Mercury	0.20	+/-0.20	U	0.20	CV	12/19/2024	14:30	LB134010

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: Tully Construction Co., Inc.

SDG No.: P5279

Contract: TULL02

Lab Code: CHEM

Case No.: P5279

SAS No.: P5279

Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
ICB01	Arsenic	20.0	+/-20.0	U	20.0	P	12/20/2024	16:21	LB134054
	Barium	100	+/-100	U	100	P	12/20/2024	16:21	LB134054
	Cadmium	6.00	+/-6.00	U	6.00	P	12/20/2024	16:21	LB134054
	Chromium	10.0	+/-10.0	U	10.0	P	12/20/2024	16:21	LB134054
	Lead	12.0	+/-12.0	U	12.0	P	12/20/2024	16:21	LB134054
	Selenium	20.0	+/-20.0	U	20.0	P	12/20/2024	16:21	LB134054
	Silver	10.0	+/-10.0	U	10.0	P	12/20/2024	16:21	LB134054

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: <u>Tully Construction Co., Inc.</u>		SDG No.: <u>P5279</u>							
Contract: <u>TULL02</u>	Lab Code: <u>CHEM</u>	Case No.: <u>P5279</u>	SAS No.: <u>P5279</u>						
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB01	Arsenic	20.0	+/-20.0	U	20.0	P	12/20/2024	16:51	LB134054
	Barium	14.0	+/-100	J	100	P	12/20/2024	16:51	LB134054
	Cadmium	6.00	+/-6.00	U	6.00	P	12/20/2024	16:51	LB134054
	Chromium	10.0	+/-10.0	U	10.0	P	12/20/2024	16:51	LB134054
	Lead	12.0	+/-12.0	U	12.0	P	12/20/2024	16:51	LB134054
	Selenium	20.0	+/-20.0	U	20.0	P	12/20/2024	16:51	LB134054
	Silver	10.0	+/-10.0	U	10.0	P	12/20/2024	16:51	LB134054
CCB02	Arsenic	20.0	+/-20.0	U	20.0	P	12/20/2024	17:34	LB134054
	Barium	100	+/-100	U	100	P	12/20/2024	17:34	LB134054
	Cadmium	6.00	+/-6.00	U	6.00	P	12/20/2024	17:34	LB134054
	Chromium	10.0	+/-10.0	U	10.0	P	12/20/2024	17:34	LB134054
	Lead	12.0	+/-12.0	U	12.0	P	12/20/2024	17:34	LB134054
	Selenium	20.0	+/-20.0	U	20.0	P	12/20/2024	17:34	LB134054
	Silver	10.0	+/-10.0	U	10.0	P	12/20/2024	17:34	LB134054
CCB03	Arsenic	20.0	+/-20.0	U	20.0	P	12/20/2024	18:16	LB134054
	Barium	100	+/-100	U	100	P	12/20/2024	18:16	LB134054
	Cadmium	6.00	+/-6.00	U	6.00	P	12/20/2024	18:16	LB134054
	Chromium	10.0	+/-10.0	U	10.0	P	12/20/2024	18:16	LB134054
	Lead	12.0	+/-12.0	U	12.0	P	12/20/2024	18:16	LB134054
	Selenium	20.0	+/-20.0	U	20.0	P	12/20/2024	18:16	LB134054
	Silver	10.0	+/-10.0	U	10.0	P	12/20/2024	18:16	LB134054
CCB04	Arsenic	20.0	+/-20.0	U	20.0	P	12/20/2024	19:11	LB134054
	Barium	100	+/-100	U	100	P	12/20/2024	19:11	LB134054
	Cadmium	6.00	+/-6.00	U	6.00	P	12/20/2024	19:11	LB134054
	Chromium	10.0	+/-10.0	U	10.0	P	12/20/2024	19:11	LB134054
	Lead	12.0	+/-12.0	U	12.0	P	12/20/2024	19:11	LB134054
	Selenium	20.0	+/-20.0	U	20.0	P	12/20/2024	19:11	LB134054
	Silver	10.0	+/-10.0	U	10.0	P	12/20/2024	19:11	LB134054
CCB05	Arsenic	20.0	+/-20.0	U	20.0	P	12/20/2024	20:01	LB134054
	Barium	100	+/-100	U	100	P	12/20/2024	20:01	LB134054
	Cadmium	6.00	+/-6.00	U	6.00	P	12/20/2024	20:01	LB134054
	Chromium	10.0	+/-10.0	U	10.0	P	12/20/2024	20:01	LB134054
	Lead	12.0	+/-12.0	U	12.0	P	12/20/2024	20:01	LB134054
	Selenium	20.0	+/-20.0	U	20.0	P	12/20/2024	20:01	LB134054
	Silver	10.0	+/-10.0	U	10.0	P	12/20/2024	20:01	LB134054
CCB06	Arsenic	20.0	+/-20.0	U	20.0	P	12/20/2024	20:51	LB134054
	Barium	100	+/-100	U	100	P	12/20/2024	20:51	LB134054
	Cadmium	6.00	+/-6.00	U	6.00	P	12/20/2024	20:51	LB134054
	Chromium	10.0	+/-10.0	U	10.0	P	12/20/2024	20:51	LB134054

Metals

- 3a -

INITIAL AND CONTINUING CALIBRATION BLANK SUMMARY

Client: <u>Tully Construction Co., Inc.</u>		SDG No.: <u>P5279</u>							
Contract: <u>TULL02</u>	Lab Code: <u>CHEM</u>	Case No.: <u>P5279</u>	SAS No.: <u>P5279</u>						
Sample ID	Analyte	Result ug/L	Acceptance Limit	Conc Qual	CRQL	M	Analysis Date	Analysis Time	Run Number
CCB06	Lead	12.0	+/-12.0	U	12.0	P	12/20/2024	20:51	LB134054
	Selenium	20.0	+/-20.0	U	20.0	P	12/20/2024	20:51	LB134054
	Silver	10.0	+/-10.0	U	10.0	P	12/20/2024	20:51	LB134054
CCB07	Arsenic	20.0	+/-20.0	U	20.0	P	12/20/2024	22:04	LB134054
	Barium	100	+/-100	U	100	P	12/20/2024	22:04	LB134054
	Cadmium	6.00	+/-6.00	U	6.00	P	12/20/2024	22:04	LB134054
	Chromium	10.0	+/-10.0	U	10.0	P	12/20/2024	22:04	LB134054
	Lead	12.0	+/-12.0	U	12.0	P	12/20/2024	22:04	LB134054
	Selenium	20.0	+/-20.0	U	20.0	P	12/20/2024	22:04	LB134054
	Silver	10.0	+/-10.0	U	10.0	P	12/20/2024	22:04	LB134054
CCB08	Arsenic	20.0	+/-20.0	U	20.0	P	12/20/2024	23:12	LB134054
	Barium	100	+/-100	U	100	P	12/20/2024	23:12	LB134054
	Cadmium	6.00	+/-6.00	U	6.00	P	12/20/2024	23:12	LB134054
	Chromium	10.0	+/-10.0	U	10.0	P	12/20/2024	23:12	LB134054
	Lead	12.0	+/-12.0	U	12.0	P	12/20/2024	23:12	LB134054
	Selenium	20.0	+/-20.0	U	20.0	P	12/20/2024	23:12	LB134054
	Silver	10.0	+/-10.0	U	10.0	P	12/20/2024	23:12	LB134054
CCB09	Arsenic	20.0	+/-20.0	U	20.0	P	12/21/2024	00:05	LB134054
	Barium	100	+/-100	U	100	P	12/21/2024	00:05	LB134054
	Cadmium	6.00	+/-6.00	U	6.00	P	12/21/2024	00:05	LB134054
	Chromium	10.0	+/-10.0	U	10.0	P	12/21/2024	00:05	LB134054
	Lead	12.0	+/-12.0	U	12.0	P	12/21/2024	00:05	LB134054
	Selenium	20.0	+/-20.0	U	20.0	P	12/21/2024	00:05	LB134054
	Silver	10.0	+/-10.0	U	10.0	P	12/21/2024	00:05	LB134054

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Tully Construction Co., Inc.

SDG No.: P5279

Instrument: CV1

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB165679TB		WATER		Batch Number:	PB165735		Prep Date:	12/19/2024	
	Mercury	2.00	<2.00	U	2.00	CV	12/19/2024	14:21	LB134010
Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB165735BL		WATER		Batch Number:	PB165735		Prep Date:	12/19/2024	
	Mercury	0.20	<0.20	U	0.20	CV	12/19/2024	12:31	LB134010

Metals
- 3b -
PREPARATION BLANK SUMMARY

Client: Tully Construction Co., Inc.

SDG No.: P5279

Instrument: P4

Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB165679TB		WATER		Batch Number:	PB165720		Prep Date:	12/18/2024	
	Arsenic	100	<100	U	100	P	12/20/2024	18:03	LB134054
	Barium	500	<500	U	500	P	12/20/2024	18:03	LB134054
	Cadmium	30.0	<30.0	U	30.0	P	12/20/2024	18:03	LB134054
	Chromium	50.0	<50.0	U	50.0	P	12/20/2024	18:03	LB134054
	Lead	60.0	<60.0	U	60.0	P	12/20/2024	18:03	LB134054
	Selenium	100	<100	U	100	P	12/20/2024	18:03	LB134054
	Silver	50.0	<50.0	U	50.0	P	12/20/2024	18:03	LB134054
Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB165680TB		WATER		Batch Number:	PB165720		Prep Date:	12/18/2024	
	Arsenic	100	<100	U	100	P	12/20/2024	18:08	LB134054
	Barium	500	<500	U	500	P	12/20/2024	18:08	LB134054
	Cadmium	30.0	<30.0	U	30.0	P	12/20/2024	18:08	LB134054
	Chromium	50.0	<50.0	U	50.0	P	12/20/2024	18:08	LB134054
	Lead	60.0	<60.0	U	60.0	P	12/20/2024	18:08	LB134054
	Selenium	100	<100	U	100	P	12/20/2024	18:08	LB134054
	Silver	50.0	<50.0	U	50.0	P	12/20/2024	18:08	LB134054
Sample ID	Analyte	Result (ug/L)	Acceptance Limit	Conc Qual	CRQL ug/L	M	Analysis Date	Analysis Time	Run
PB165720BL		WATER		Batch Number:	PB165720		Prep Date:	12/18/2024	
	Arsenic	100	<100	U	100	P	12/20/2024	17:55	LB134054
	Barium	500	<500	U	500	P	12/20/2024	17:55	LB134054
	Cadmium	30.0	<30.0	U	30.0	P	12/20/2024	17:55	LB134054
	Chromium	50.0	<50.0	U	50.0	P	12/20/2024	17:55	LB134054
	Lead	60.0	<60.0	U	60.0	P	12/20/2024	17:55	LB134054
	Selenium	100	<100	U	100	P	12/20/2024	17:55	LB134054
	Silver	50.0	<50.0	U	50.0	P	12/20/2024	17:55	LB134054

Metals
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INTERFERENCE CHECK SAMPLE

Client: Tully Construction Co., Inc. **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
ICS Source: EPA **Instrument ID:** P4

Sample ID	Analyte	Result ug/L	True Value ug/L	% Recovery	Low Limit (ug/L)	High Limit (ug/L)	Analysis Date	Analysis Time	Run Number
ICSA01	Arsenic	-1.51			-20	20	12/20/2024	16:30	LB134054
	Barium	2.79	6.0	46	-94	106	12/20/2024	16:30	LB134054
	Cadmium	-0.99	1.0	99	-5	7	12/20/2024	16:30	LB134054
	Chromium	60.0	52.0	115	42	62	12/20/2024	16:30	LB134054
	Lead	6.97			-12	12	12/20/2024	16:30	LB134054
	Selenium	-16.6			-20	20	12/20/2024	16:30	LB134054
	Silver	-3.17			-10	10	12/20/2024	16:30	LB134054
ICSAB01	Arsenic	113	104	109	88.4	120	12/20/2024	16:34	LB134054
	Barium	460	537	86	437	637	12/20/2024	16:34	LB134054
	Cadmium	1040	972	107	826	1120	12/20/2024	16:34	LB134054
	Chromium	604	542	111	460	624	12/20/2024	16:34	LB134054
	Lead	56.2	49.0	115	37	61	12/20/2024	16:34	LB134054
	Selenium	34.2	46.0	74	26	66	12/20/2024	16:34	LB134054
	Silver	201	201	100	170	232	12/20/2024	16:34	LB134054



METAL QC DATA

metals
- 5a -
MATRIX SPIKE SUMMARY

client: Tully Construction Co., Inc. **level:** low **sdg no.:** P5279
contract: TULL02 **lab code:** CHEM **case no.:** P5279 **sas no.:** P5279
matrix: Water **sample id:** P5279-02 **client id:** ROCKAWAY-PARKMS
Percent Solids for Sample: NA **Spiked ID:** P5279-02MS **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	ug/L	75 - 125	29.5		2.00	U	40.0	74	N	CV

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: Tully Construction Co., Inc. **level:** low **sdg no.:** P5279
contract: TULL02 **lab code:** CHEM **case no.:** P5279 **sas no.:** P5279
matrix: Water **sample id:** P5279-02 **client id:** ROCKAWAY-PARKMSD
Percent Solids for Sample: NA **Spiked ID:** P5279-02MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	ug/L	75 - 125	26.0		2.00	U	40.0	65	N	CV

metals
- 5a -
MATRIX SPIKE SUMMARY

client: Tully Construction Co., Inc. **level:** low **sdg no.:** P5279
contract: TULL02 **lab code:** CHEM **case no.:** P5279 **sas no.:** P5279
matrix: Water **sample id:** P5291-13 **client id:** WC-20241213MS
Percent Solids for Sample: NA **Spiked ID:** P5291-13MS **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Arsenic	ug/L	75 - 125	4040		100	U	4000	101		P
Barium	ug/L	75 - 125	1030		125	J	1000	91		P
Cadmium	ug/L	75 - 125	960		30.0	U	1000	96		P
Chromium	ug/L	75 - 125	2080		50.0	U	2000	104		P
Lead	ug/L	75 - 125	4800		60.0	U	5000	96		P
Selenium	ug/L	75 - 125	9410		100	U	10000	94		P
Silver	ug/L	75 - 125	216		50.0	U	380	57	N	P

metals
- 5a -
MATRIX SPIKE DUPLICATE SUMMARY

client: Tully Construction Co., Inc. **level:** low **sdg no.:** P5279
contract: TULL02 **lab code:** CHEM **case no.:** P5279 **sas no.:** P5279
matrix: Water **sample id:** P5291-13 **client id:** WC-20241213MSD
Percent Solids for Sample: NA **Spiked ID:** P5291-13MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit %R	MSD Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Arsenic	ug/L	75 - 125	3990		100	U	4000	100		P
Barium	ug/L	75 - 125	1030		125	J	1000	91		P
Cadmium	ug/L	75 - 125	955		30.0	U	1000	96		P
Chromium	ug/L	75 - 125	2070		50.0	U	2000	104		P
Lead	ug/L	75 - 125	4770		60.0	U	5000	95		P
Selenium	ug/L	75 - 125	9350		100	U	10000	94		P
Silver	ug/L	75 - 125	212		50.0	U	380	56	N	P

Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: Tully Construction Co., Inc. **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
Matrix: Water **Level:** LOW **Client ID:** ROCKAWAY-PARKA
Sample ID: P5279-02 **Spiked ID:** P5279-02A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Mercury	ug/L	75 - 125	41.6		2.00	U	40.0	104		CV

Metals
- 5b -
POST DIGEST SPIKE SUMMARY

Client: Tully Construction Co., Inc. **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
Matrix: Water **Level:** LOW **Client ID:** WC-20241213A
Sample ID: P5291-13 **Spiked ID:** P5291-13A

Analyte	Units	Acceptance Limit %R	Spiked Result	C	Sample Result	C	Spike Added	% Recovery	Qual	M
Silver	ug/L	75 - 125	212		50.0	U	380	56		P

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tully Construction Co., Inc. **Level:** LOW **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
Matrix: Water **Sample ID:** P5279-02 **Client ID:** ROCKAWAY-PARKDUP
Percent Solids for Sample: NA **Duplicate ID** P5279-02DUP **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	ug/L	20	2.00	U	2.00	U			CV

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tully Construction Co., Inc. **Level:** LOW **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
Matrix: Water **Sample ID:** P5279-02MS **Client ID:** ROCKAWAY-PARKMSD
Percent Solids for Sample: NA **Duplicate ID** P5279-02MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Mercury	ug/L	20	29.5		26.0		13		CV

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tully Construction Co., Inc. **Level:** LOW **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
Matrix: Water **Sample ID:** P5291-13 **Client ID:** WC-20241213DUP
Percent Solids for Sample: NA **Duplicate ID** P5291-13DUP **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Arsenic	ug/L	20	100	U	100	U			P
Barium	ug/L	20	125	J	139	J	11		P
Cadmium	ug/L	20	30.0	U	30.0	U			P
Chromium	ug/L	20	50.0	U	50.0	U			P
Lead	ug/L	20	60.0	U	60.0	U			P
Selenium	ug/L	20	100	U	100	U			P
Silver	ug/L	20	50.0	U	50.0	U			P

Metals

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DUPLICATE SAMPLE SUMMARY

Client: Tully Construction Co., Inc. **Level:** LOW **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Case No.:** P5279 **SAS No.:** P5279
Matrix: Water **Sample ID:** P5291-13MS **Client ID:** WC-20241213MSD
Percent Solids for Sample: NA **Duplicate ID** P5291-13MSD **Percent Solids for Spike Sample:** NA

Analyte	Units	Acceptance Limit	Sample Result	C	Duplicate Result	C	RPD	Qual	M
Arsenic	ug/L	20	4040		3990		1		P
Barium	ug/L	20	1030		1030		0		P
Cadmium	ug/L	20	960		955		1		P
Chromium	ug/L	20	2080		2070		0		P
Lead	ug/L	20	4800		4770		1		P
Selenium	ug/L	20	9410		9350		1		P
Silver	ug/L	20	216		212		2		P

Metals

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LABORATORY CONTROL SAMPLE SUMMARY

Client: Tully Construction Co., Inc.

SDG No.: P5279

Contract: TULL02

Lab Code: CHEM

Case No.: P5279

SAS No.: P5279

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB165720BS							
Arsenic	ug/L	4000	3970		99	80 - 120	P
Barium	ug/L	1000	880		88	80 - 120	P
Cadmium	ug/L	1000	954		95	80 - 120	P
Chromium	ug/L	2000	2040		102	80 - 120	P
Lead	ug/L	5000	4790		96	80 - 120	P
Selenium	ug/L	10000	9680		97	80 - 120	P
Silver	ug/L	380	371		98	80 - 120	P



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Client:	<u>Tully Construction Co., Inc.</u>	SDG No.:	<u>P5279</u>				
Contract:	<u>TULL02</u>	Lab Code:	<u>CHEM</u>	Case No.:	<u>P5279</u>	SAS No.:	<u>P5279</u>

Analyte	Units	True Value	Result	C	% Recovery	Acceptance Limits	M
PB165735BS Mercury	ug/L	4.0	4.04		101	80 - 120	CV

Metals

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ICP SERIAL DILUTIONS

SAMPLE NO.

ROCKAWAY-PARKL

Lab Name: Chemtech Consulting Group

Contract: TULL02

Lab Code: CHEM

Lb No.: lb134010

Lab Sample ID : P5279-02L

SDG No.: P5279

Matrix (soil/water): Water

Level (low/med): LOW

Concentration Units: ug/L

Analyte	Initial Sample Result (I) C	Serial Dilution Result (S) C	% Differ- ence	Q	M
Mercury	2.00 U	10.0 U			CV

Metals
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ICP SERIAL DILUTIONS

SAMPLE NO.

WC-20241213L

Lab Name: Chemtech Consulting Group **Contract:** TULL02
Lab Code: CHEM **Lb No.:** lb134054 **Lab Sample ID :** P5291-13L **SDG No.:** P5279
Matrix (soil/water): Water **Level (low/med):** LOW
Concentration Units: ug/L

Analyte	Initial Sample Result (I)		Serial Dilution Result (S)		% Differ- ence	Q	M
	C		C				
Arsenic	100	U	500	U			P
Barium	125	J	2500	U	100.0		P
Cadmium	30.0	U	150	U			P
Chromium	50.0	U	250	U			P
Lead	60.0	U	300	U			P
Selenium	100	U	500	U			P
Silver	50.0	U	250	U			P



METAL PREPARATION & INSTRUMENT DATA

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tully Construction Co., Inc.

SDG No.: P5279

Contract: TULL02

Lab Code: CHEM

Case No.: P5279

SAS No.: P5279

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Al	Ca	Fe	Mg	Ag
Arsenic	193.759	0.0000000	0.0000000	-0.0000440	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000930	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	-0.0000920	0.0000000	0.0000380	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	-0.0001440	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	-0.0001490	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tully Construction Co., Inc.

SDG No.: P5279

Contract: TULL02

Lab Code: CHEM

Case No.: P5279

SAS No.: P5279

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		As	Ba	Be	Cd	Co
Arsenic	193.759	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0002870
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	0.0003170	0.0000000	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	0.0000000	0.0000000	-0.0003570
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Metals

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ICP INTERELEMENT CORRECTION FACTORS

Client: Tully Construction Co., Inc.

SDG No.: P5279

Contract: TULL02

Lab Code: CHEM

Case No.: P5279

SAS No.: P5279

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Cr	Cu	K	Mn	Mo
Arsenic	193.759	-0.0029000	0.0000000	0.0000000	0.0000000	0.0004900
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000070	0.0002200	0.0000000
Lead	220.353	0.0000000	0.0000000	0.0000000	0.0001400	-0.0008600
Selenium	196.090	0.0000000	0.0000000	0.0000000	0.0007460	0.0000000
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	-0.0000120

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Tully Construction Co., Inc.

SDG No.: P5279

Contract: TULL02

Lab Code: CHEM

Case No.: P5279

SAS No.: P5279

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Na	Ni	Pb	Sb	Se
Arsenic	193.759	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Lead	220.353	0.0000000	0.0006580	0.0000000	0.0000000	0.0001290
Selenium	196.090	0.0000000	0.0000000	0.0003330	0.0000000	0.0000000
Silver	328.068	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000

Metals

- 11 -

ICP INTERELEMENT CORRECTION FACTORS

Client: Tully Construction Co., Inc.

SDG No.: P5279

Contract: TULL02

Lab Code: CHEM

Case No.: P5279

SAS No.: P5279

Instrument ID: _____

Date: _____

Interelement Correction Factors (apparent ppb analyte/ppm interferent)

Analyte	Wave- Length (nm)	ICP Interelement Correction Factors For:				
		Sn	Ti	Tl	V	Zn
Arsenic	193.759	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Barium	493.409	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Cadmium	226.502	0.0000000	0.0000630	0.0001280	0.0000000	0.0000000
Chromium	267.716	0.0000000	0.0000000	0.0000000	0.0001110	0.0000000
Lead	220.353	0.0000000	-0.0003610	0.0000000	0.0000000	0.0000000
Selenium	196.090	0.0000000	0.0000000	0.0000000	0.0000000	0.0000000
Silver	328.068	0.0000000	-0.0007420	0.0000000	0.0000000	0.0000000



METAL PREPARATION & ANALYICAL SUMMARY

Metals

- 13 -

SAMPLE PREPARATION SUMMARY

Client: Tully Construction Co., Inc. **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Method:**
Case No.: P5279 **SAS No.:** P5279

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB165720							
P5279-02	ROCKAWAY-PARK	SAM	WATER	12/18/2024	5.0	25.0	
P5291-13DUP	WC-20241213DUP	DUP	WATER	12/18/2024	5.0	25.0	
P5291-13MS	WC-20241213MS	MS	WATER	12/18/2024	5.0	25.0	
P5291-13MSD	WC-20241213MSD	MSD	WATER	12/18/2024	5.0	25.0	
PB165679TB	PB165679TB	MB	WATER	12/18/2024	5.0	25.0	
PB165680TB	PB165680TB	MB	WATER	12/18/2024	5.0	25.0	
PB165720BL	PB165720BL	MB	WATER	12/18/2024	5.0	25.0	
PB165720BS	PB165720BS	LCS	WATER	12/18/2024	5.0	25.0	

Metals

- 13 -

SAMPLE PREPARATION SUMMARY

Client: Tully Construction Co., Inc. **SDG No.:** P5279
Contract: TULL02 **Lab Code:** CHEM **Method:**
Case No.: P5279 **SAS No.:** P5279

Sample ID	Client ID	Sample Type	Matrix	Prep Date	Initial Sample Size(mL)	Final Sample Volume (mL)	Percent Solids
Batch Number: PB165735							
P5279-02	ROCKAWAY-PARK	SAM	WATER	12/19/2024	3.0	30.0	
P5279-02DUP	ROCKAWAY-PARKDUP	DUP	WATER	12/19/2024	3.0	30.0	
P5279-02MS	ROCKAWAY-PARKMS	MS	WATER	12/19/2024	3.0	30.0	
P5279-02MSD	ROCKAWAY-PARKMSD	MSD	WATER	12/19/2024	3.0	30.0	
PB165679TB	PB165679TB	MB	WATER	12/19/2024	3.0	30.0	
PB165735BL	PB165735BL	MB	WATER	12/19/2024	30.0	30.0	
PB165735BS	PB165735BS	LCS	WATER	12/19/2024	30.0	30.0	

metals
- 14 -
ANALYSIS RUN LOG

Client: Tully Construction Co., Inc.

Contract: TULL02

Lab code: CHEM **Case no.:** P5279 **Sas no.:** P5279

Sdg no.: P5279

Instrument id number: **Method:**

Run number: LB134010

Start date: 12/19/2024 **End date:** 12/19/2024

Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1139	HG
S0.2	S0.2	1	1142	HG
S2.5	S2.5	1	1144	HG
S5	S5	1	1148	HG
S7.5	S7.5	1	1150	HG
S10	S10	1	1155	HG
ICV25	ICV25	1	1158	HG
ICB25	ICB25	1	1200	HG
CCV46	CCV46	1	1203	HG
CCB46	CCB46	1	1205	HG
CRA	CRA	1	1207	HG
PB165735BL	PB165735BL	1	1231	HG
PB165735BS	PB165735BS	1	1239	HG
P5279-02	ROCKAWAY-PARK	1	1241	HG
P5279-02DUP	ROCKAWAY-PARKDUP	1	1243	HG
P5279-02MS	ROCKAWAY-PARKMS	1	1246	HG
P5279-02MSD	ROCKAWAY-PARKMSD	1	1248	HG
CCV47	CCV47	1	1258	HG
CCB47	CCB47	1	1301	HG
CCV48	CCV48	1	1336	HG
CCB48	CCB48	1	1338	HG
CCV49	CCV49	1	1400	HG
CCB49	CCB49	1	1402	HG
P5279-02L	ROCKAWAY-PARKL	5	1405	HG
P5279-02A	ROCKAWAY-PARKA	1	1407	HG
PB165679TB	PB165679TB	1	1421	HG
CCV50	CCV50	1	1428	HG
CCB50	CCB50	1	1430	HG

metals
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ANALYSIS RUN LOG

Client: Tully Construction Co., Inc. **Contract:** TULL02

Lab code: CHEM **Case no.:** P5279 **Sas no.:** P5279 **Sdg no.:** P5279

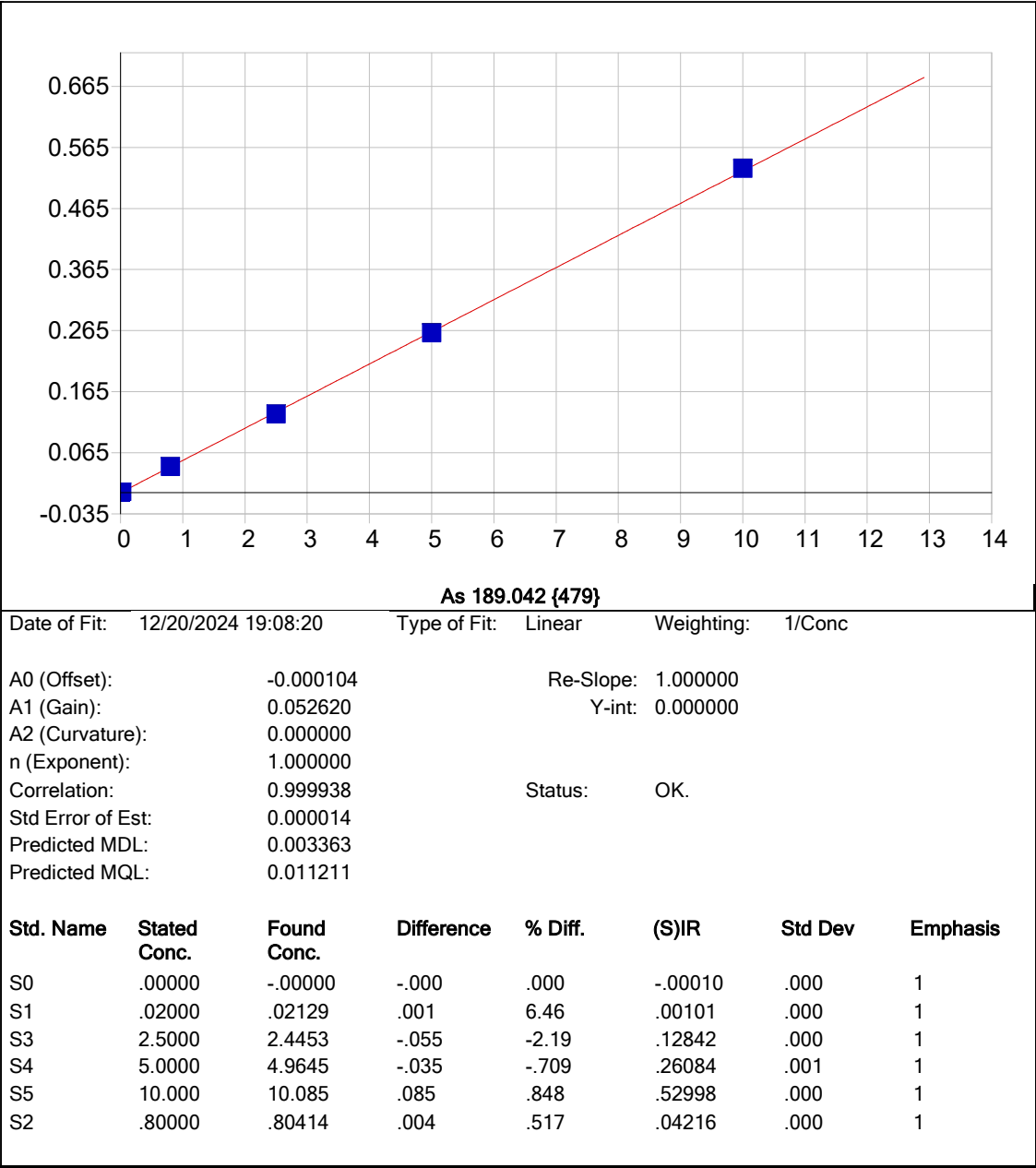
Instrument id number: **Method:** **Run number:** LB134054

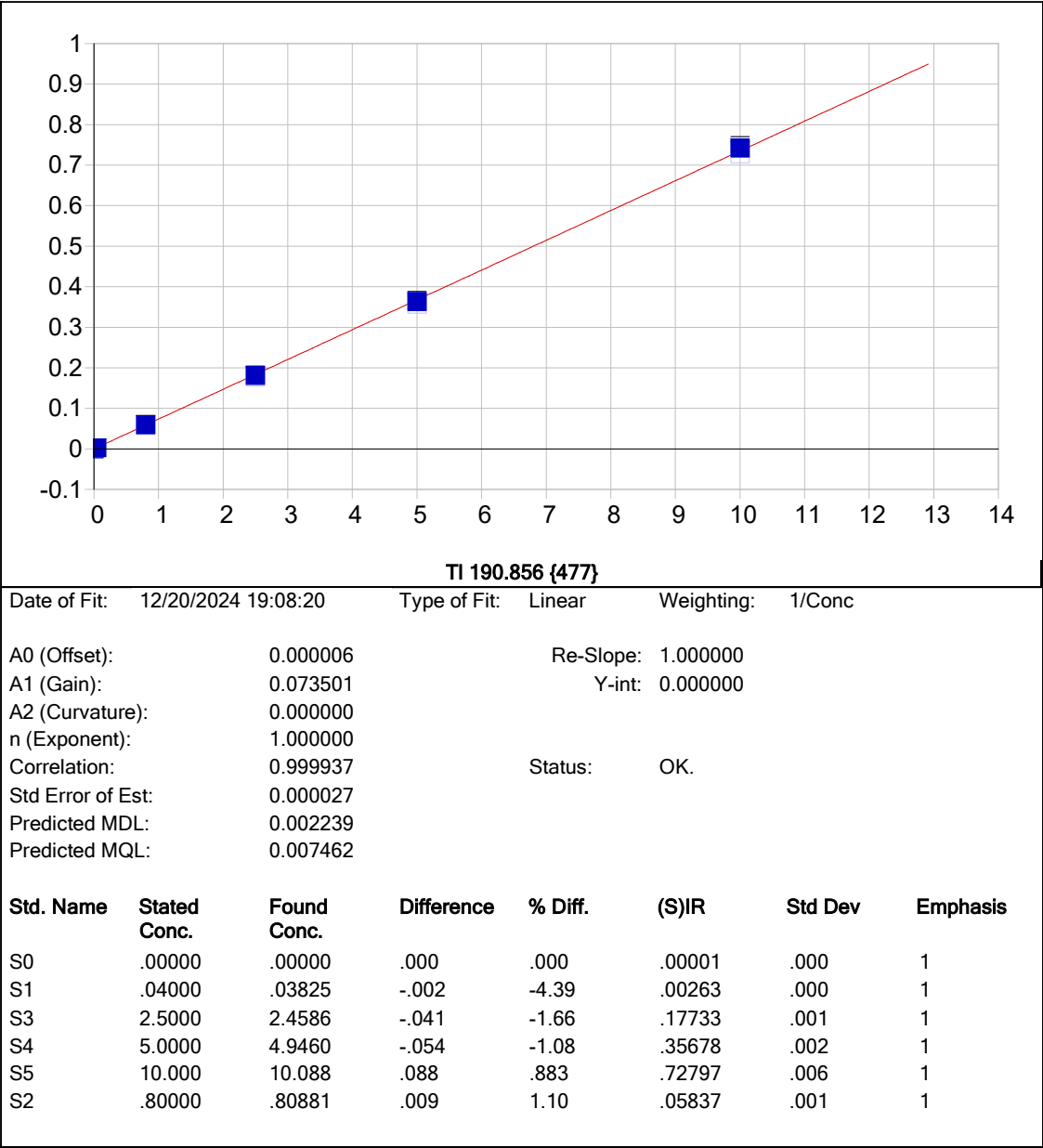
Start date: 12/20/2024 **End date:** 12/21/2024

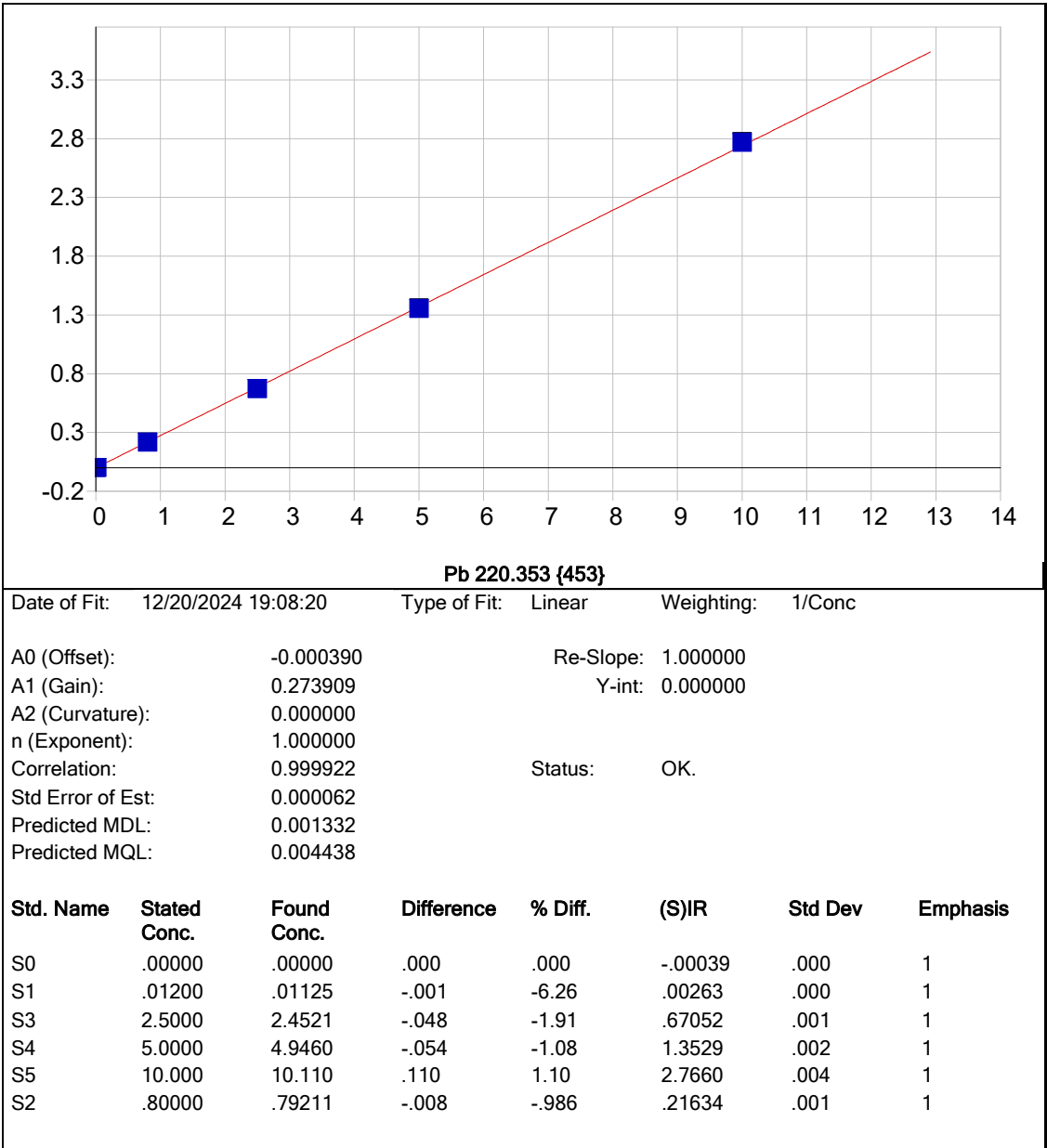
Lab sample id.	Client Sample Id	d/f	Time	Parameter list
S0	S0	1	1541	Ag,As,Ba,Cd,Cr,Pb,Se
S1	S1	1	1546	Ag,As,Ba,Cd,Cr,Pb,Se
S2	S2	1	1550	Ag,As,Ba,Cd,Cr,Pb,Se
S3	S3	1	1554	Ag,As,Ba,Cd,Cr,Pb,Se
S4	S4	1	1558	Ag,As,Ba,Cd,Cr,Pb,Se
S5	S5	1	1603	Ag,As,Ba,Cd,Cr,Pb,Se
ICV01	ICV01	1	1607	Ag,As,Ba,Cd,Cr,Pb,Se
LLICV01	LLICV01	1	1611	Ag,As,Ba,Cd,Cr,Pb,Se
ICB01	ICB01	1	1621	Ag,As,Ba,Cd,Cr,Pb,Se
CRI01	CRI01	1	1626	Ag,As,Ba,Cd,Cr,Pb,Se
ICSA01	ICSA01	1	1630	Ag,As,Ba,Cd,Cr,Pb,Se
ICSAB01	ICSAB01	1	1634	Ag,As,Ba,Cd,Cr,Pb,Se
CCV01	CCV01	1	1647	Ag,As,Ba,Cd,Cr,Pb,Se
CCB01	CCB01	1	1651	Ag,As,Ba,Cd,Cr,Pb,Se
P5279-02	ROCKAWAY-PARK	1	1716	Ag,As,Ba,Cd,Cr,Pb,Se
CCV02	CCV02	1	1729	Ag,As,Ba,Cd,Cr,Pb,Se
CCB02	CCB02	1	1734	Ag,As,Ba,Cd,Cr,Pb,Se
PB165720BL	PB165720BL	1	1755	Ag,As,Ba,Cd,Cr,Pb,Se
PB165720BS	PB165720BS	1	1759	Ag,As,Ba,Cd,Cr,Pb,Se
PB165679TB	PB165679TB	1	1803	Ag,As,Ba,Cd,Cr,Pb,Se
PB165680TB	PB165680TB	1	1808	Ag,As,Ba,Cd,Cr,Pb,Se
CCV03	CCV03	1	1812	Ag,As,Ba,Cd,Cr,Pb,Se
CCB03	CCB03	1	1816	Ag,As,Ba,Cd,Cr,Pb,Se
CCV04	CCV04	1	1902	Ag,As,Ba,Cd,Cr,Pb,Se
CCB04	CCB04	1	1911	Ag,As,Ba,Cd,Cr,Pb,Se
P5291-13DUP	WC-20241213DUP	1	1937	Ag,As,Ba,Cd,Cr,Pb,Se
P5291-13L	WC-20241213L	5	1941	Ag,As,Ba,Cd,Cr,Pb,Se
P5291-13MS	WC-20241213MS	1	1945	Ag,As,Ba,Cd,Cr,Pb,Se
P5291-13MSD	WC-20241213MSD	1	1949	Ag,As,Ba,Cd,Cr,Pb,Se
P5291-13A	WC-20241213A	1	1953	Ag
CCV05	CCV05	1	1957	Ag,As,Ba,Cd,Cr,Pb,Se
CCB05	CCB05	1	2001	Ag,As,Ba,Cd,Cr,Pb,Se
CCV06	CCV06	1	2047	Ag,As,Ba,Cd,Cr,Pb,Se
CCB06	CCB06	1	2051	Ag,As,Ba,Cd,Cr,Pb,Se
CCV07	CCV07	1	2137	Ag,As,Ba,Cd,Cr,Pb,Se
CCB07	CCB07	1	2204	Ag,As,Ba,Cd,Cr,Pb,Se
CCV08	CCV08	1	2301	Ag,As,Ba,Cd,Cr,Pb,Se
CCB08	CCB08	1	2312	Ag,As,Ba,Cd,Cr,Pb,Se
CCV09	CCV09	1	2355	Ag,As,Ba,Cd,Cr,Pb,Se
CCB09	CCB09	1	0005	Ag,As,Ba,Cd,Cr,Pb,Se

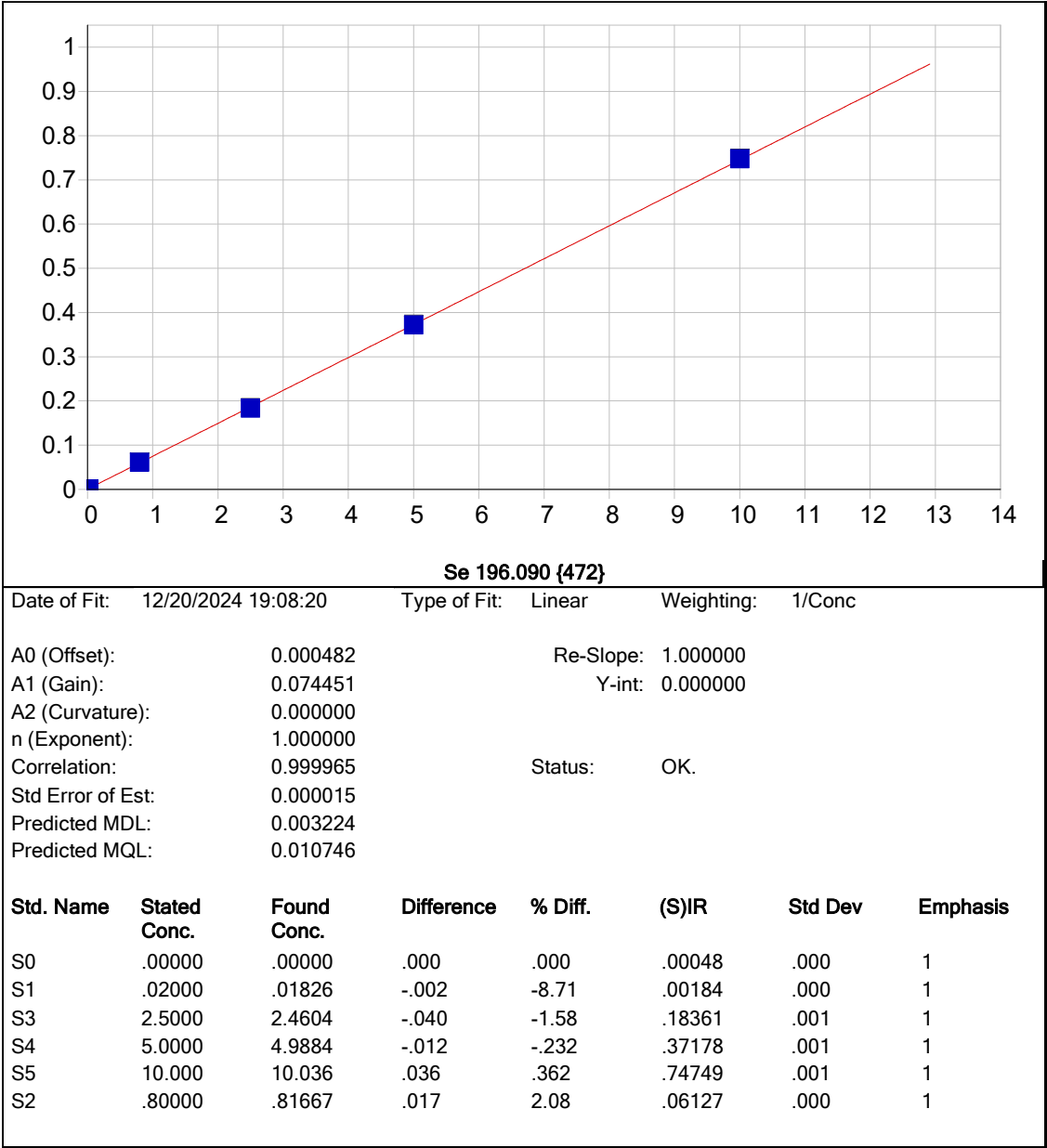


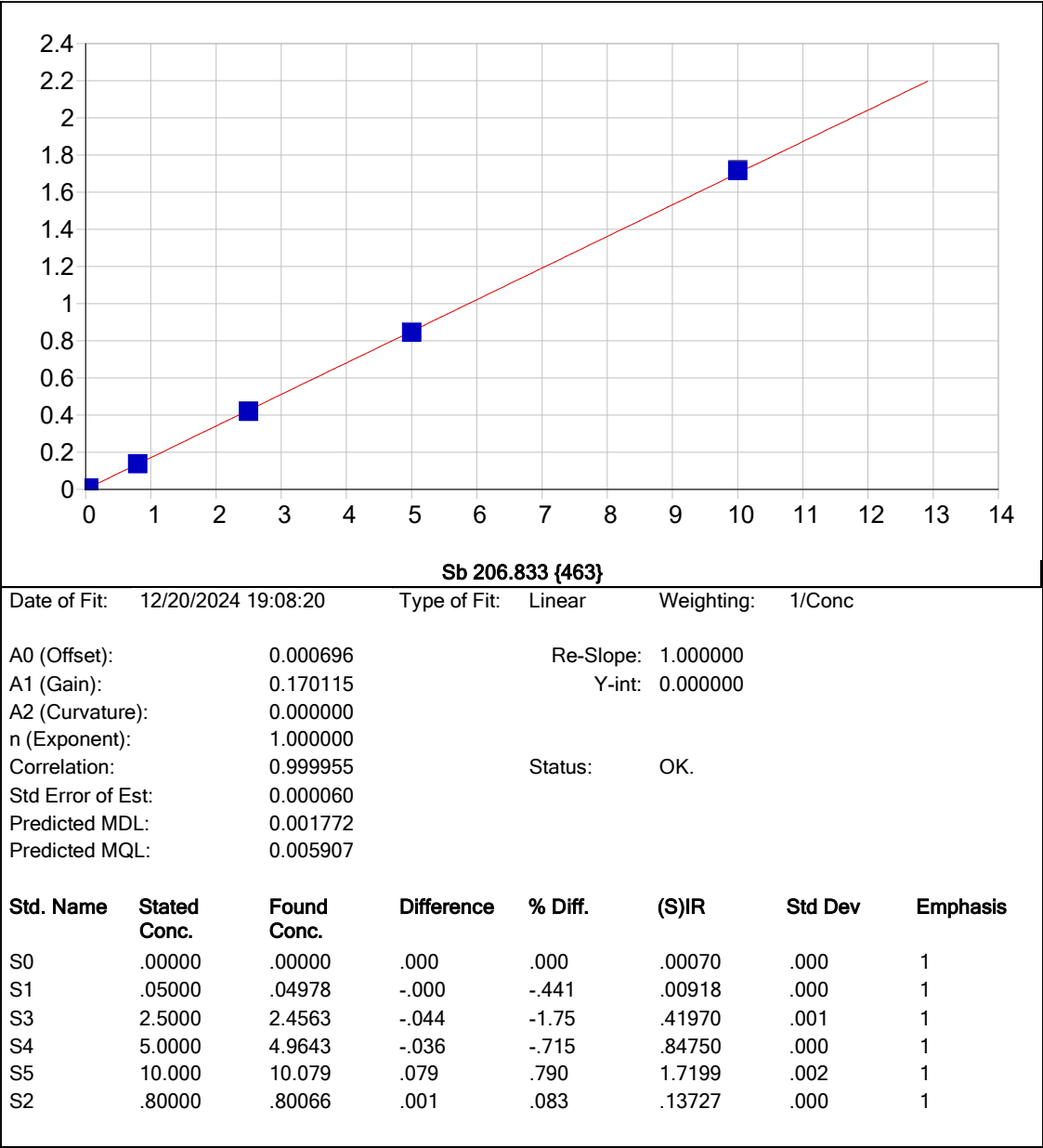
METAL RAW DATA

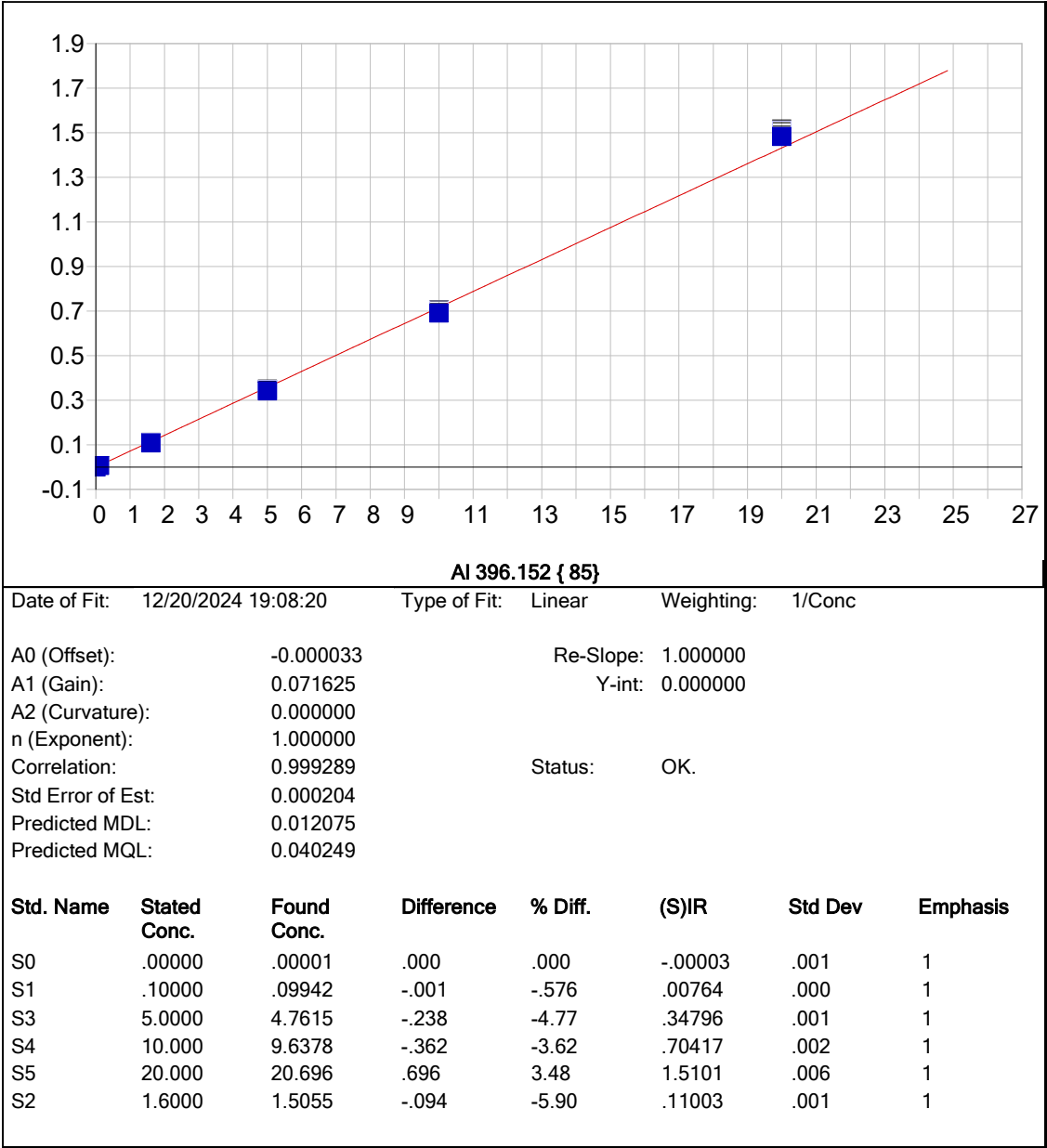


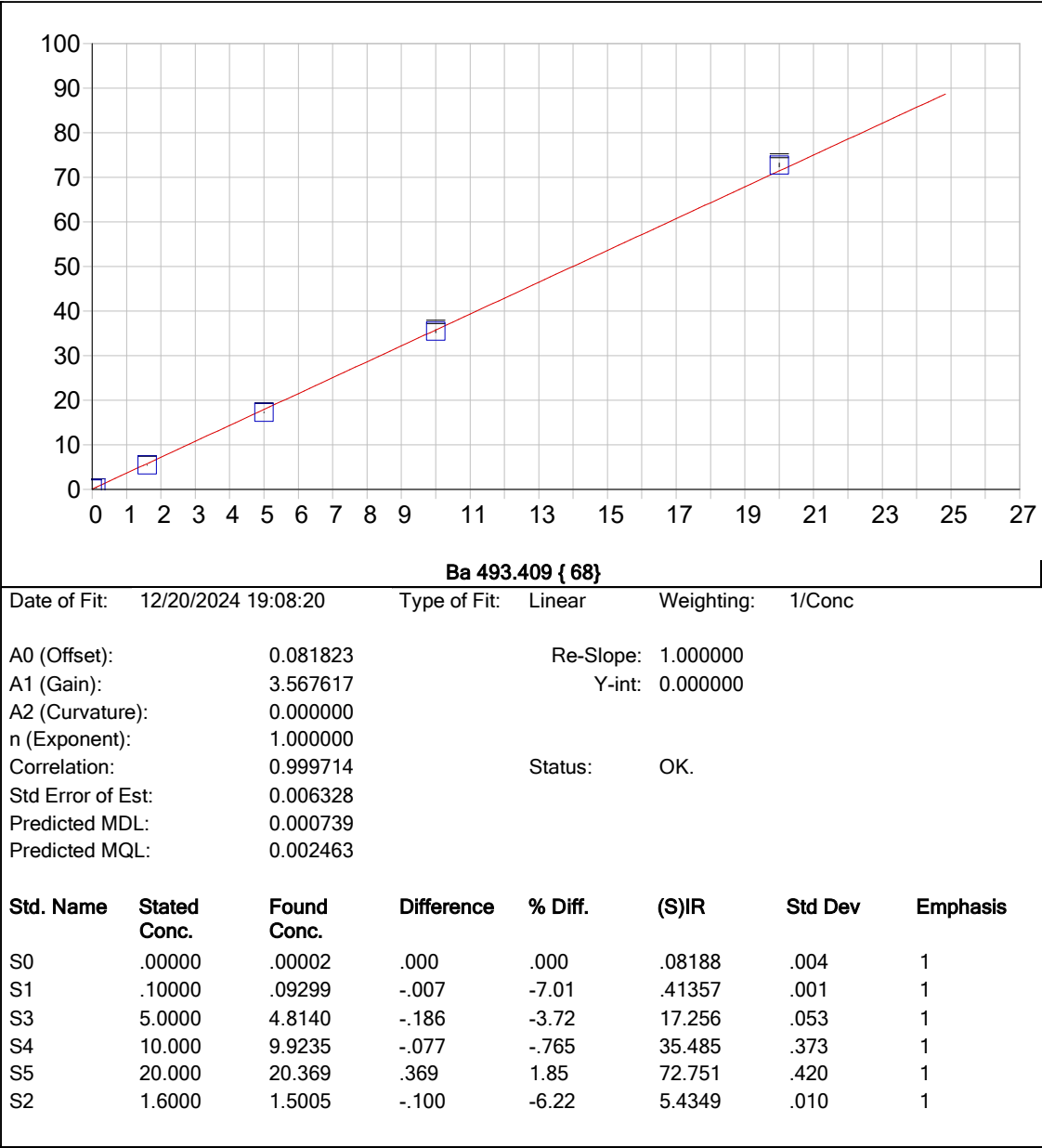


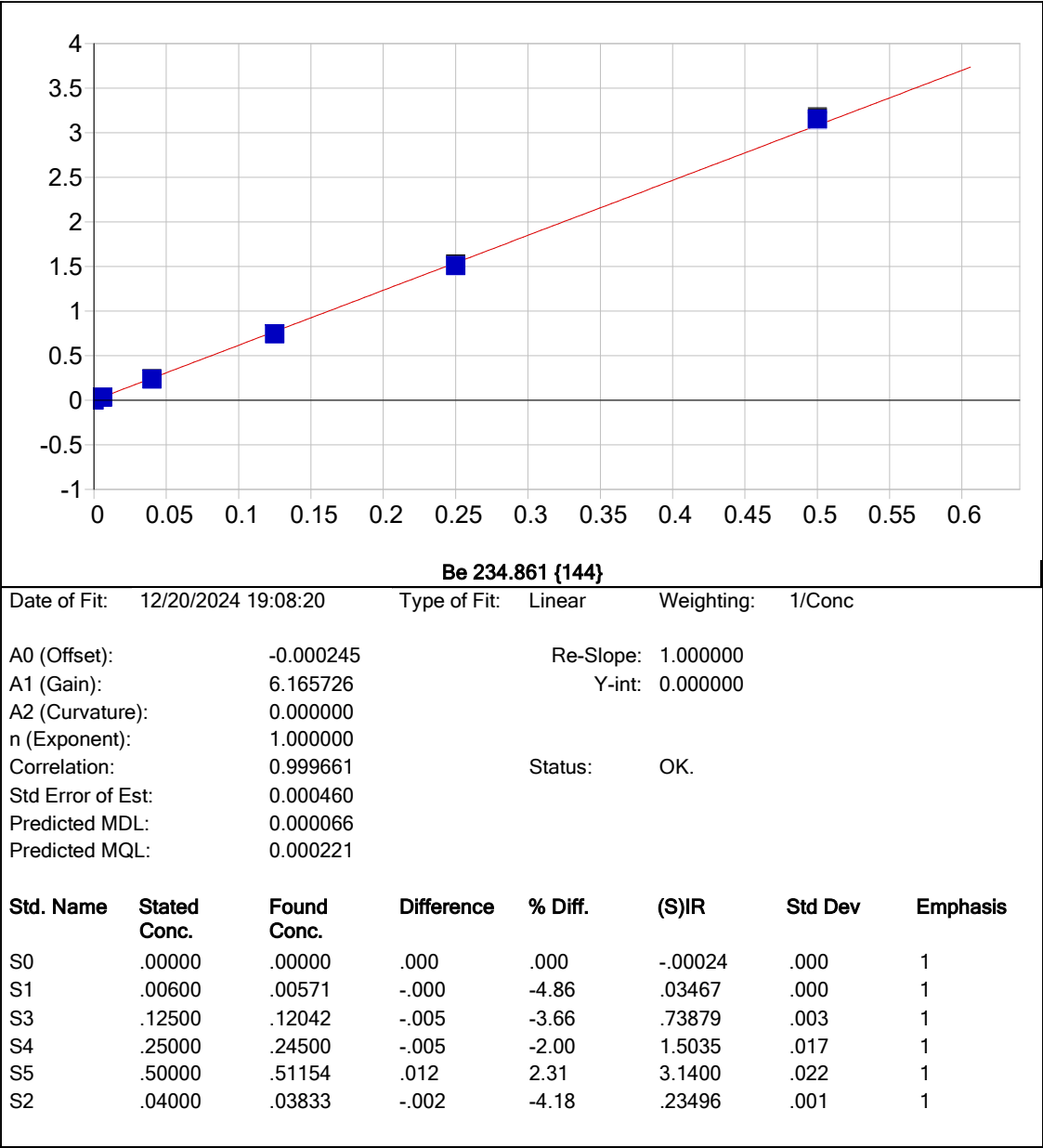


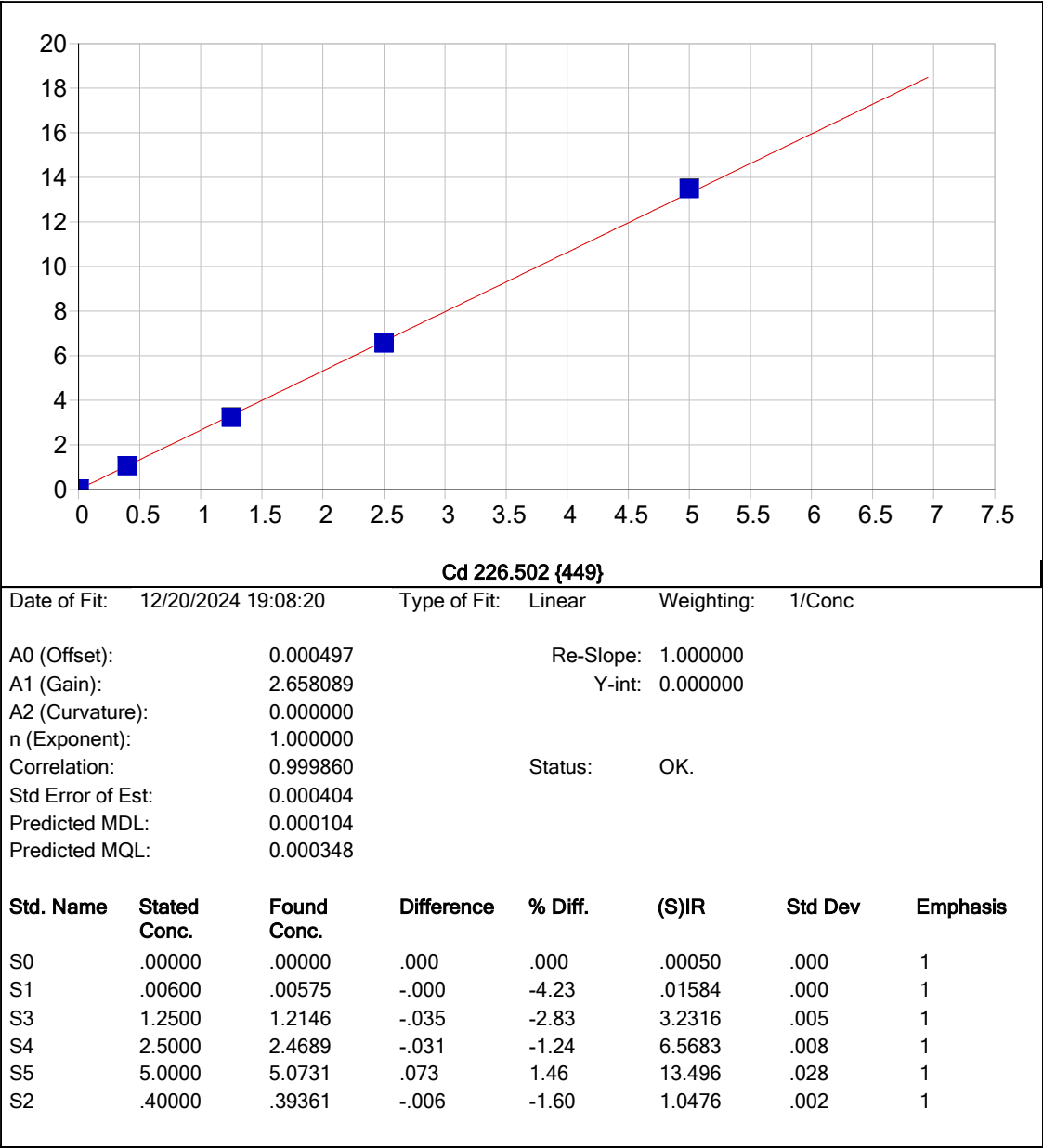


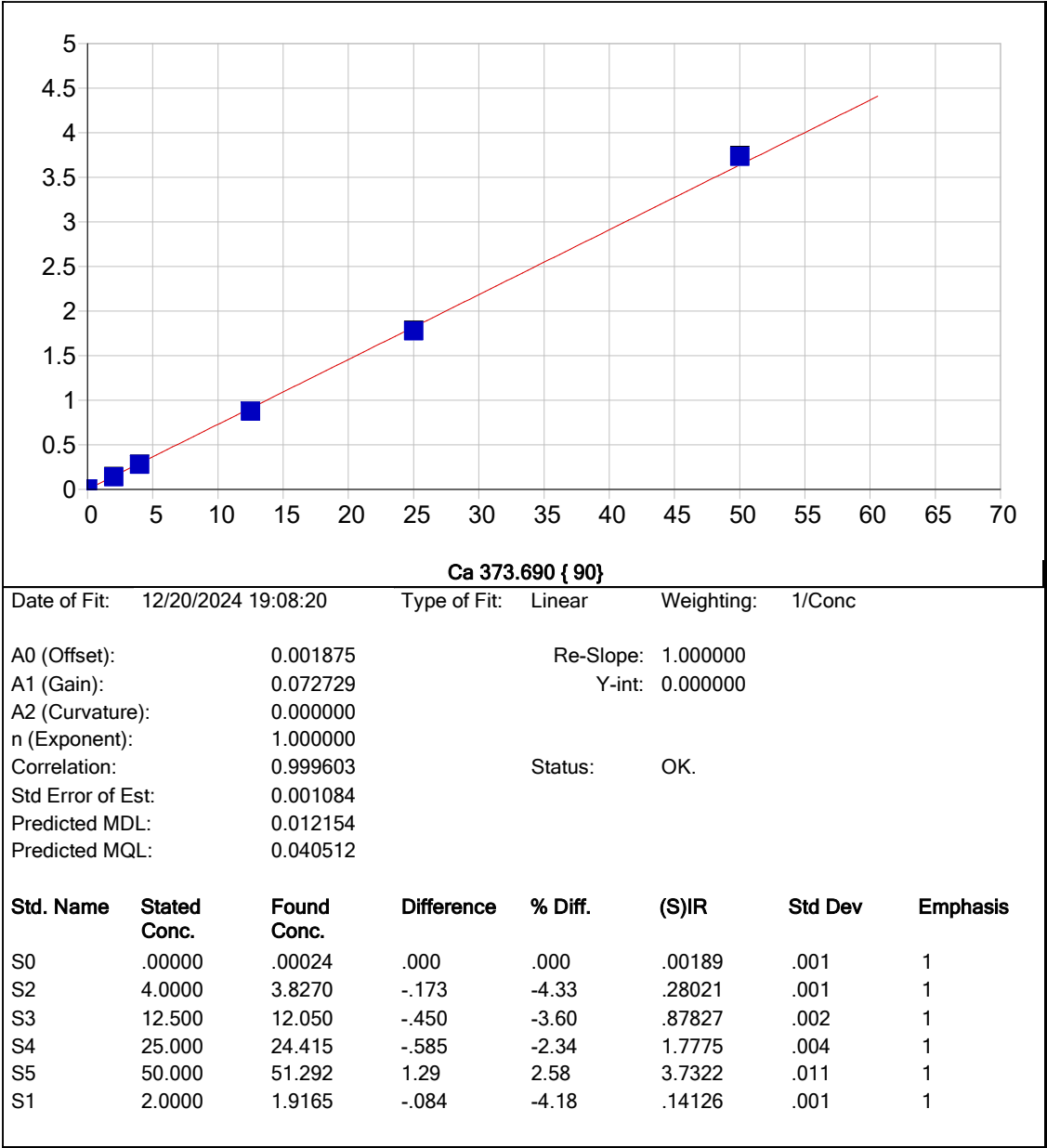


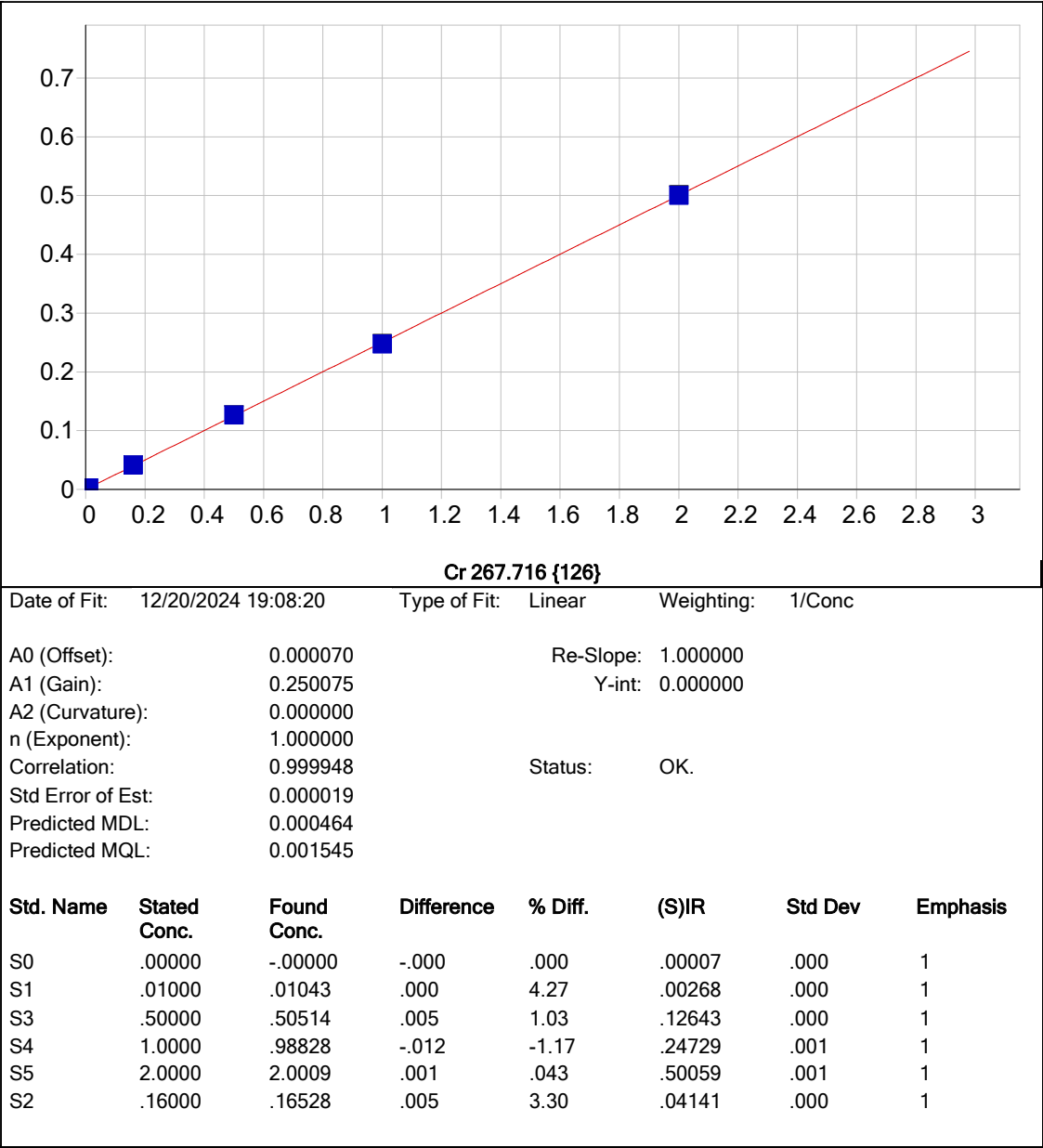


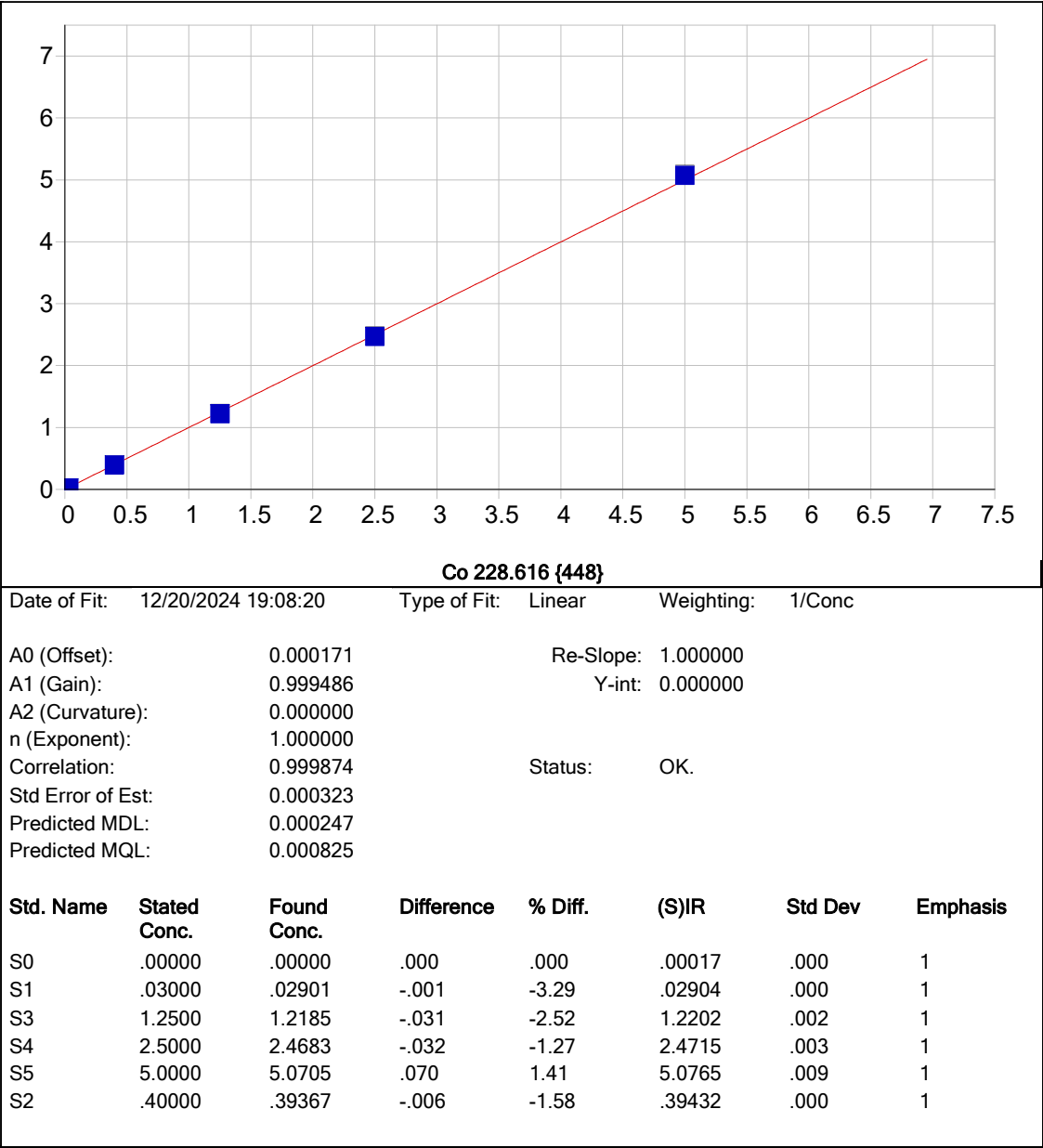


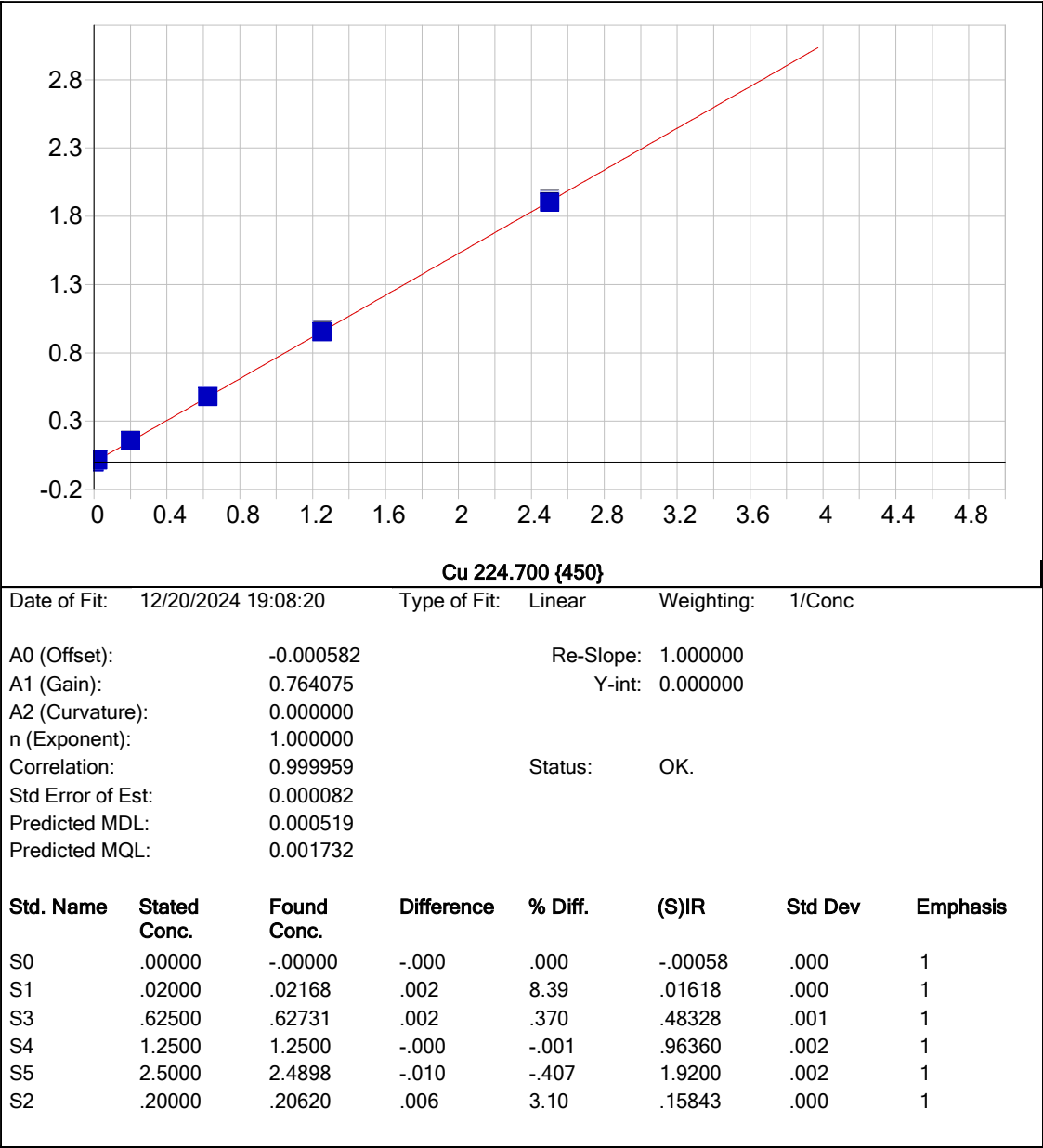


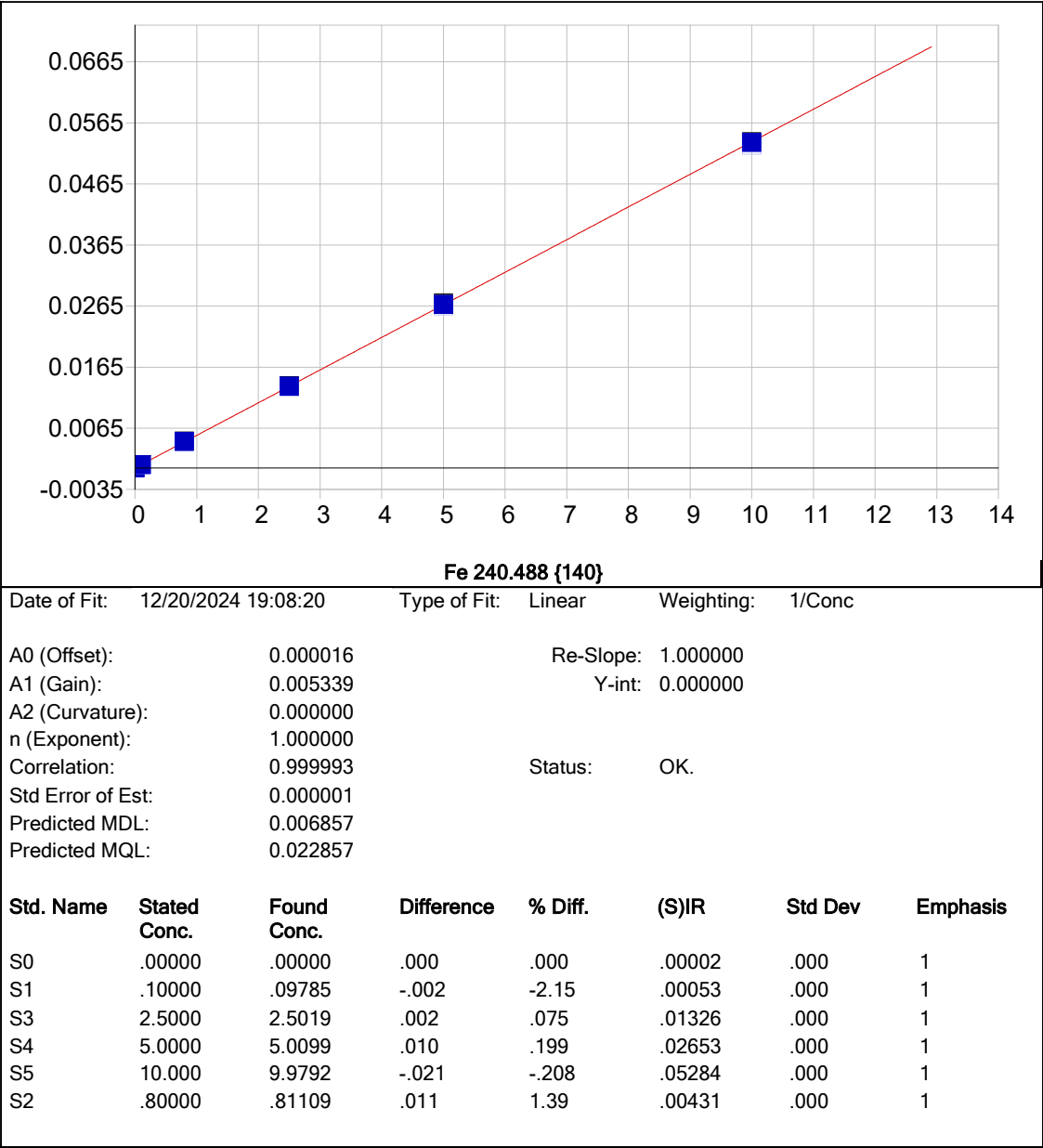


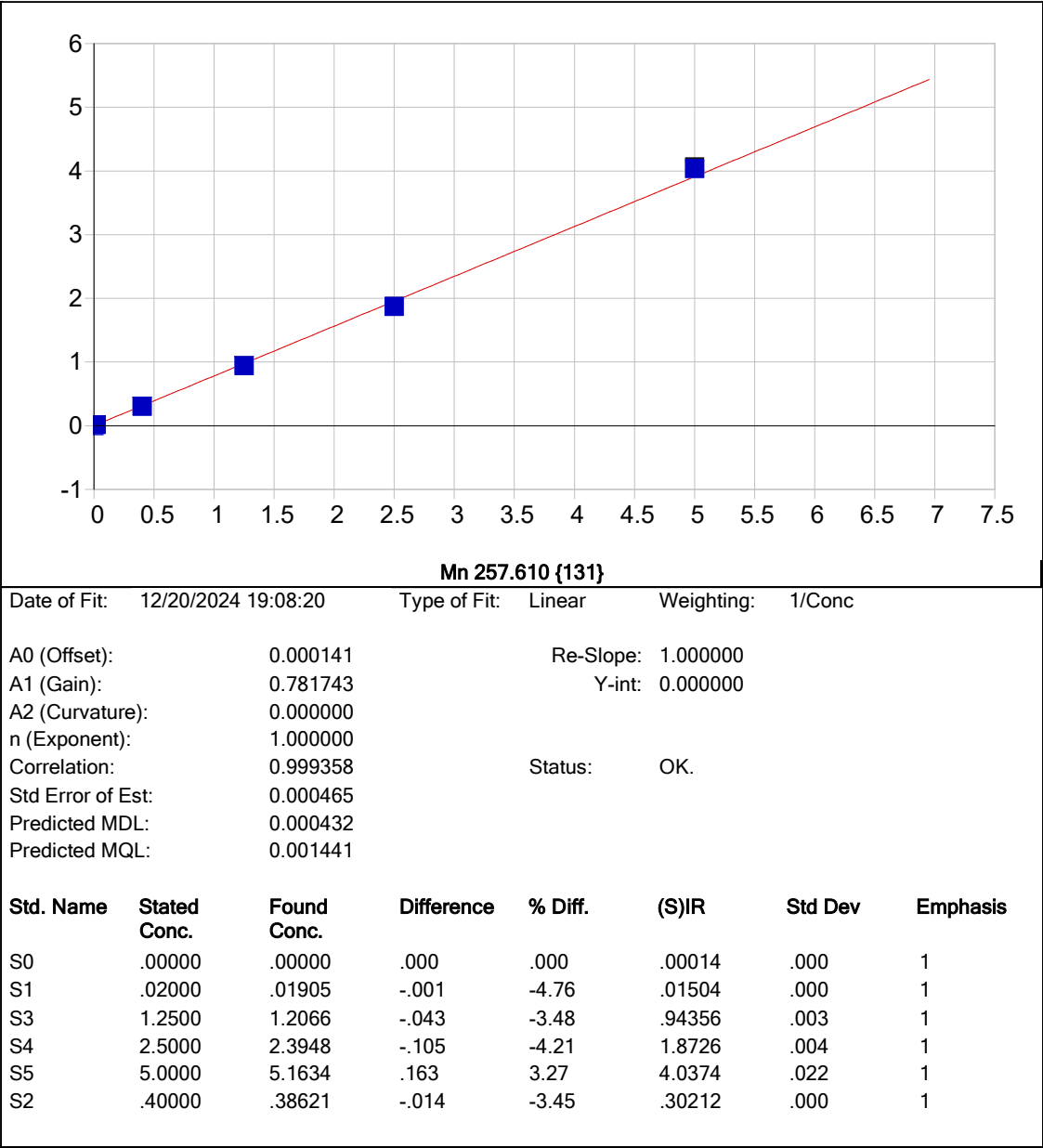


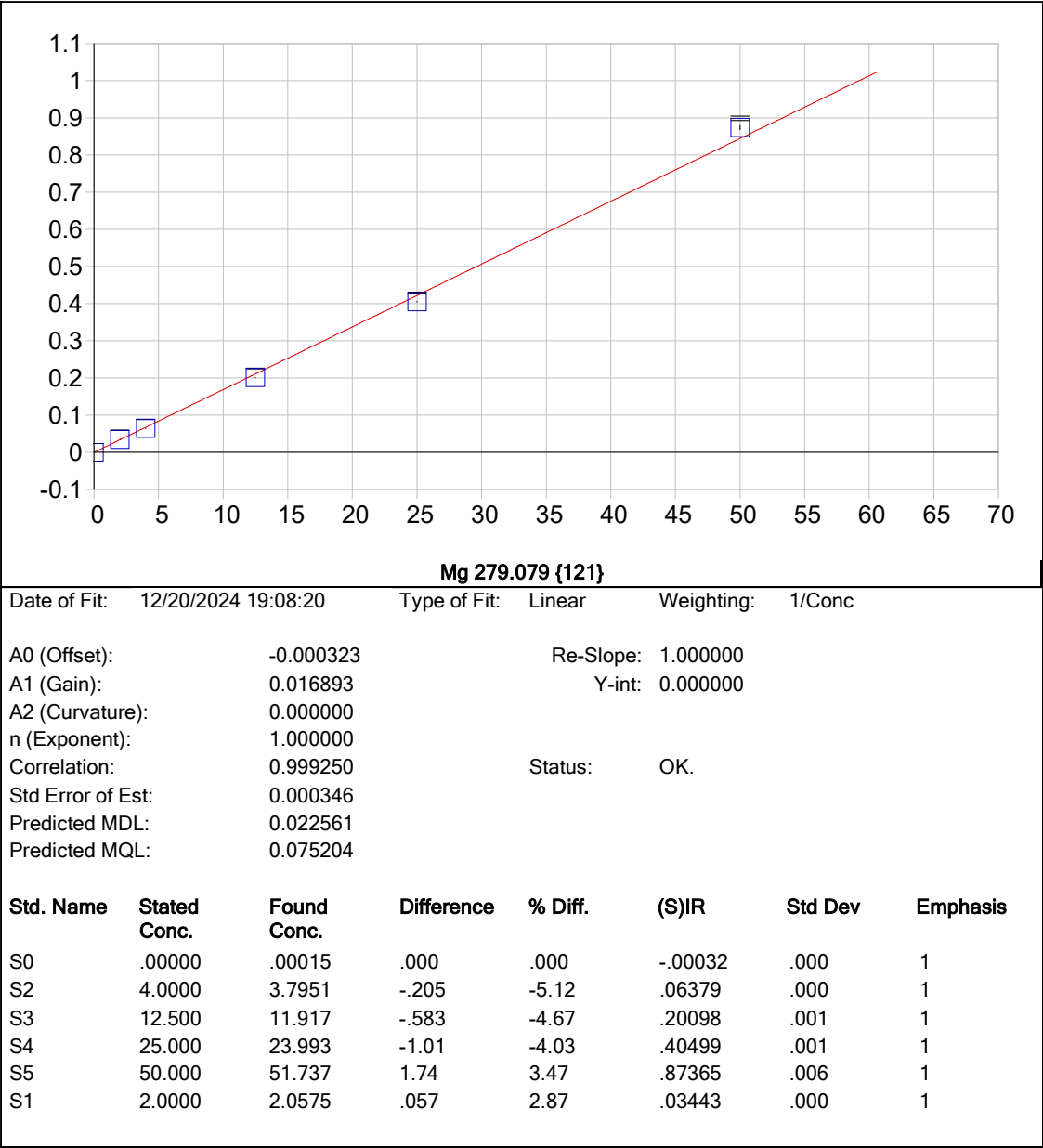


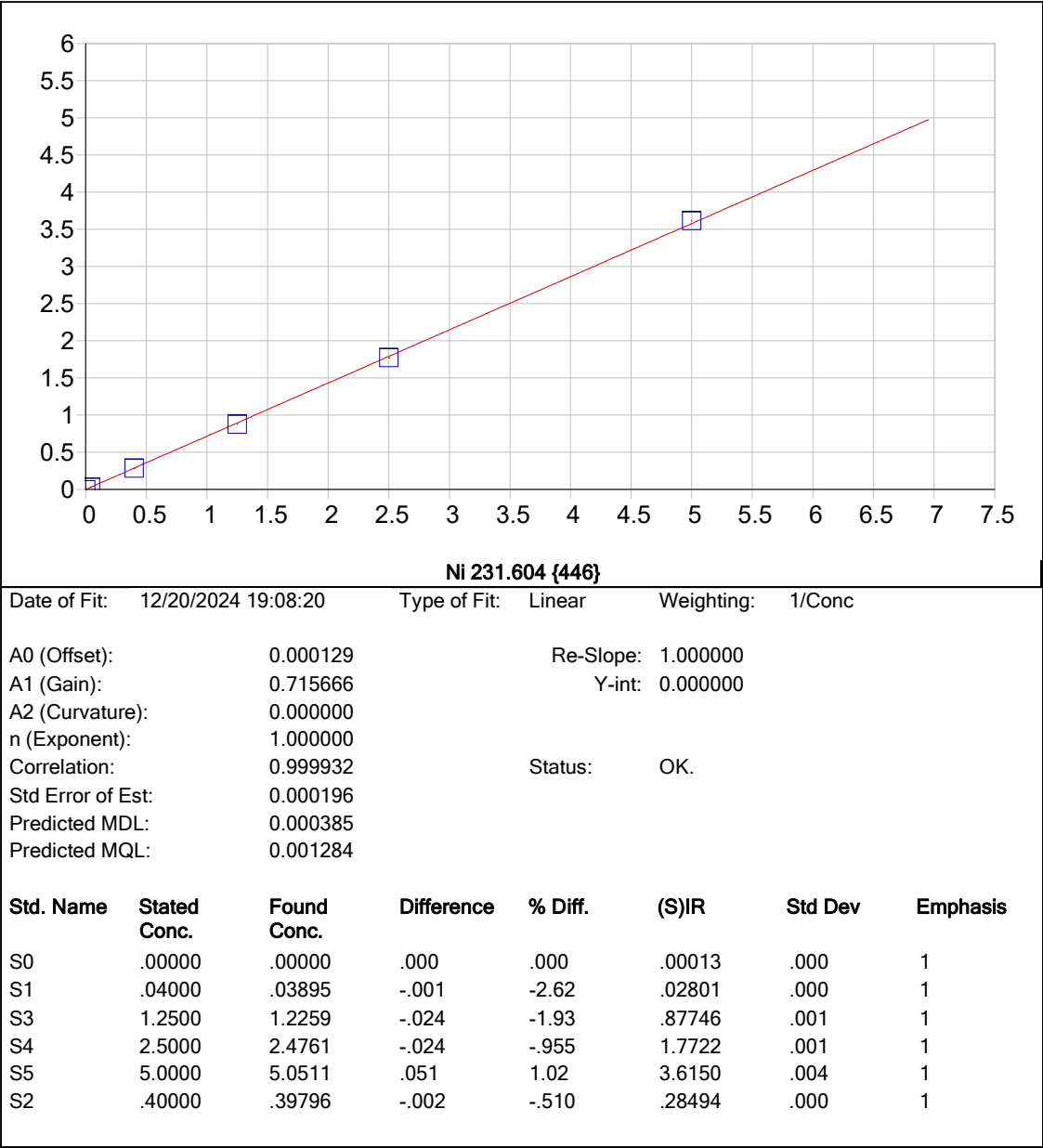


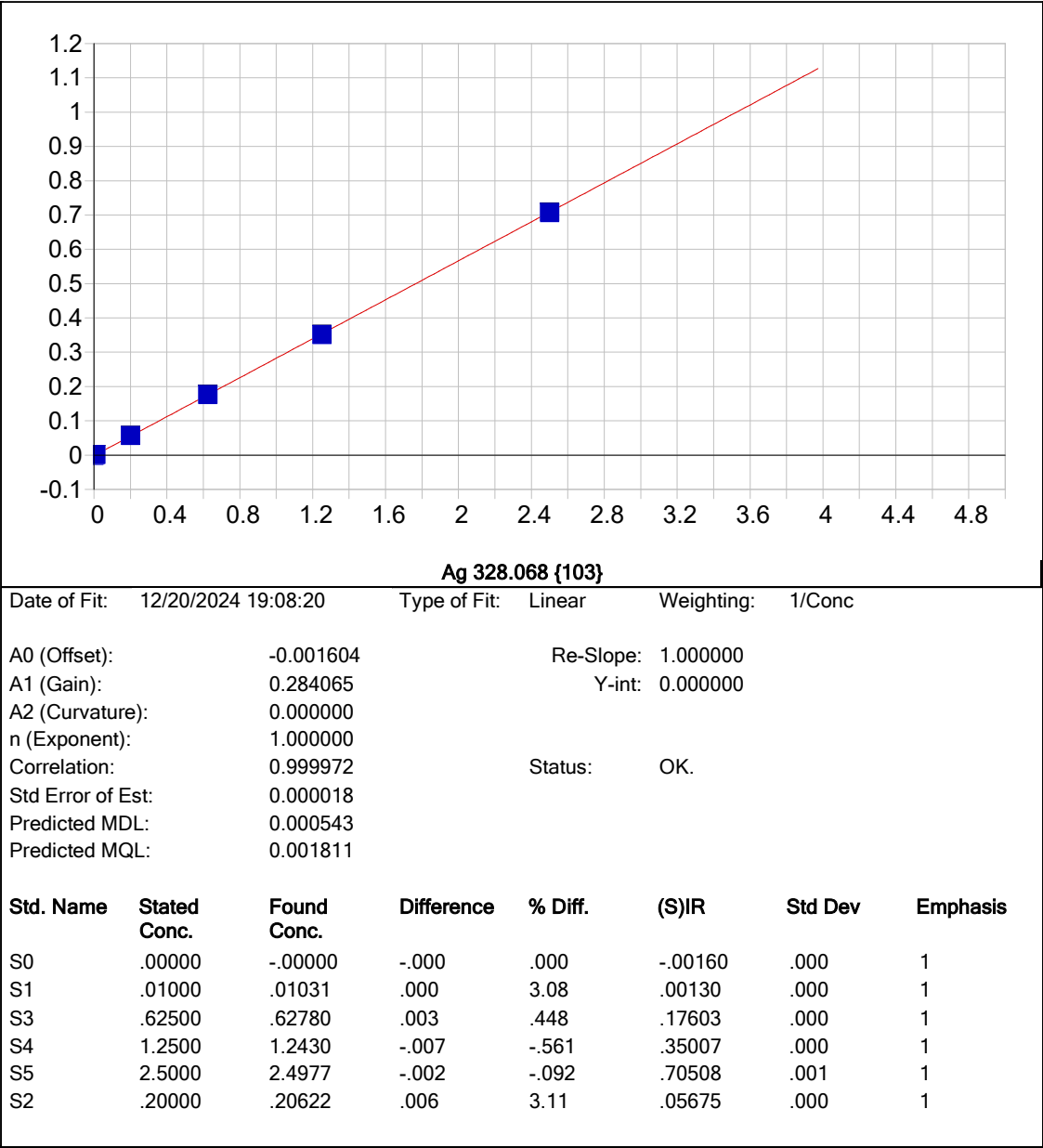


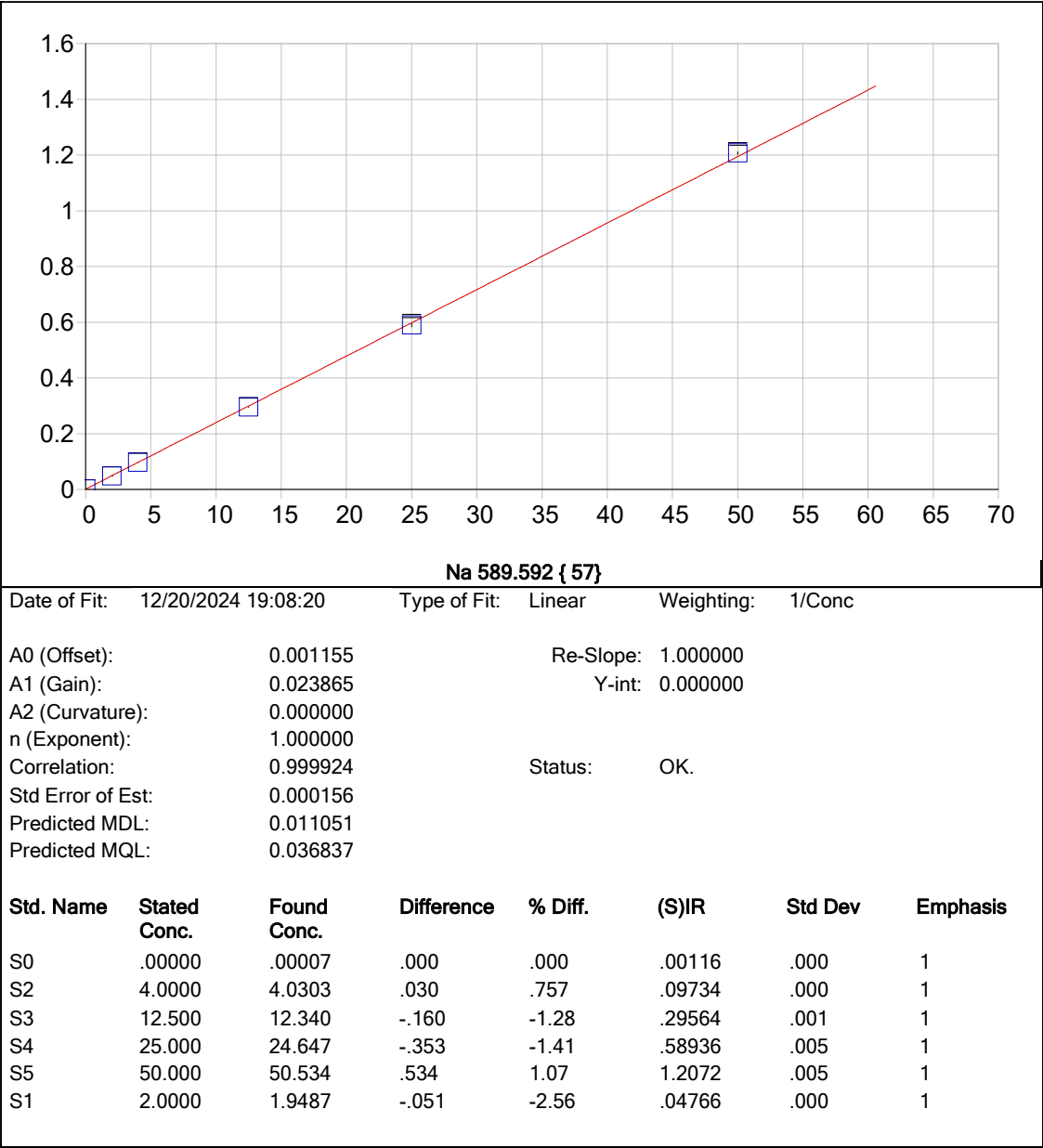


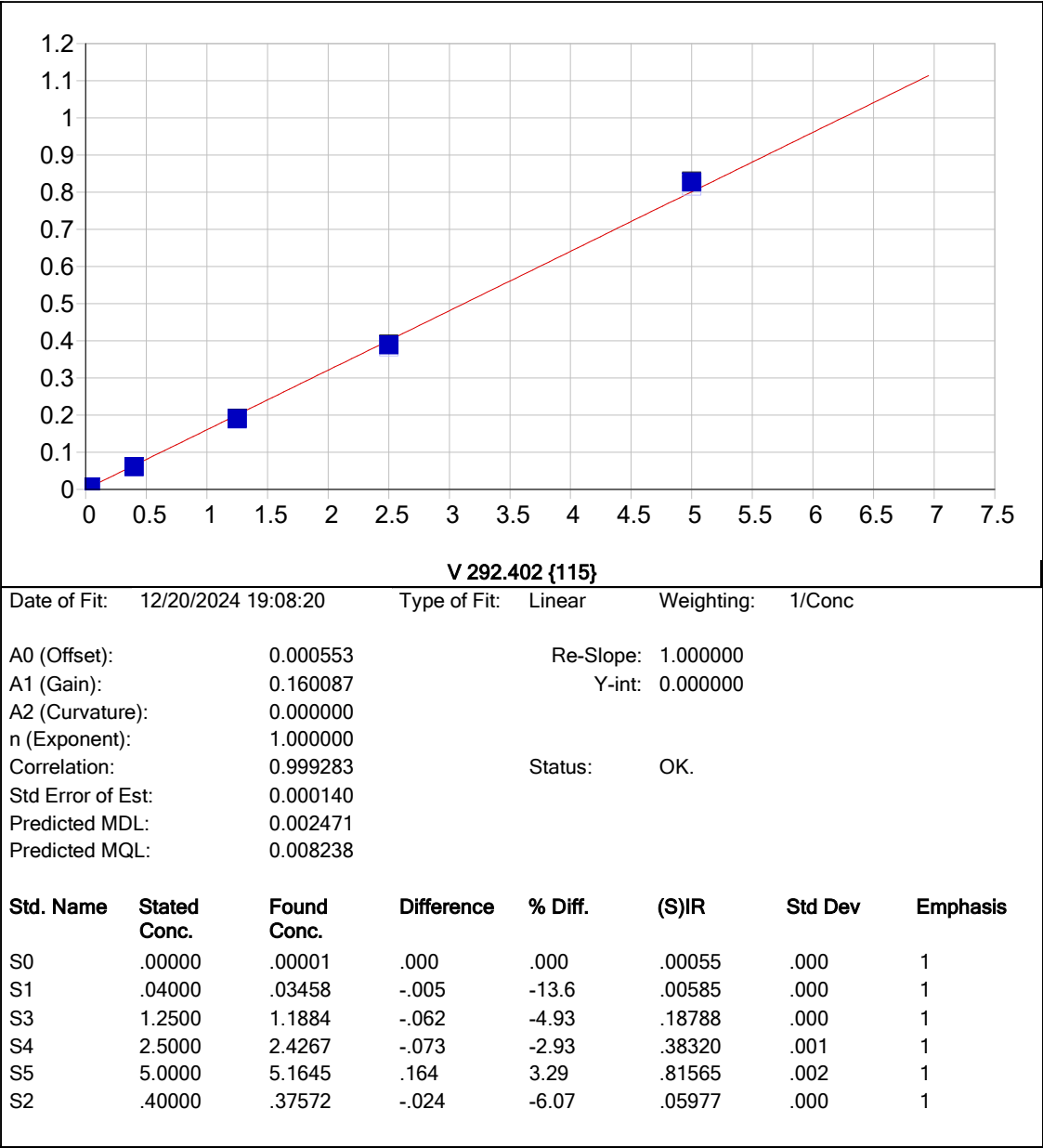


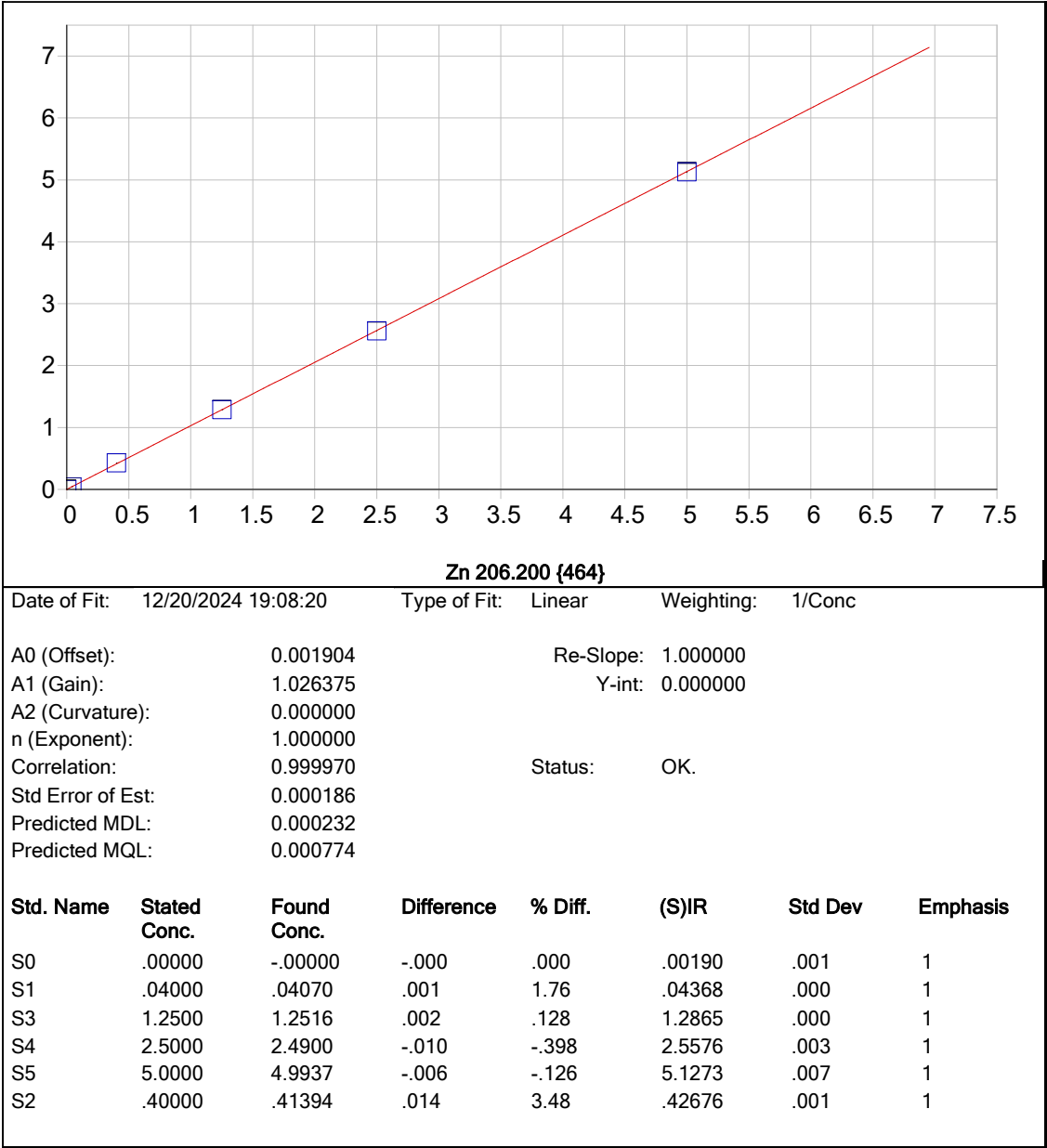


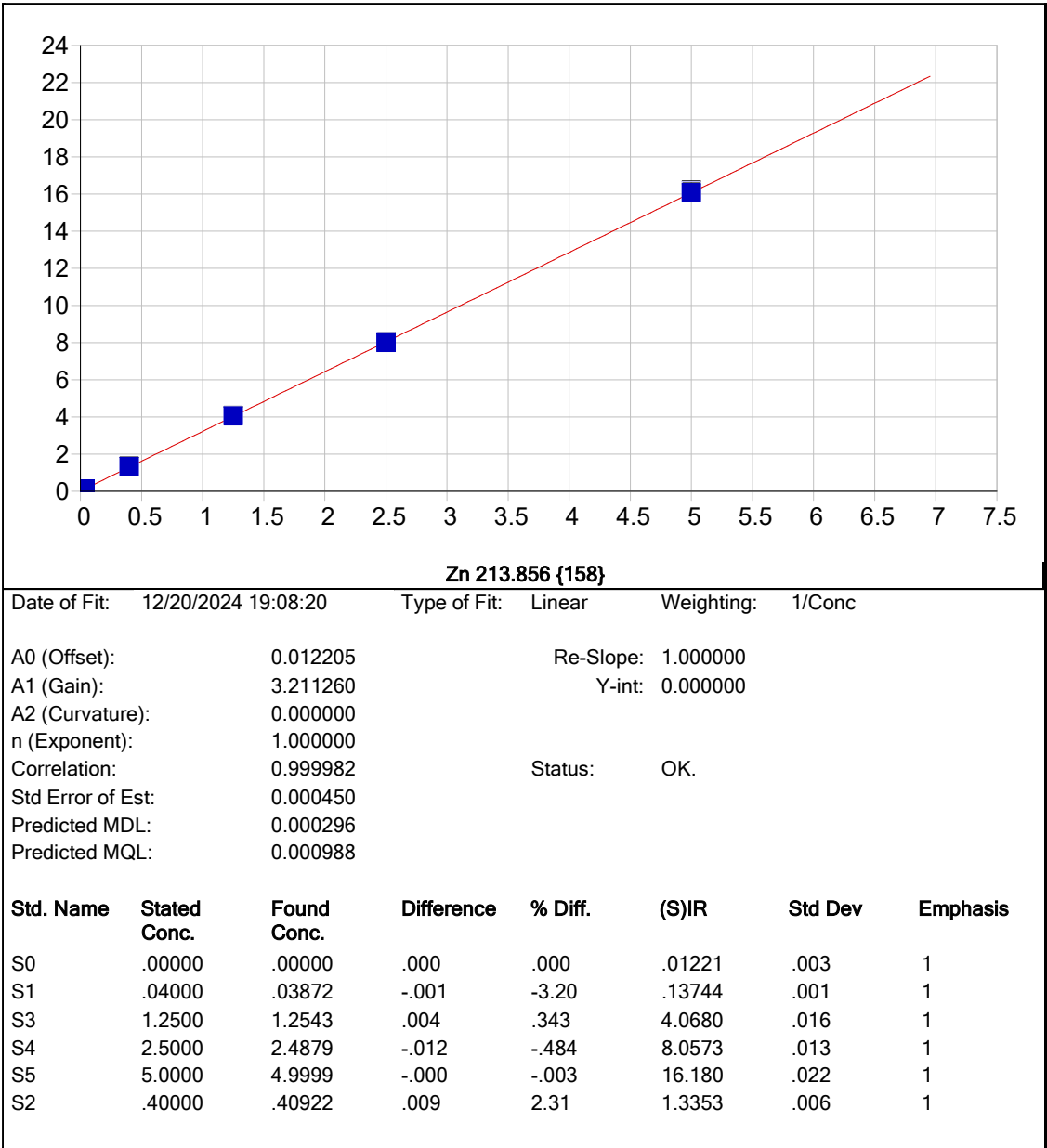


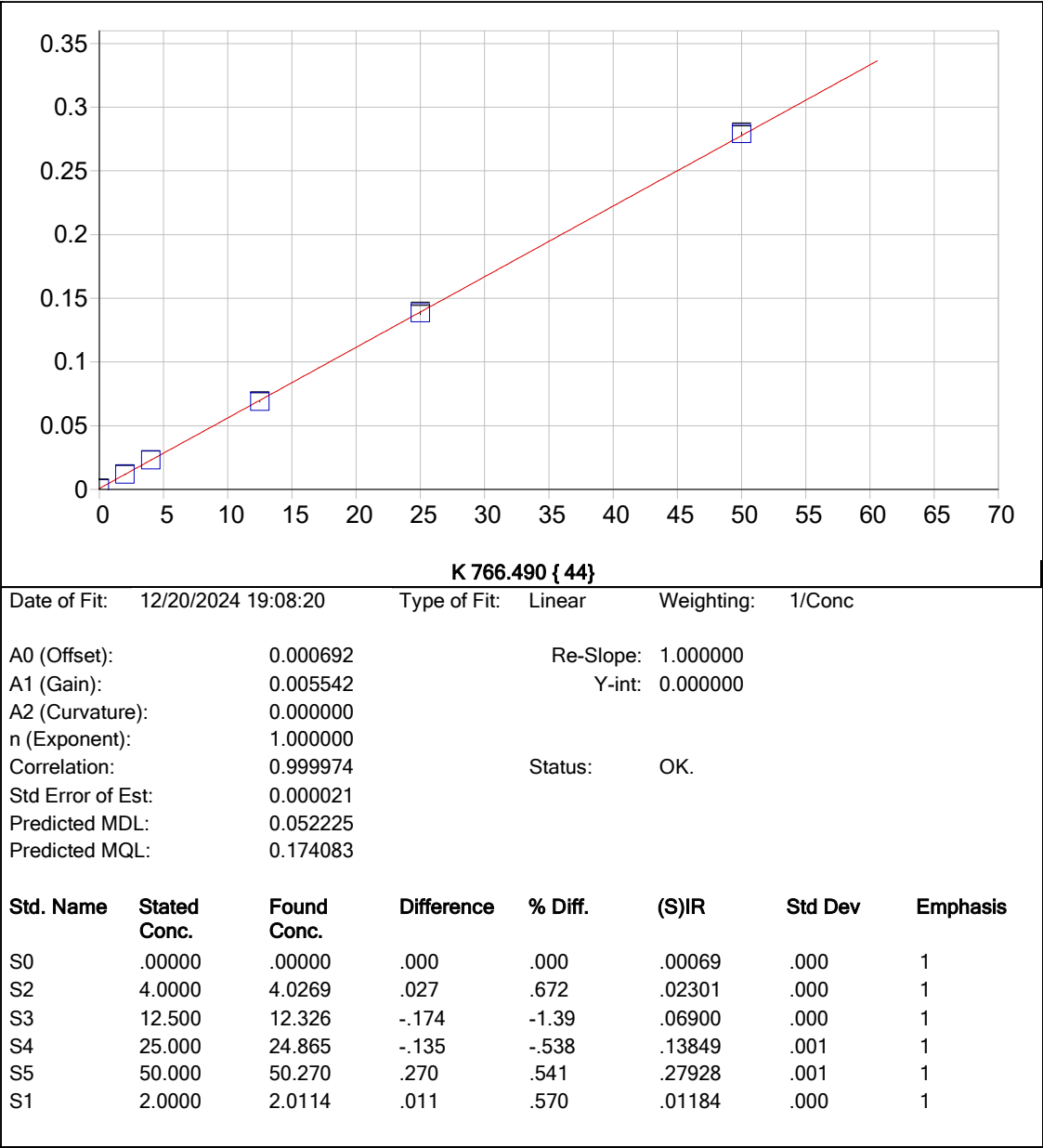


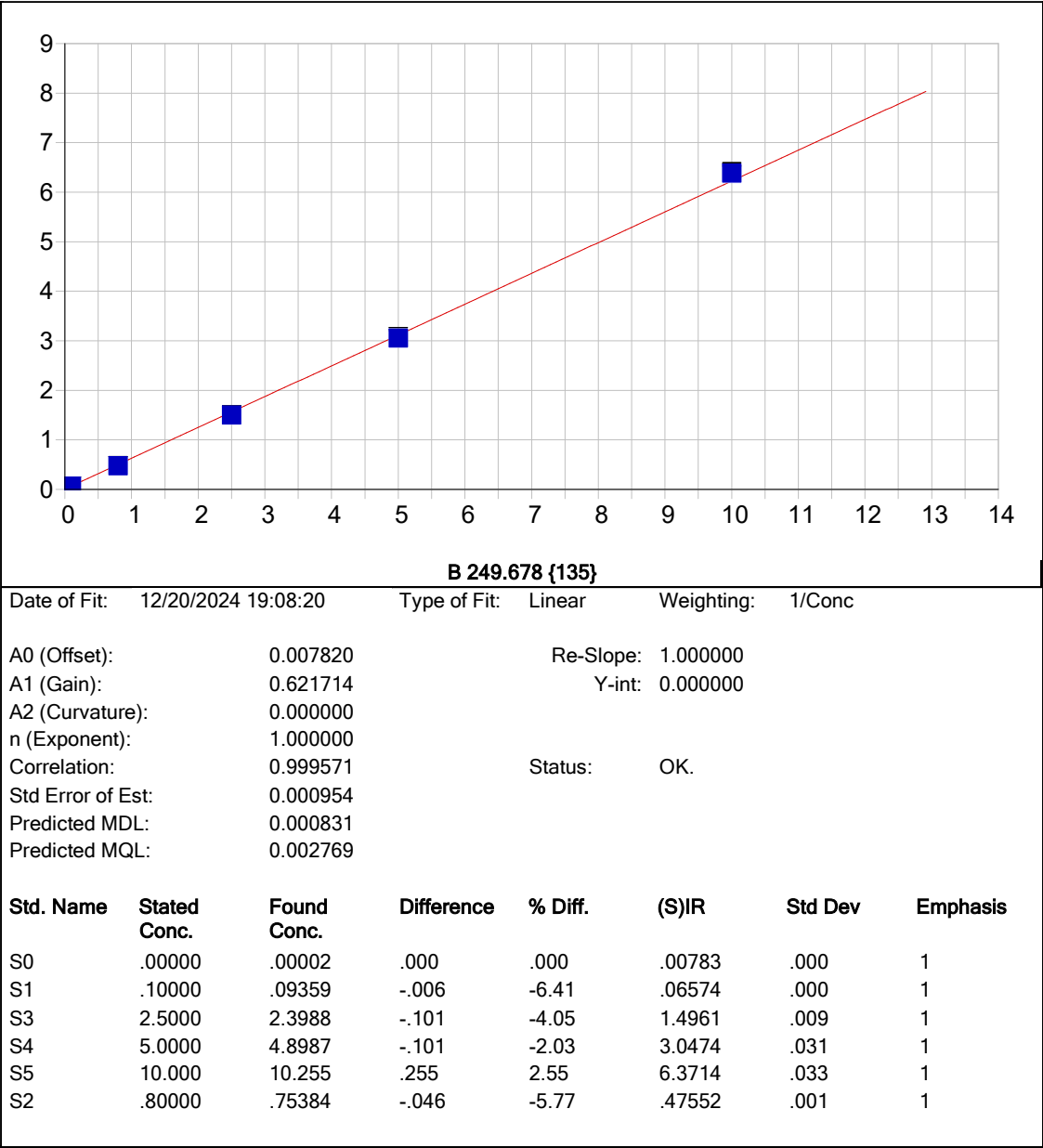


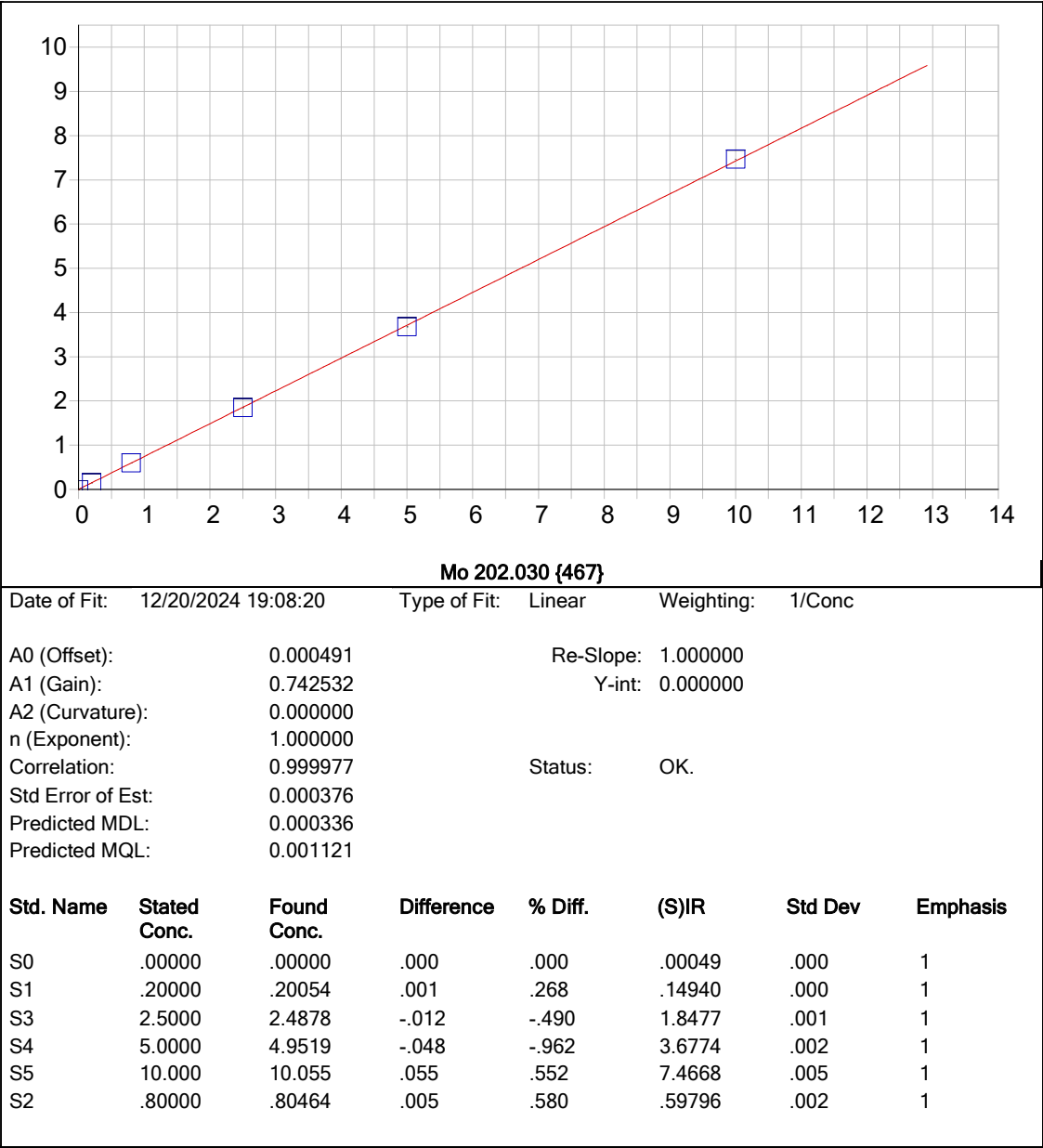


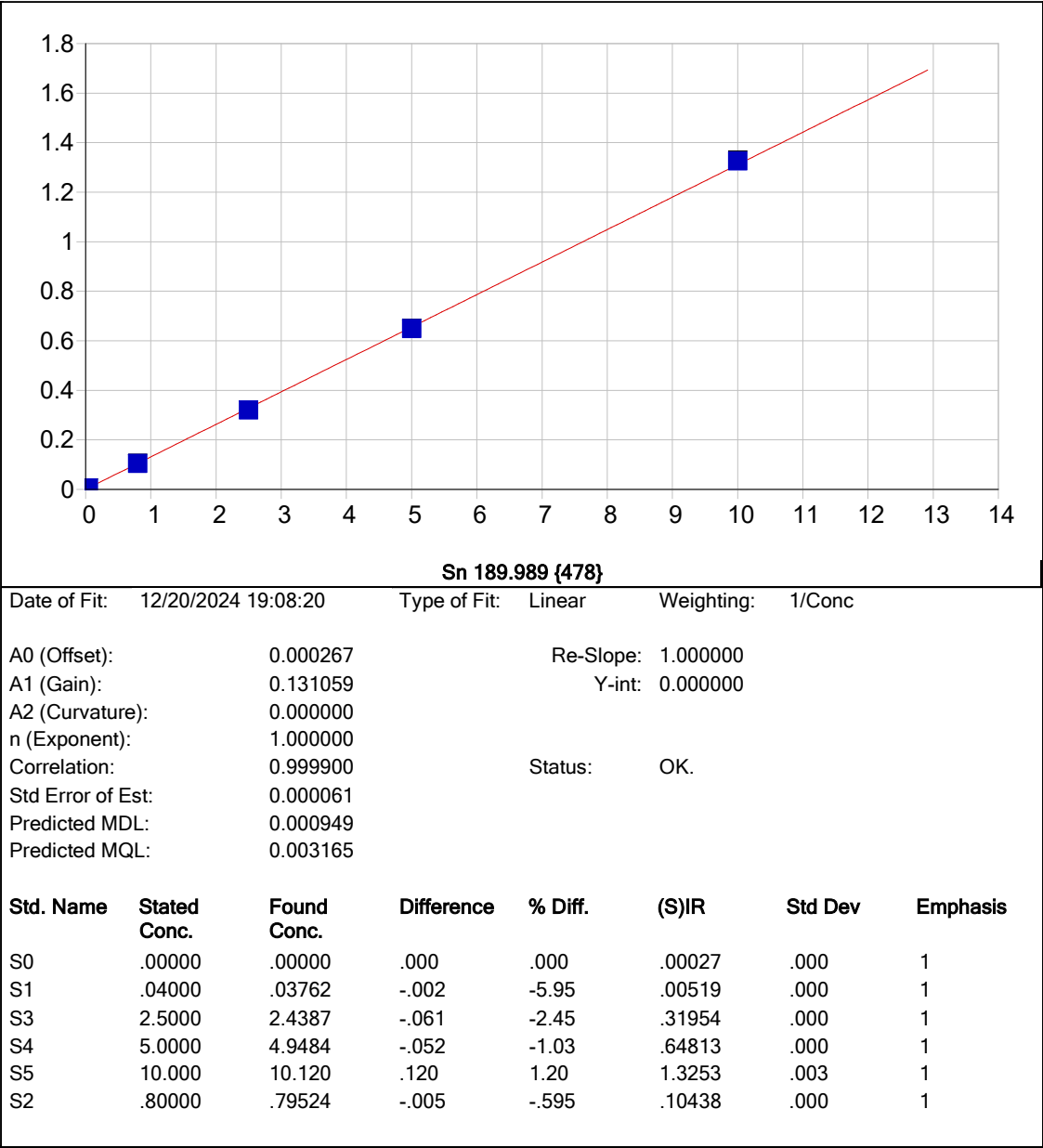


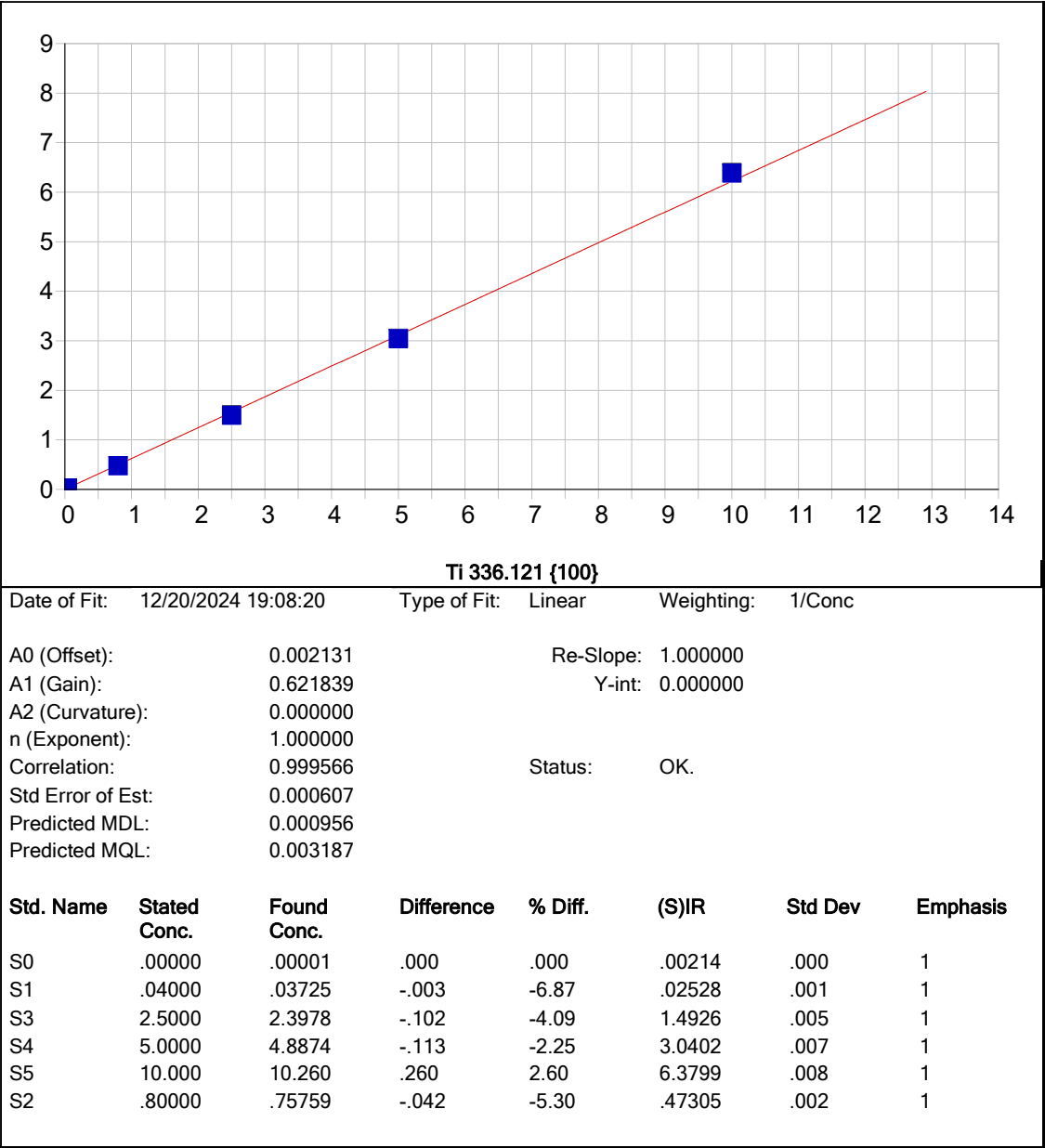


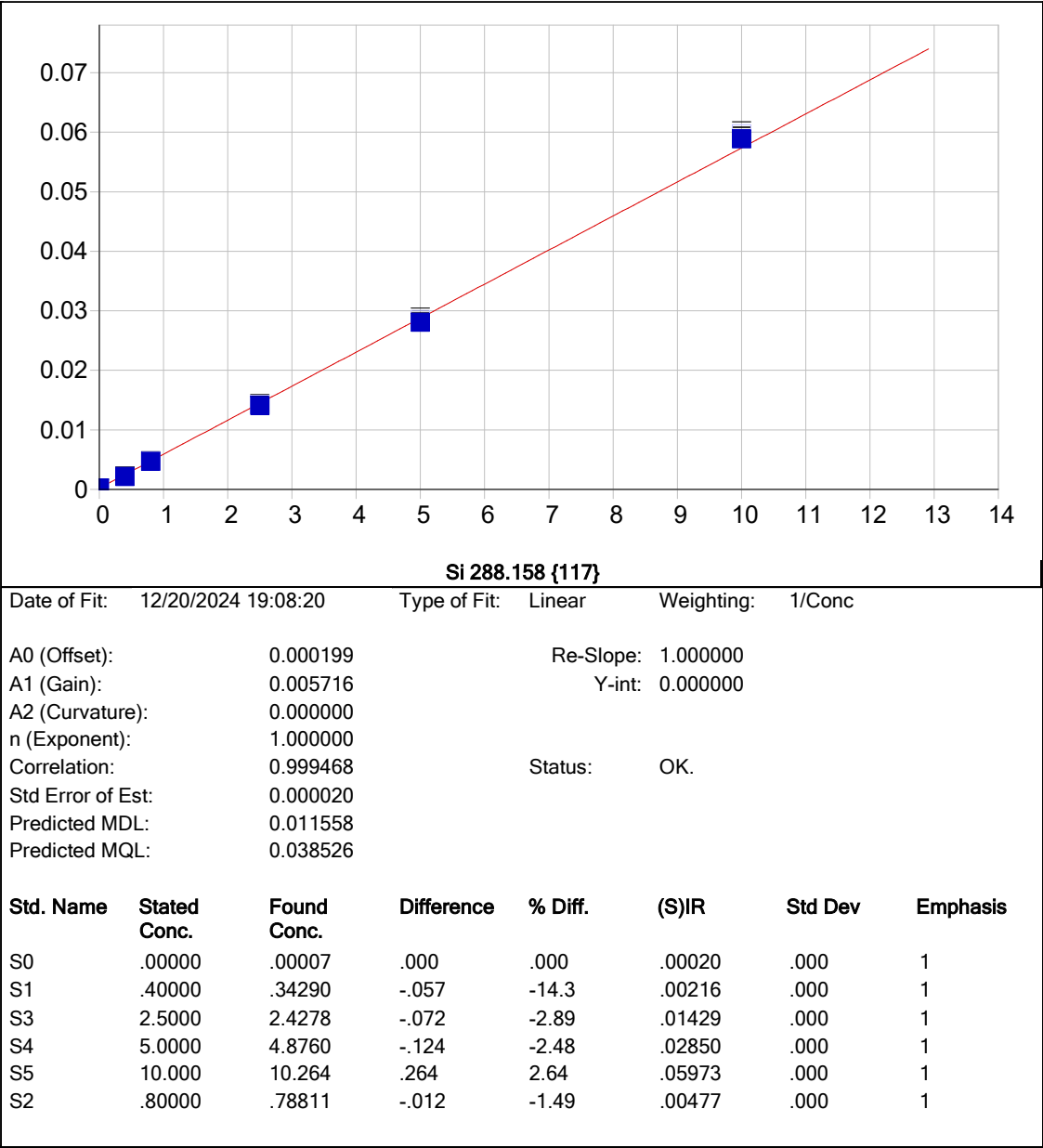


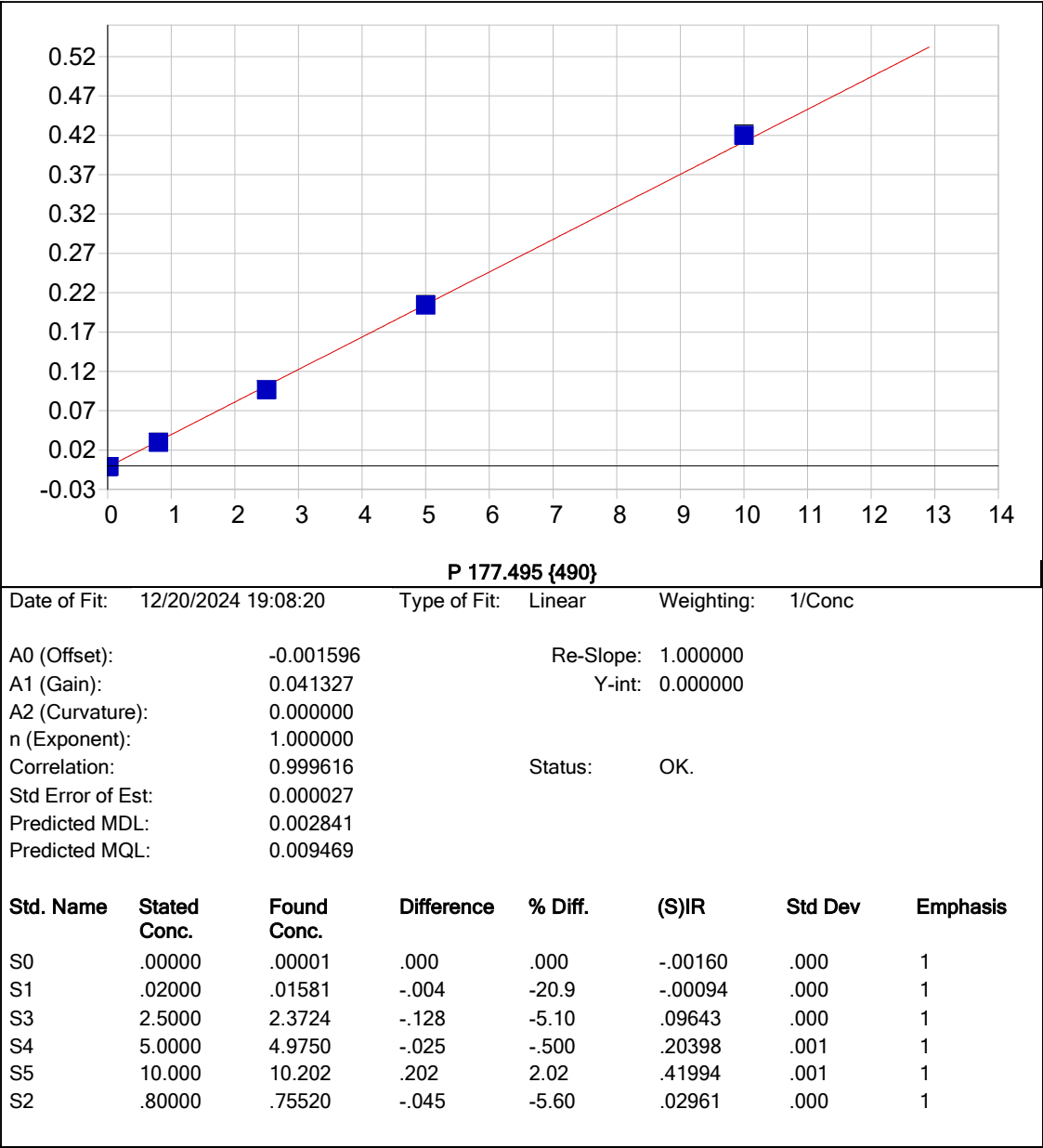


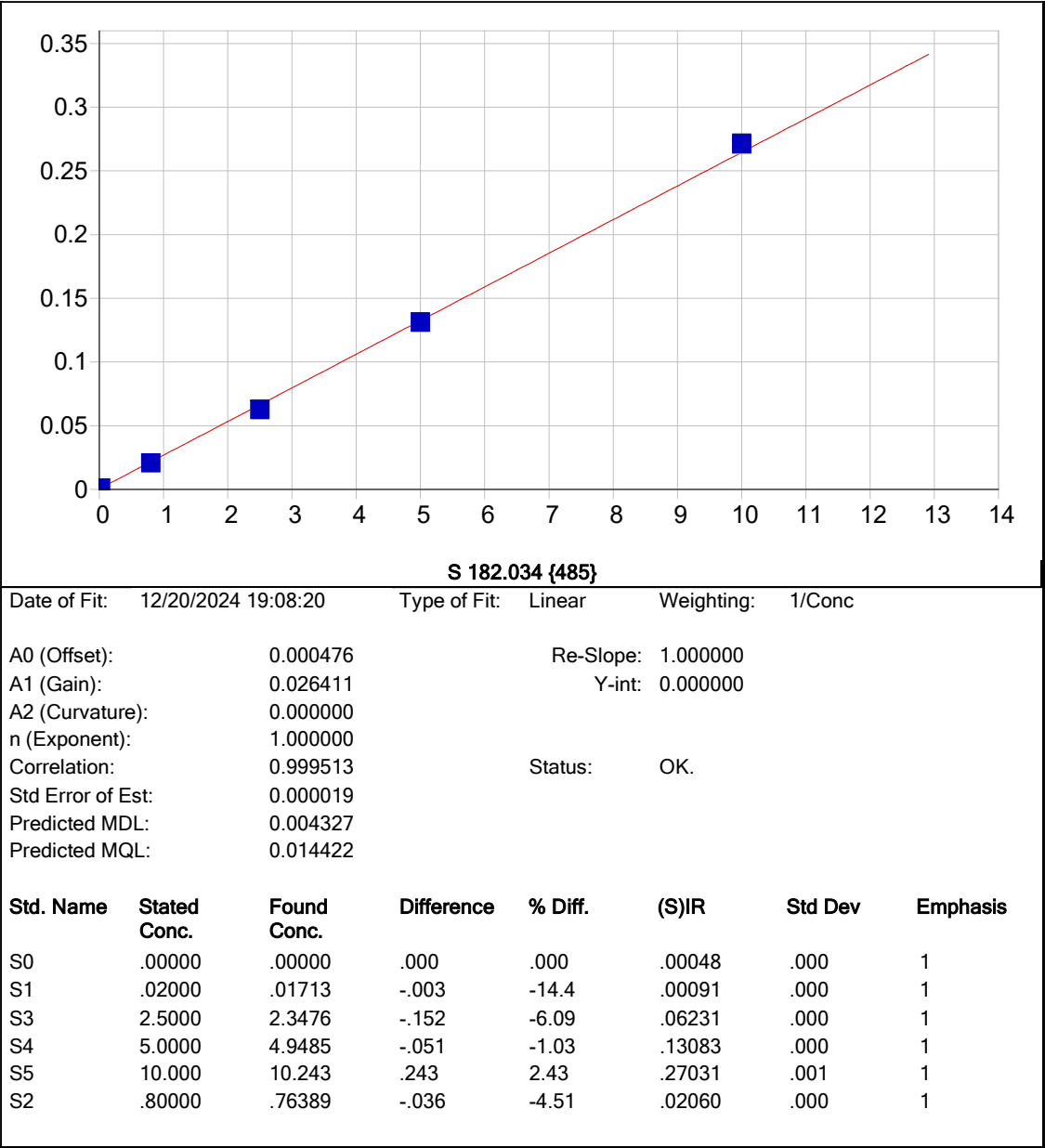


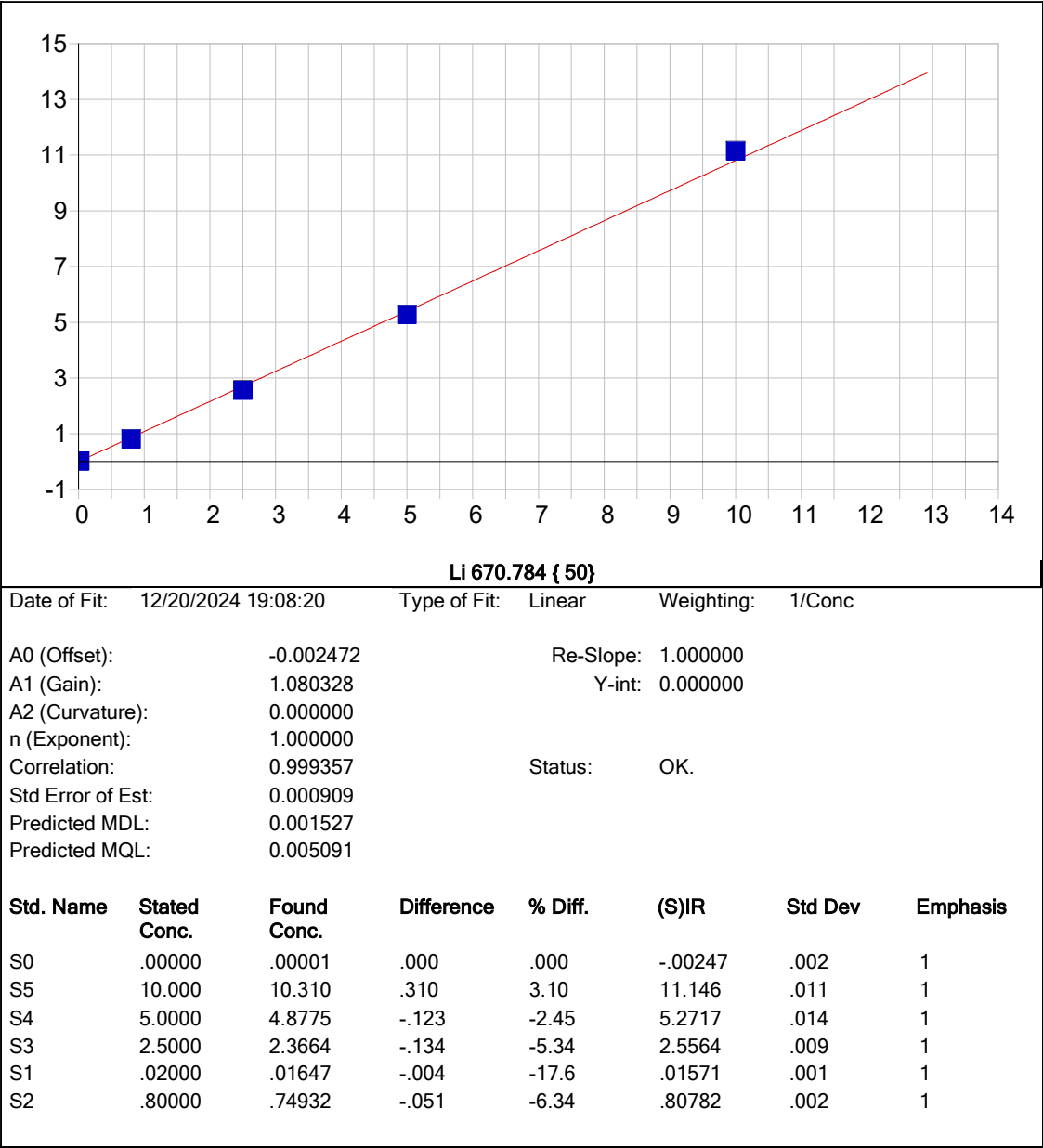


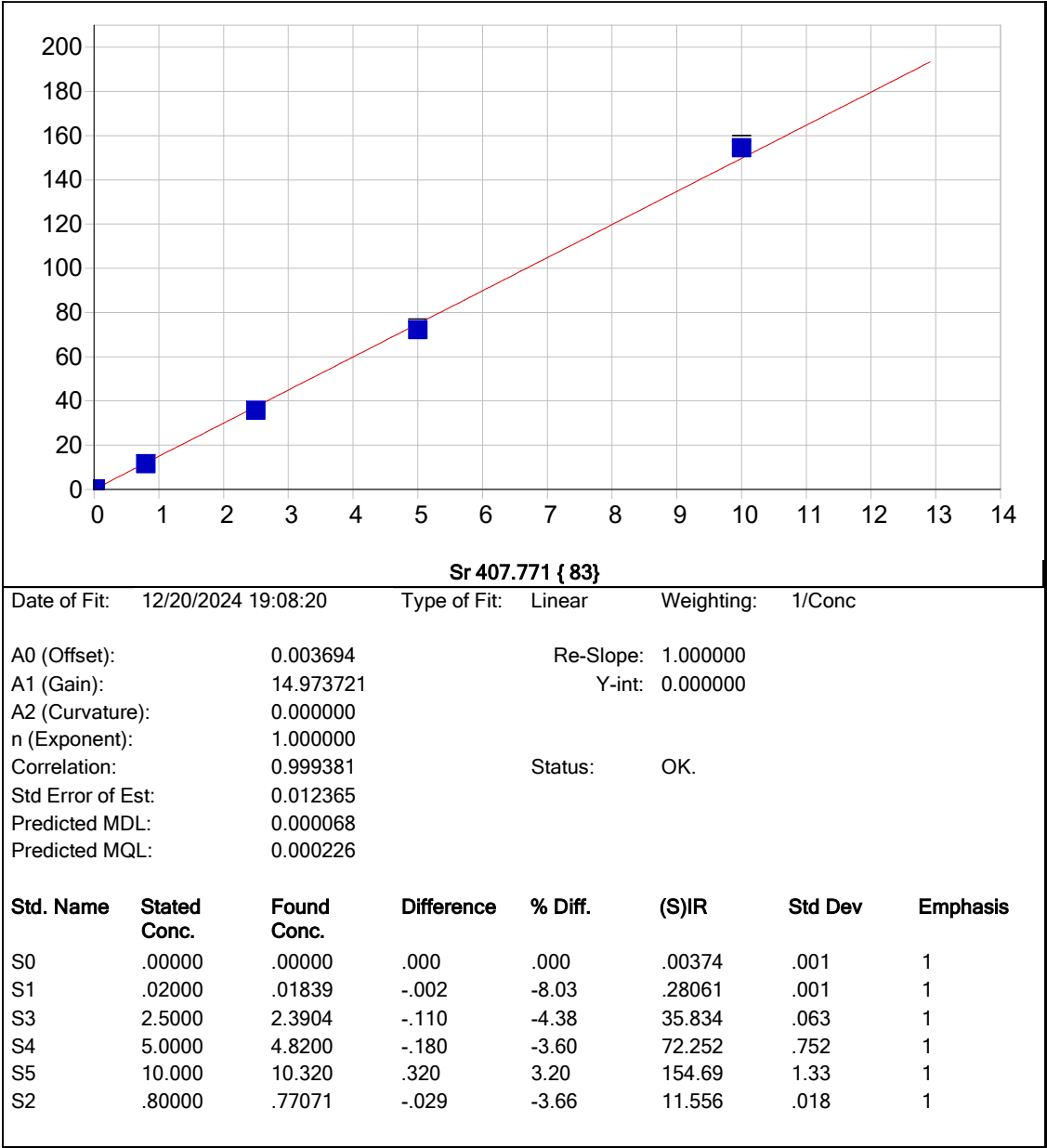


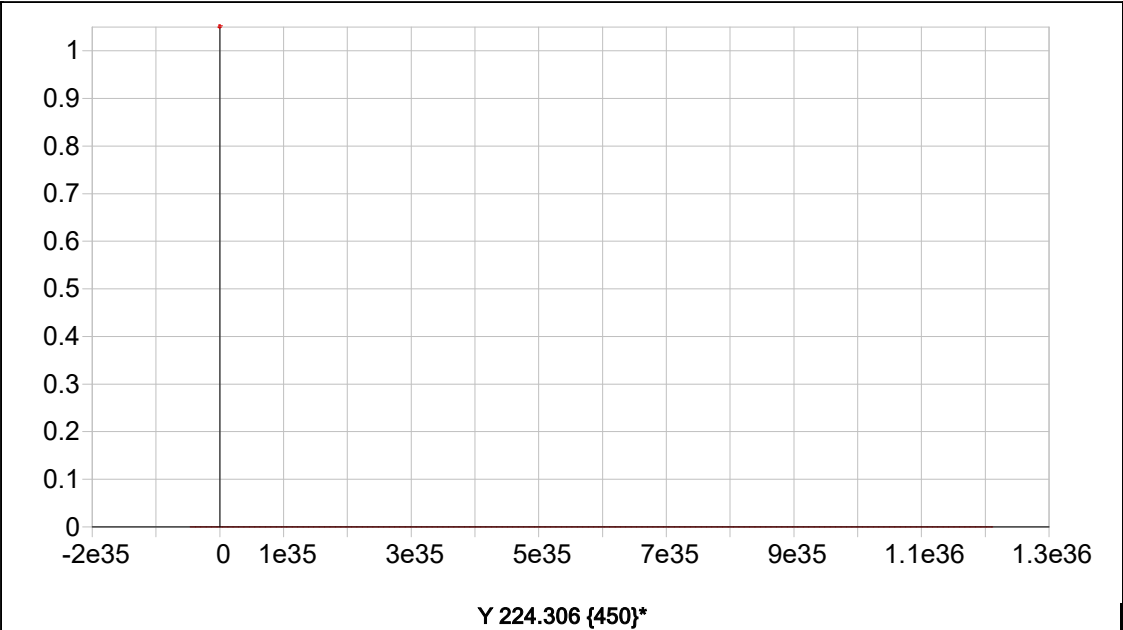








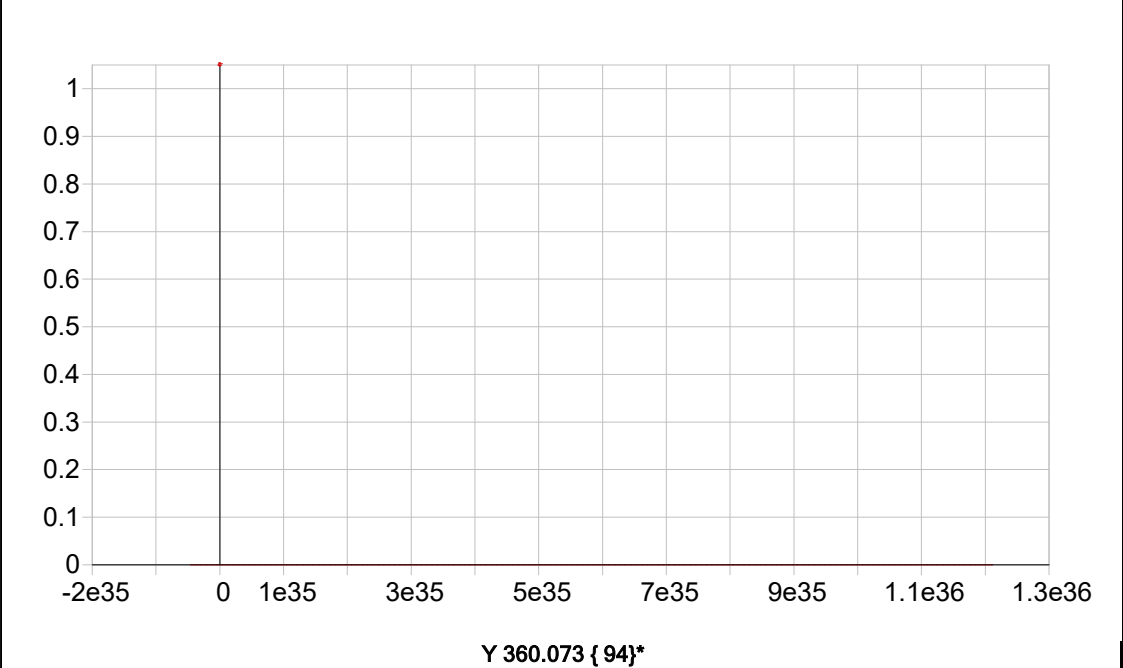




Date of Fit: 12/20/2024 19:08:20 Type of Fit: Linear Weighting: 1/Conc

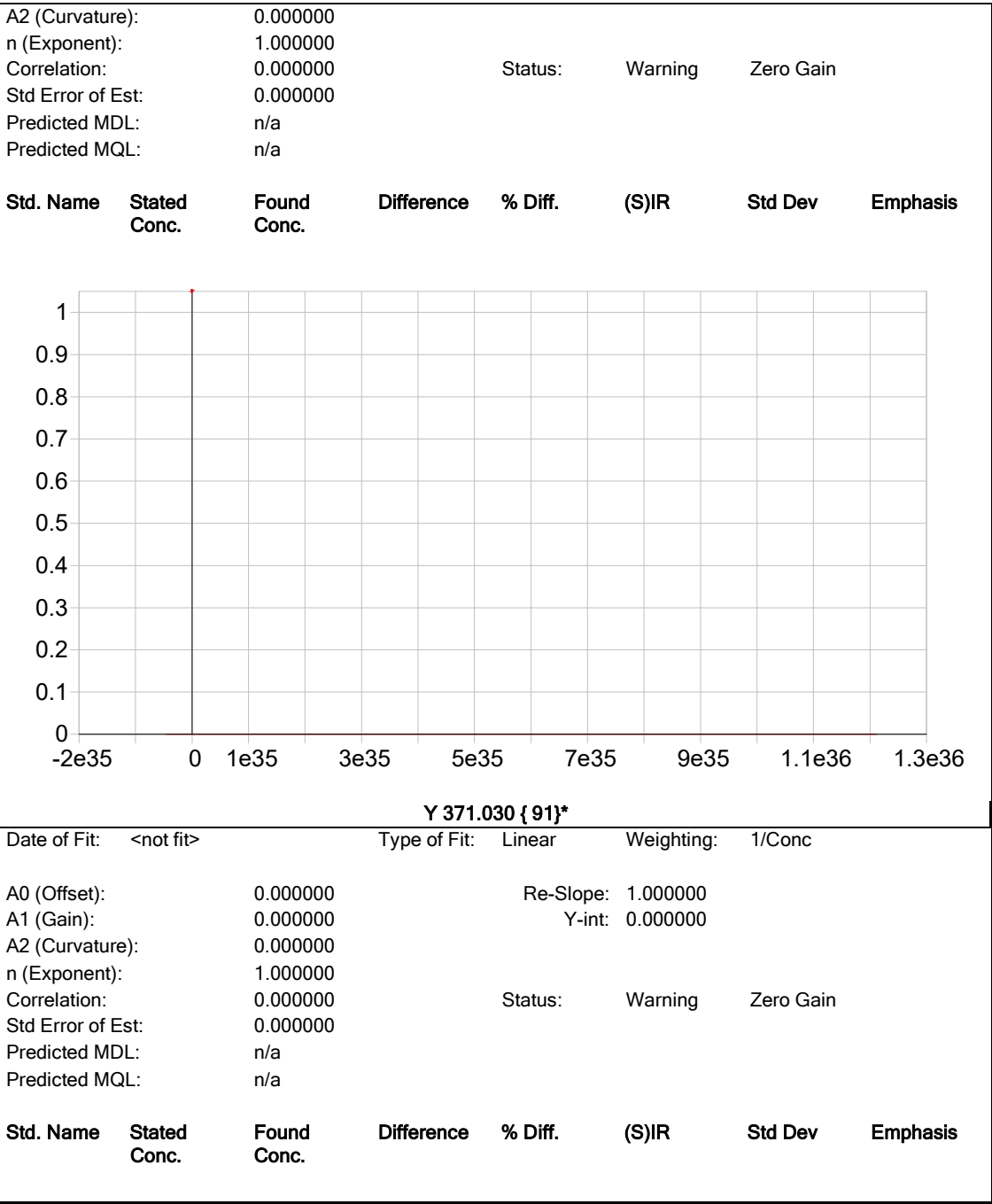
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A1 (Gain): 0.000000 Y-int: 0.000000
A2 (Curvature): 0.000000
n (Exponent): 1.000000
Correlation: 0.000000 Status: Warning Zero Gain
Std Error of Est: 0.000000
Predicted MDL: n/a
Predicted MQL: n/a

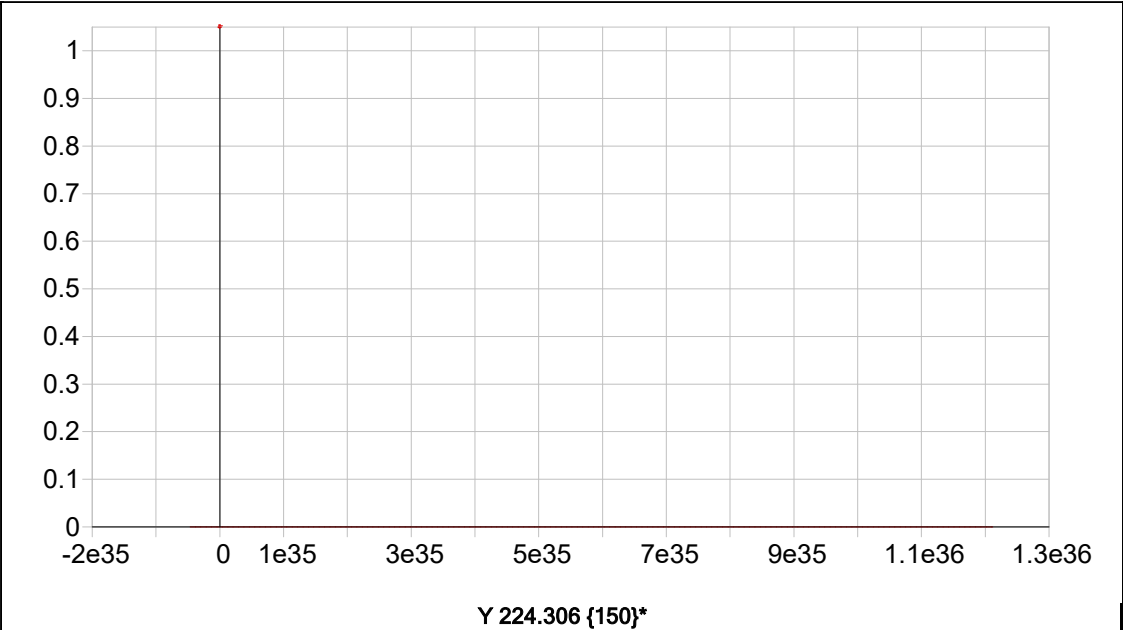
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
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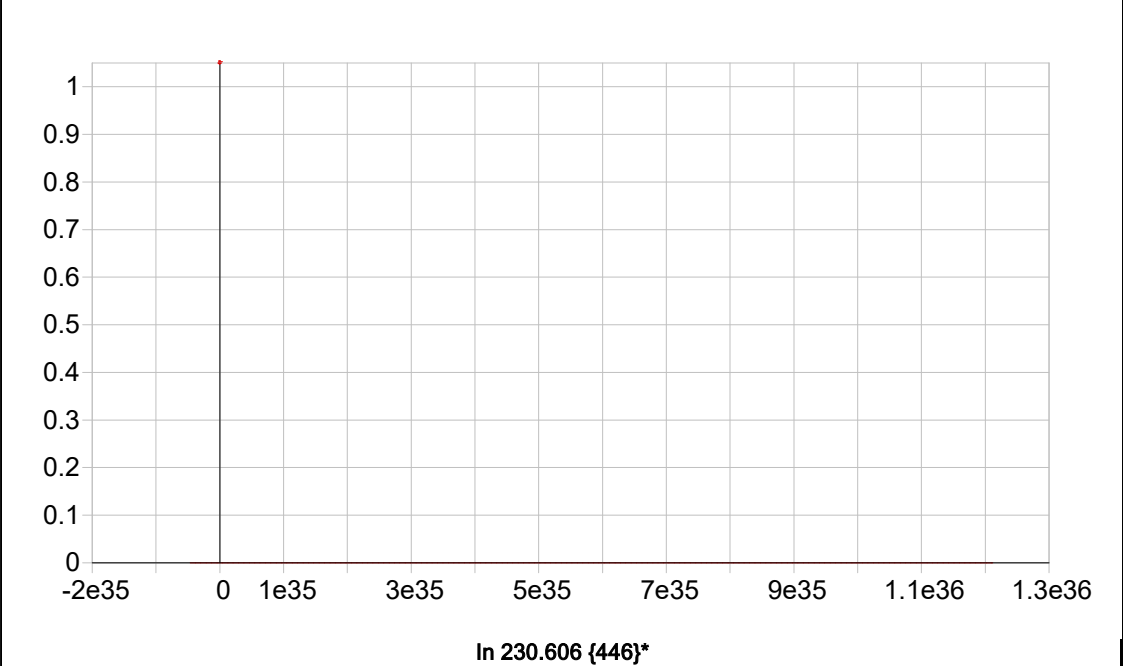
Date of Fit: <not fit> Type of Fit: Linear Weighting: 1/Conc

A0 (Offset): 0.000000 Re-Slope: 1.000000
A1 (Gain): 0.000000 Y-int: 0.000000





Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis
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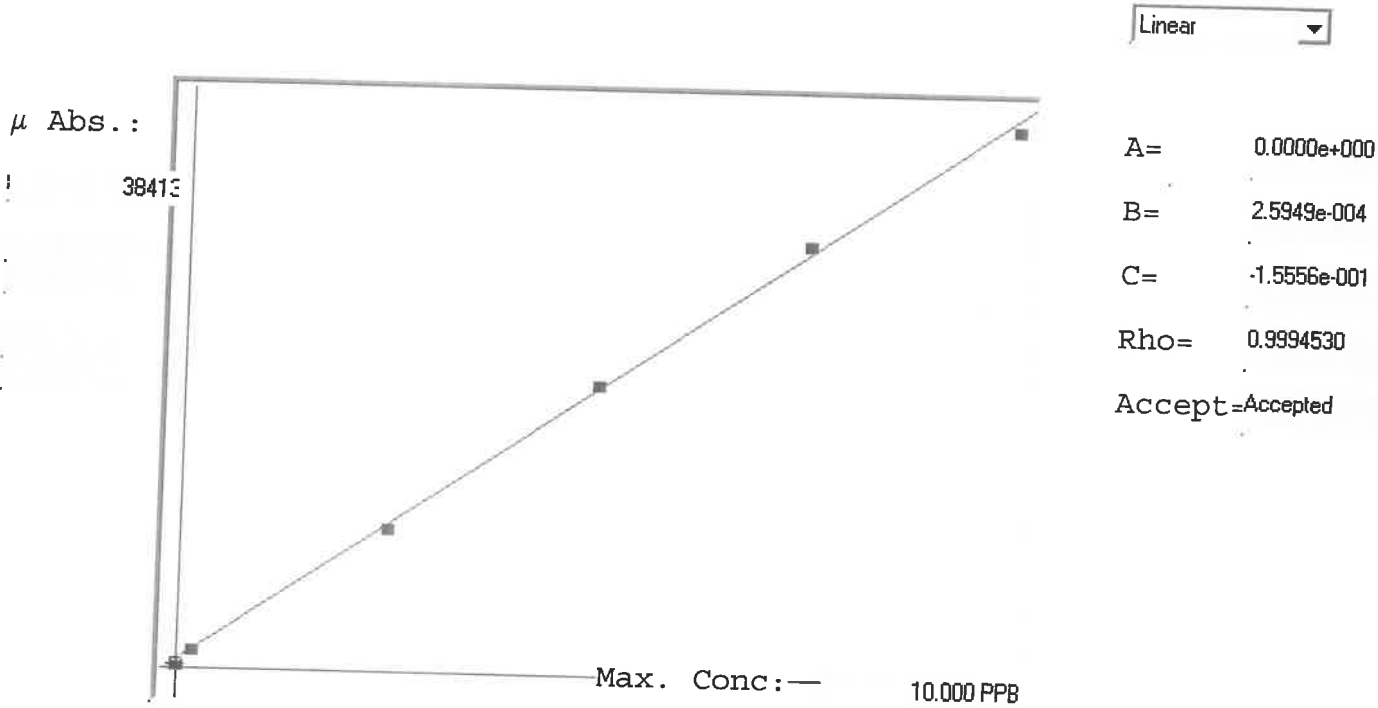
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A1 (Gain):	0.000000	Y-int:	0.000000

A2 (Curvature):		0.000000		Status:	Warning	Zero Gain	
n (Exponent):		1.000000					
Correlation:		0.000000					
Std Error of Est:		0.000000					
Predicted MDL:		n/a					
Predicted MQL:		n/a					
Std. Name	Stated Conc.	Found Conc.	Difference	% Diff.	(S)IR	Std Dev	Emphasis

LB134010

7470A

INSTRUMENT ID: CV1



Std ID	Conc.	Calc.	Dev.	Mean	SD or %RSD	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5	%D
0.0	0.000	-0.067	-0.067	340	0.000	340	0				0.00
0.2	0.200	0.216	0.016	1432	0.0 %	1432					1
2.5	2.500	2.442	-0.058	10011	0.0 %	10011					8
5.0	5.000	5.119	0.119	20326	0.0 %	20326					-2
7.5	7.500	7.678	0.178	30190	0.0 %	30190					2
10.0	10.000	9.812	-0.188	38413	0.0 %	38413					2

LB134010 INSTRUMENT ID : CV1

Method: 7470A

Operator: Admin

Date of Analysis: 19 Dec 2024 11:21:21

Sample ID	Extended ID	μ Abs.	Conc.	Std Conc	Method	Units	Date	Type	Type
0.0 - 1	56	340	-	0.0000	7470A	PPB	19 Dec 2024 11:39:55	S	Std
0.2 - 1	50-2	1432	-	0.2000	7470A	PPB	19 Dec 2024 11:42:12	S	Std
2.5 - 1	52-5	10011	-	2.5000	7470A	PPB	19 Dec 2024 11:44:28	S	Std
5.0 - 1	55	20326	-	5.0000	7470A	PPB	19 Dec 2024 11:48:24	S	Std
7.5 - 1	57-5	30190	-	7.5000	7470A	PPB	19 Dec 2024 11:50:41	S	Std
10.0 - 1	58	38413	-	10.0000	7470A	PPB	19 Dec 2024 11:55:41	S	Std
ICV25 - 1	ICV25	15408	3.8426	-	7470A	PPB	19 Dec 2024 11:58:34	U	SMPL
ICB25 - 1	ICB25	237	-0.0941	-	7470A	PPB	19 Dec 2024 12:00:49	U	SMPL
CCV46 - 1	CCV46	18775	4.7163	-	7470A	PPB	19 Dec 2024 12:03:05	U	SMPL
CCB46 - 1	CCB46	236	-0.0943	-	7470A	PPB	19 Dec 2024 12:05:19	U	SMPL
CRA - 1	CRA	1255	0.1701	-	7470A	PPB	19 Dec 2024 12:07:36	U	SMPL
HighStd - 1	HighStd	36442	9.3006	-	7470A	PPB	19 Dec 2024 12:18:47	U	SMPL
ChkStd - 1	ChkStd	29010	7.3721	-	7470A	PPB	19 Dec 2024 12:26:51	U	SMPL
PB165735BL - 1	PBW	448	-0.0393	-	7470A	PPB	19 Dec 2024 12:31:48	U	SMPL
PB165735BS - 1	LCSW	16175	4.0416	-	7470A	PPB	19 Dec 2024 12:39:18	U	SMPL
P5279-02 - 1	ROCKAWAY-PARK	-116	-0.1857	-	7470A	PPB	19 Dec 2024 12:41:33	U	SMPL
P5279-02DUP - 1	ROCKAWAY-PARKDUP	33	-0.1470	-	7470A	PPB	19 Dec 2024 12:43:51	U	SMPL
P5279-02MS - 1	ROCKAWAY-PARKMS	11983	2.9539	-	7470A	PPB	19 Dec 2024 12:46:08	U	SMPL
P5279-02MSD - 1	ROCKAWAY-PARKMSD	10606	2.5965	-	7470A	PPB	19 Dec 2024 12:48:25	U	SMPL
PB165736BL - 1	PBW	504	-0.0248	-	7470A	PPB	19 Dec 2024 12:53:43	U	SMPL
CCV47 - 1	CCV47	20150	5.0731	-	7470A	PPB	19 Dec 2024 12:58:51	U	SMPL
CCB47 - 1	CCB47	433	-0.0432	-	7470A	PPB	19 Dec 2024 13:01:06	U	SMPL
PB165736BS - 1	LCSW	16766	4.1950	-	7470A	PPB	19 Dec 2024 13:05:54	U	SMPL
P5291-13 - 1	WC-20241213	-108	-0.1836	-	7470A	PPB	19 Dec 2024 13:08:09	U	SMPL
P5291-13DUP - 1	WC-20241213DUP	-122	-0.1872	-	7470A	PPB	19 Dec 2024 13:10:26	U	SMPL
P5291-13MS - 1	WC-20241213MS	12104	2.9853	-	7470A	PPB	19 Dec 2024 13:12:42	U	SMPL
P5291-13MSD - 1	WC-20241213MSD	11414	2.8062	-	7470A	PPB	19 Dec 2024 13:14:57	U	SMPL
PB165737BL - 1	PBW	457	-0.0370	-	7470A	PPB	19 Dec 2024 13:17:14	U	SMPL
PB165737BS - 1	LCSW	16622	4.1576	-	7470A	PPB	19 Dec 2024 13:19:32	U	SMPL
P5306-02 - 1	OU4-VSL-07-121224	651	0.0134	-	7470A	PPB	19 Dec 2024 13:26:41	U	SMPL
P5306-02DUP - 1	OU4-VSL-07-121224DUP	478	-0.0315	-	7470A	PPB	19 Dec 2024 13:28:57	U	SMPL
P5306-02MS - 1	OU4-VSL-07-121224MS	15461	3.8564	-	7470A	PPB	19 Dec 2024 13:33:48	U	SMPL
CCV48 - 1	CCV48	19486	4.9008	-	7470A	PPB	19 Dec 2024 13:36:03	U	SMPL
CCB48 - 1	CCB48	464	-0.0352	-	7470A	PPB	19 Dec 2024 13:38:20	U	SMPL
P5306-02MSD - 1	OU4-VSL-07-121224MSD	15725	3.9249	-	7470A	PPB	19 Dec 2024 13:40:36	U	SMPL
P5306-04 - 1	OU4-VSL-08-121224	1621	0.2651	-	7470A	PPB	19 Dec 2024 13:42:52	U	SMPL
P5306-06 - 1	OU4-VSL-09-121224	592	-0.0019	-	7470A	PPB	19 Dec 2024 13:45:08	U	SMPL
P5306-08 - 1	OU4-VSL-10-121224	436	-0.0424	-	7470A	PPB	19 Dec 2024 13:47:24	U	SMPL
P5306-10 - 1	OU4-VSL-11-121224	397	-0.0525	-	7470A	PPB	19 Dec 2024 13:49:40	U	SMPL
P5306-12 - 1	OU4-VSL-12-121224	264	-0.0871	-	7470A	PPB	19 Dec 2024 13:51:57	U	SMPL
P5306-14 - 1	OU4-VSL-13-121224	209	-0.1013	-	7470A	PPB	19 Dec 2024 13:54:13	U	SMPL
P5306-16 - 1	OU4-VSL-14-121224	478	-0.0315	-	7470A	PPB	19 Dec 2024 13:56:30	U	SMPL
CCV49 - 1	CCV49	18957	4.7635	-	7470A	PPB	19 Dec 2024 14:00:30	U	SMPL
CCB49 - 1	CCB49	554	-0.0118	-	7470A	PPB	19 Dec 2024 14:02:45	U	SMPL
P5279-02LX5 - 1		2	-0.1550	-	7470A	PPB	19 Dec 2024 14:05:02	U	SMPL
P5279-02A - 1		16615	4.1558	-	7470A	PPB	19 Dec 2024 14:07:17	U	SMPL
P5291-13LX5 - 1		-73	-0.1745	-	7470A	PPB	19 Dec 2024 14:09:33	U	SMPL
P5291-13A - 1		16596	4.1509	-	7470A	PPB	19 Dec 2024 14:11:49	U	SMPL
P5306-02LX5 - 1		177	-0.1096	-	7470A	PPB	19 Dec 2024 14:14:05	U	SMPL
P5306-02A - 1		16372	4.0927	-	7470A	PPB	19 Dec 2024 14:16:22	U	SMPL
PB165679TB - 1	PB165679TB	646	0.0121	-	7470A	PPB	19 Dec 2024 14:21:15	U	SMPL
PB165680TB - 1	PB165680TB	622	0.0058	-	7470A	PPB	19 Dec 2024 14:23:31	U	SMPL
PB165599TB - 1	PB165599TB	606	0.0017	-	7470A	PPB	19 Dec 2024 14:25:47	U	SMPL
CCV50 - 1	CCV50	19113	4.8040	-	7470A	PPB	19 Dec 2024 14:28:04	U	SMPL
CCB50 - 1	CCB50	474	-0.0326	-	7470A	PPB	19 Dec 2024 14:30:21	U	SMPL

SOP ID : M3010A-Digestion-17

SDG No : N/A

Matrix : WATER

Pipette ID: ICP A

Balance ID : N/A

Filter paper ID : N/A

pH Strip ID : M6069

Hood ID : #3

Block ID: 1. HOT BLOC K #1 2. N/A

Start Digest Date: 12/18/2024 Time : 12:00 Temp : 96 °C

End Digest Date: 12/18/2024 Time : 15:10 Temp : 96 °C

Digestion tube ID: M5595

Block thermometer ID: MET-DIG. # 1

Dig Technician Signature: *SKB*

Supervisor Signature: *SKB*

Temp : 1. 96°C 2. N/A

Standardized Name	MLS USED	STD REF. # FROM LOG
LFS-1	1.00	M6000
LFS-2	1.00	M6009
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE USED	Lot Number
Conc. HNO3	3.00	MP83498
1:1 HCL	5.00	M6126
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Extraction Conformance/Non-Conformance Comments:

HOT BLOCK#1 CELL #50 Temp: 96 C

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
12/28/24 10:00	<i>SKB. not digestion</i>	<i>SKB (Mickel Tebb)</i>
	Preparation Group	Analysis Group

Lab Sample ID	Client Sample ID	pH	Initial Vol (ml)	Final Vol (ml)	Color Before	Color After	Clarity Before	Clarity After	Comment	Prep Pos
P5279-02	ROCKAWAY-PARK	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	7
P5291-13	WC-20241213	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	8
P5291-13MS	WC-20241213MS	<2	5	25	Colorless	Colorless	Clear	Clear	M6000,M6009	10
P5291-13MSD	WC-20241213MSD	<2	5	25	Colorless	Colorless	Clear	Clear	M6000,M6009	11
P5291-13DUP	WC-20241213DUP	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	9
PB165679TB	PB165679TB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	12
PB165680TB	PB165680TB	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	13
PB165720BL	PBW720	<2	5	25	Colorless	Colorless	Clear	Clear	N/A	14
PB165720BS	LCS720	<2	5	25	Colorless	Colorless	Clear	Clear	M6000,M6009	15

TCLP EXTRACTION LOGPAGE

PB16567

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Pre Po
P5279-02	ROCKAWAY-PARK	01	100.02	2000	N/A	N/A	N/A	7.2	1.5	T-1
PB165679TB	LEB679	02	N/A	2000	N/A	N/A	N/A	4.94	1.0	T-1

TCLP EXTRACTION LOGPAGE

PB16568

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	P
P5291-13	WC-20241213	N/A	N/A	N/A	N/A	N/A	N/A	6.6	1.5	N/
PB165680TB	LEB680	N/A	N/A	N/A	N/A	N/A	N/A	4.94	1.0	N/

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134010

Review By	jaswal	Review On	12/20/2024 9:48:43 PM
Supervise By	mohan	Supervise On	12/20/2024 9:50:24 PM

STD. NAME	STD REF.#
ICAL Standard	MP83696,MP83697,MP83698,MP83699,MP83700,MP83701
ICV Standard	MP83702
CCV Standard	MP83704
ICSA Standard	
CRI Standard	MP83706
LCS Standard	
Chk Standard	MP83703,MP83705,MP83707,MP83709

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	12/19/24 11:39		Mohan	OK
2	S0.2	S0.2	CAL2	12/19/24 11:42		Mohan	OK
3	S2.5	S2.5	CAL3	12/19/24 11:44		Mohan	OK
4	S5	S5	CAL4	12/19/24 11:48		Mohan	OK
5	S7.5	S7.5	CAL5	12/19/24 11:50		Mohan	OK
6	S10	S10	CAL6	12/19/24 11:55		Mohan	OK
7	ICV25	ICV25	ICV	12/19/24 11:58		Mohan	OK
8	ICB25	ICB25	ICB	12/19/24 12:00		Mohan	OK
9	CCV46	CCV46	CCV	12/19/24 12:03		Mohan	OK
10	CCB46	CCB46	CCB	12/19/24 12:05		Mohan	OK
11	CRA	CRA	CRDL	12/19/24 12:07		Mohan	OK
12	HighStd	HighStd	HIGH STD	12/19/24 12:18		Mohan	OK
13	ChkStd	ChkStd	SAM	12/19/24 12:26		Mohan	OK
14	PB165735BL	PB165735BL	MB	12/19/24 12:31		Mohan	OK
15	PB165735BS	PB165735BS	LCS	12/19/24 12:39		Mohan	OK
16	P5279-02	ROCKAWAY-PARK	SAM	12/19/24 12:41		Mohan	OK
17	P5279-02DUP	ROCKAWAY-PARKDUP	DUP	12/19/24 12:43		Mohan	OK
18	P5279-02MS	ROCKAWAY-PARKMS	MS	12/19/24 12:46		Mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134010

Review By	jaswal	Review On	12/20/2024 9:48:43 PM
Supervise By	mohan	Supervise On	12/20/2024 9:50:24 PM

STD. NAME	STD REF.#
ICAL Standard	MP83696,MP83697,MP83698,MP83699,MP83700,MP83701
ICV Standard	MP83702
CCV Standard	MP83704
ICSA Standard	
CRI Standard	MP83706
LCS Standard	
Chk Standard	MP83703,MP83705,MP83707,MP83709

19	P5279-02MSD	ROCKAWAY-PARKMS	MSD	12/19/24 12:48		Mohan	OK
20	PB165736BL	PB165736BL	MB	12/19/24 12:53		Mohan	OK
21	CCV47	CCV47	CCV	12/19/24 12:58		Mohan	OK
22	CCB47	CCB47	CCB	12/19/24 13:01		Mohan	OK
23	PB165736BS	PB165736BS	LCS	12/19/24 13:05		Mohan	OK
24	P5291-13	WC-20241213	SAM	12/19/24 13:08		Mohan	OK
25	P5291-13DUP	WC-20241213DUP	DUP	12/19/24 13:10		Mohan	OK
26	P5291-13MS	WC-20241213MS	MS	12/19/24 13:12		Mohan	OK
27	P5291-13MSD	WC-20241213MSD	MSD	12/19/24 13:14		Mohan	OK
28	PB165737BL	PB165737BL	MB	12/19/24 13:17		Mohan	OK
29	PB165737BS	PB165737BS	LCS	12/19/24 13:19		Mohan	OK
30	P5306-02	OU4-VSL-07-121224	SAM	12/19/24 13:26		Mohan	OK
31	P5306-02DUP	OU4-VSL-07-121224	DUP	12/19/24 13:28		Mohan	OK
32	P5306-02MS	OU4-VSL-07-121224	MS	12/19/24 13:33		Mohan	OK
33	CCV48	CCV48	CCV	12/19/24 13:36		Mohan	OK
34	CCB48	CCB48	CCB	12/19/24 13:38		Mohan	OK
35	P5306-02MSD	OU4-VSL-07-121224	MSD	12/19/24 13:40		Mohan	OK
36	P5306-04	OU4-VSL-08-121224	SAM	12/19/24 13:42		Mohan	OK
37	P5306-06	OU4-VSL-09-121224	SAM	12/19/24 13:45		Mohan	OK
38	P5306-08	OU4-VSL-10-121224	SAM	12/19/24 13:47		Mohan	OK

Instrument ID: CV1

Daily Analysis Runlog For Sequence/QC Batch ID # LB134010

Review By	jaswal	Review On	12/20/2024 9:48:43 PM
Supervise By	mohan	Supervise On	12/20/2024 9:50:24 PM

STD. NAME	STD REF.#
ICAL Standard	MP83696,MP83697,MP83698,MP83699,MP83700,MP83701
ICV Standard	MP83702
CCV Standard	MP83704
ICSA Standard	
CRI Standard	MP83706
LCS Standard	
Chk Standard	MP83703,MP83705,MP83707,MP83709

39	P5306-10	OU4-VSL-11-121224	SAM	12/19/24 13:49		Mohan	OK
40	P5306-12	OU4-VSL-12-121224	SAM	12/19/24 13:51		Mohan	OK
41	P5306-14	OU4-VSL-13-121224	SAM	12/19/24 13:54		Mohan	OK
42	P5306-16	OU4-VSL-14-121224	SAM	12/19/24 13:56		Mohan	OK
43	CCV49	CCV49	CCV	12/19/24 14:00		Mohan	OK
44	CCB49	CCB49	CCB	12/19/24 14:02		Mohan	OK
45	P5279-02L	ROCKAWAY-PARKL	SD	12/19/24 14:05		Mohan	OK
46	P5279-02A	ROCKAWAY-PARKA	PS	12/19/24 14:07		Mohan	OK
47	P5291-13L	WC-20241213L	SD	12/19/24 14:09		Mohan	OK
48	P5291-13A	WC-20241213A	PS	12/19/24 14:11		Mohan	OK
49	P5306-02L	OU4-VSL-07-121224L	SD	12/19/24 14:14		Mohan	OK
50	P5306-02A	OU4-VSL-07-121224A	PS	12/19/24 14:16		Mohan	OK
51	PB165679TB	PB165679TB	MB	12/19/24 14:21		Mohan	OK
52	PB165680TB	PB165680TB	MB	12/19/24 14:23		Mohan	OK
53	PB165737TB	PB165737TB	MB	12/19/24 14:25		Mohan	OK
54	CCV50	CCV50	CCV	12/19/24 14:28		Mohan	OK
55	CCB50	CCB50	CCB	12/19/24 14:30		Mohan	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134054

Review By	Review On
Supervise By	Supervise On

STD. NAME	STD REF.#
ICAL Standard ICV Standard CCV Standard ICSA Standard CRI Standard LCS Standard Chk Standard	

Sr#	SampleId	ClientID	QcType	Date	Comment	Operator	Status
1	S0	S0	CAL1	12/20/24 15:41		Kareem	OK
2	S1	S1	CAL2	12/20/24 15:46		Kareem	OK
3	S2	S2	CAL3	12/20/24 15:50		Kareem	OK
4	S3	S3	CAL4	12/20/24 15:54		Kareem	OK
5	S4	S4	CAL5	12/20/24 15:58		Kareem	OK
6	S5	S5	CAL6	12/20/24 16:03		Kareem	OK
7	ICV01	ICV01	ICV	12/20/24 16:07	ICV fail for Ba,Mg,V (200.7)	Kareem	OK
8	LLICV01	LLICV01	LLICV	12/20/24 16:11		Kareem	OK
9	ICB01	ICB01	ICB	12/20/24 16:21		Kareem	OK
10	CRI01	CRI01	CRDL	12/20/24 16:26		Kareem	OK
11	ICSA01	ICSA01	ICSA	12/20/24 16:30		Kareem	OK
12	ICSAB01	ICSAB01	ICSAB	12/20/24 16:34		Kareem	OK
13	ICSADL	ICSADL	ICSA	12/20/24 16:38		Kareem	OK
14	ICSABDL	ICSABDL	ICSAB	12/20/24 16:43		Kareem	OK
15	CCV01	CCV01	CCV	12/20/24 16:47		Kareem	OK
16	CCB01	CCB01	CCB	12/20/24 16:51		Kareem	OK
17	P5312-01	SOIL-VNJ-222	SAM	12/20/24 16:55		Kareem	OK
18	P5343-01	VNJ210	SAM	12/20/24 17:00		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134054

Review By	Review On
Supervise By	Supervise On

STD. NAME	STD REF.#
ICAL Standard ICV Standard CCV Standard ICSA Standard CRI Standard LCS Standard Chk Standard	

19	P5316-01	TT-304-IDWSO-2024	SAM	12/20/24 17:04		Kareem	OK
20	P5343-03	VNJ281	SAM	12/20/24 17:08		Kareem	OK
21	P5312-03	CONCRETE-VNJ-222	SAM	12/20/24 17:12		Kareem	OK
22	P5279-02	ROCKAWAY-PARK	SAM	12/20/24 17:16		Kareem	OK
23	P5192-02	EFF-WASTE WATER	SAM	12/20/24 17:21		Kareem	OK
24	P5327-01	12175-12176-12177-1	SAM	12/20/24 17:25		Kareem	OK
25	CCV02	CCV02	CCV	12/20/24 17:29		Kareem	OK
26	CCB02	CCB02	CCB	12/20/24 17:34		Kareem	OK
27	PB165738BL	PB165738BL	MB	12/20/24 17:38		Kareem	OK
28	PB165738BS	PB165738BS	LCS	12/20/24 17:42		Kareem	OK
29	PB165754BL	PB165754BL	MB	12/20/24 17:46		Kareem	OK
30	PB165754BS	PB165754BS	LCS	12/20/24 17:51		Kareem	OK
31	PB165720BL	PB165720BL	MB	12/20/24 17:55		Kareem	OK
32	PB165720BS	PB165720BS	LCS	12/20/24 17:59		Kareem	OK
33	PB165679TB	PB165679TB	MB	12/20/24 18:03		Kareem	OK
34	PB165680TB	PB165680TB	MB	12/20/24 18:08		Kareem	OK
35	CCV03	CCV03	CCV	12/20/24 18:12		Kareem	OK
36	CCB03	CCB03	CCB	12/20/24 18:16		Kareem	OK
37	P5341-01	STORMWATER-AQ-C	SAM	12/20/24 18:21		Kareem	OK
38	P5341-03RE	TOTE-425RE	SAM	12/20/24 18:25	NOT USE	Kareem	Not Ok

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134054

Review By	Review On
Supervise By	Supervise On

STD. NAME	STD REF.#
ICAL Standard ICV Standard CCV Standard ICSA Standard CRI Standard LCS Standard Chk Standard	

39	P5343-06	PUMP-WATER-271	SAM	12/20/24 18:29		Kareem	OK
40	P5291-13RE	WC-20241213RE	SAM	12/20/24 18:33	NOT USE	Kareem	Not Ok
41	P5299-01	SB-01	SAM	12/20/24 18:38		Kareem	OK
42	P5327-01DUP	12175-12176-12177-1	DUP	12/20/24 18:42		Kareem	OK
43	P5327-01L	12175-12176-12177-1	SD	12/20/24 18:46		Kareem	OK
44	P5327-01MS	12175-12176-12177-1	MS	12/20/24 18:50		Kareem	OK
45	P5327-01MSD	12175-12176-12177-1	MSD	12/20/24 18:54		Kareem	OK
46	P5327-01A	12175-12176-12177-1	PS	12/20/24 18:58		Kareem	OK
47	CCV04	CCV04	CCV	12/20/24 19:02		Kareem	OK
48	CCB04	CCB04	CCB	12/20/24 19:11		Kareem	OK
49	P5343-06L	PUMP-WATER-271L	SD	12/20/24 19:16		Kareem	OK
50	P5343-06DUP	PUMP-WATER-271DUP	DUP	12/20/24 19:20		Kareem	OK
51	P5343-06MS	PUMP-WATER-271MS	MS	12/20/24 19:24		Kareem	OK
52	P5343-06MSD	PUMP-WATER-271MSD	MSD	12/20/24 19:28		Kareem	OK
53	P5343-06A	PUMP-WATER-271A	PS	12/20/24 19:32		Kareem	OK
54	P5291-13DUP	WC-20241213DUP	DUP	12/20/24 19:37		Kareem	OK
55	P5291-13L	WC-20241213L	SD	12/20/24 19:41		Kareem	OK
56	P5291-13MS	WC-20241213MS	MS	12/20/24 19:45		Kareem	OK
57	P5291-13MSD	WC-20241213MSD	MSD	12/20/24 19:49		Kareem	OK
58	P5291-13A	WC-20241213A	PS	12/20/24 19:53		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134054

Review By	Review On
Supervise By	Supervise On

STD. NAME	STD REF.#
ICAL Standard ICV Standard CCV Standard ICSA Standard CRI Standard LCS Standard Chk Standard	

59	CCV05	CCV05	CCV	12/20/24 19:57		Kareem	OK
60	CCB05	CCB05	CCB	12/20/24 20:01		Kareem	OK
61	P5299-02	SB-02	SAM	12/20/24 20:06		Kareem	OK
62	P5299-03	SB-01	SAM	12/20/24 20:10		Kareem	OK
63	P5299-04	SB-02	SAM	12/20/24 20:14		Kareem	OK
64	P5299-04DUP	SB-02DUP	DUP	12/20/24 20:18		Kareem	OK
65	P5299-04L	SB-02L	SD	12/20/24 20:22		Kareem	OK
66	P5299-04MS	SB-02MS	MS	12/20/24 20:26		Kareem	OK
67	P5299-04MSD	SB-02MSD	MSD	12/20/24 20:30		Kareem	OK
68	P5299-04A	SB-02A	PS	12/20/24 20:34		Kareem	OK
69	PB165722BL	PB165722BL	MB	12/20/24 20:38		Kareem	OK
70	PB165722BS	PB165722BS	LCS	12/20/24 20:43		Kareem	OK
71	CCV06	CCV06	CCV	12/20/24 20:47		Kareem	OK
72	CCB06	CCB06	CCB	12/20/24 20:51		Kareem	OK
73	P5330-01	TP-5	SAM	12/20/24 20:55		Kareem	OK
74	P5342-01	CHRT26634	SAM	12/20/24 20:59		Kareem	OK
75	P5342-03	HT2651	SAM	12/20/24 21:04		Kareem	OK
76	P5342-05	RB21198	SAM	12/20/24 21:08		Kareem	OK
77	P5343-03DUP	VNJ281DUP	DUP	12/20/24 21:12		Kareem	OK
78	P5343-03L	VNJ281L	SD	12/20/24 21:16		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134054

Review By	Review On
Supervise By	Supervise On

STD. NAME	STD REF.#
ICAL Standard ICV Standard CCV Standard ICSA Standard CRI Standard LCS Standard Chk Standard	

79	P5343-03MSD	VNJ281MSD	MSD	12/20/24 21:24		Kareem	OK
80	P5343-03A	VNJ281A	PS	12/20/24 21:28		Kareem	OK
81	PB165753BL	PB165753BL	MB	12/20/24 21:32		Kareem	OK
82	CCV07	CCV07	CCV	12/20/24 21:37		Kareem	OK
83	CCB07	CCB07	CCB	12/20/24 22:04		Kareem	OK
84	PB165753BS	PB165753BS	LCS	12/20/24 22:08		Kareem	OK
85	P5337-01	ETGI-357	SAM	12/20/24 22:12		Kareem	OK
86	P5339-01	TR-06-12182024	SAM	12/20/24 22:17		Kareem	OK
87	P5355-01	RBR251688	SAM	12/20/24 22:21	MS/MSD fail for more than parameters	Kareem	Not Ok
88	P5355-01DUP	RBR251688DUP	DUP	12/20/24 22:25	MS/MSD fail for more than parameters	Kareem	Not Ok
89	P5355-01L	RBR251688L	SD	12/20/24 22:29	MS/MSD fail for more than parameters	Kareem	Not Ok
90	P5355-01MS	RBR251688MS	MS	12/20/24 22:33	MS/MSD fail for more than parameters	Kareem	Not Ok
91	P5355-01MSD	RBR251688MSD	MSD	12/20/24 22:38	MS/MSD fail for more than parameters	Kareem	Not Ok
92	P5355-01A	RBR251688A	PS	12/20/24 22:42	MS/MSD fail for more than parameters	Kareem	Not Ok
93	PB165786BL	PB165786BL	MB	12/20/24 22:46		Kareem	OK
94	CCV08	CCV08	CCV	12/20/24 23:01		Kareem	OK
95	CCB08	CCB08	CCB	12/20/24 23:12		Kareem	OK
96	PB165786BS	PB165786BS	LCS	12/20/24 23:17		Kareem	OK

Instrument ID: P4

Daily Analysis Runlog For Sequence/QC Batch ID # LB134054

Review By	Review On
Supervise By	Supervise On
STD. NAME	STD REF.#
ICAL Standard ICV Standard CCV Standard ICSA Standard CRI Standard LCS Standard Chk Standard	

97	P5341-03	TOTE-425	SAM	12/20/24 23:21		Kareem	OK
98	P5291-13	WC-20241213	SAM	12/20/24 23:25		Kareem	OK
99	LR1	LR1	HIGH STD	12/20/24 23:29		Kareem	OK
100	LR2	LR2	HIGH STD	12/20/24 23:41		Kareem	OK
101	P5343-03MS	VNJ281MS	MS	12/20/24 23:46		Kareem	OK
102	CCV09	CCV09	CCV	12/20/24 23:55		Kareem	OK
103	CCB09	CCB09	CCB	12/21/24 00:05		Kareem	OK

SOP ID : M1311-TCLP-15
SDG No : N/A
Weigh By : JP
Balance ID : WC SC-7
pH Meter ID : WC PH METER-1
Extraction By : JP
Filter By : JP
Pipette ID : WC
Tumbler ID : T-1
TCLP Filter ID : 114771

Start Prep Date : 12/17/2024 Time : 15:00
End Prep Date : 12/18/2024 Time : 08:15
Combination Ratio : 20
ZHE Cleaning Batch : N/A
Initial Room Temperature: 23 °C
Final Room Temperature: 22 °C
TCLP Technician Signature : *[Signature]*
Supervisor By : *12*

Standard Name	MLS USED	STD REF. # FROM LOG
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A
N/A	N/A	N/A

Chemical Used	ML/SAMPLE U	Lot Number
TCLP-FLUID-1	N/A	WP110801
HCL-TCLP,1N	N/A	WP110803
HNO3-TCLP,1N	N/A	WP110804
pH Strips	N/A	W1931,W1934,W2350,W2755
pH Strips	N/A	W1937,W1938,W1939,W1940,W1941,W1942
N/A	N/A	N/A
120ml Plastic bottle	N/A	405130101
1:1 HNO3	N/A	MP83122

Extraction Conformance/Non-Conformance Comments:

Matrix spikes are added after filtration and before preservation. Tumbler T-1 checked, 30 rpm. P5279-02 IS USED FOR MS-MSD.

Date / Time	Prepped Sample Relinquished By/Location	Received By/Location
12/18/24 09:30	<i>JP</i> / <i>TCLP Room</i>	<i>SLG</i> / <i>Met Dig</i>
	Preparation Group	Analysis Group

TCLP EXTRACTION LOGPAGE

PB165679

Sample ID	ClientID	TCLP Vessel ID	Sample Wt (g)	Volume Extraction Fluid #1 (mL)	Multi phasic	Phase Miscible	Phases Combined	Final Leachate PH	Metals Leachate Adj. PH	Prep Pos
P5279-02	ROCKAWAY-PARK	01	100.02	2000	N/A	N/A	N/A	7.2	1.5	T-1
PB165679TB	LEB679	02	N/A	2000	N/A	N/A	N/A	4.94	1.0	T-1

SampleID	ClientID	Sample Weight (g)	Filter Weight (g)	Filtrate (mL)	Filter + Solid (After 100°C)	% solids	% Dry Solids
P5279-02	ROCKAWAY-PARK	N/A	N/A	N/A	N/A	100	N/A
PB165679TB	LEB679	N/A	N/A	N/A	N/A	N/A	N/A

Hot Block ID : WC S-1 /WC S-2

Thermometer ID : FLASHPOINT

SampleID	ClientID	Sample Weight (g)	Volume DI Water (mL)	PH after 5 min stir	PH after 10 min stir	Extraction Fluid 1 or 2	pH Extraction Fluid
P5279-02	ROCKAWAY-PARK	5.01	96.5	9.0	4.0	#1	4.94
PB165679TB	LEB679	N/A	N/A	N/A	N/A	#1	4.94

Prep Standard - Chemical Standard Summary

Order ID : P5279

Test : TCLP ICP Metals,TCLP Mercury

Prepbatch ID : PB165720,PB165735,

Sequence ID/Qc Batch ID: LB134010,LB134054,

Standard ID :

MP83498,MP83695,MP83696,MP83697,MP83698,MP83699,MP83700,MP83701,MP83702,MP83703,MP83704,MP83705,MP83706,MP83707,MP83709,

Chemical ID :

M5062,M5882,M5953,M6000,M6009,M6121,M6126,W3112,

Metals STANDARD PREPARATION LOG

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
169	1:1HNO3	MP83498	12/09/2024	12/28/2024	Janvi Patel	None	None	Sarabjit Jaswal
								12/09/2024

FROM 1250.00000ml of M6126 + 1250.00000ml of W3112 = Final Quantity: 2500.000 ml

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
871	MERCURY INTERMEDIATE B 250PPB WORKING STD.	MP83695	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal
								12/20/2024

FROM 1.00000ml of M6126 + 2.50000ml of M5062 + 96.50000ml of W3112 = Final Quantity: 100.000 ml



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1340	Hg 0.00 PPB STD	MP83696	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG	Sarabjit Jaswal
FROM 2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1341	Hg 0.2 PPB STD	MP83697	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 12/20/2024
<u>FROM</u>	2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP83695 = Final Quantity: 250.000 ml							



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1342	Hg 2.5 PPB STD	MP83698	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 12/20/2024
<u>FROM</u>	2.50000ml of M6126 + 245.00000ml of W3112 + 2.50000ml of MP83695 = Final Quantity: 250.000 ml							

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1343	Hg 5.0 PPB STD	MP83699	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 12/20/2024
<u>FROM</u>	2.50000ml of M6126 + 242.50000ml of W3112 + 5.00000ml of MP83695 = Final Quantity: 250.000 ml							



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1344	Hg 7.5 PPB STD	MP83700	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
FROM 2.50000ml of M6126 + 240.00000ml of W3112 + 7.50000ml of MP83695 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1345	Hg 10.0 PPB STD	MP83701	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
FROM 2.50000ml of M6126 + 237.50000ml of W3112 + 10.00000ml of MP83695 = Final Quantity: 250.000 ml								



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1346	Hg ICV SOLUTION	MP83702	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal 12/20/2024
FROM 2.50000ml of M5953 + 2.50000ml of M6126 + 245.00000ml of W3112 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1351	ICB (Hg 0.00 PPB SOLUTION)	MP83703	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HGA)	Sarabjit Jaswal 12/20/2024
<u>FROM</u>	2.50000ml of M6126 + 247.50000ml of W3112 = Final Quantity: 250.000 ml							



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1358	CCV (Hg 5.0 PPB SOLUTION)	MP83704	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 12/20/2024
<u>FROM</u> 485.00000ml of W3112 + 5.00000ml of M6126 + 10.00000ml of MP83695 = Final Quantity: 500.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1352	CCB (Hg 0.00 PPB SOLUTION)	MP83705	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 12/20/2024
FROM 495.00000ml of W3112 + 5.00000ml of M6126 = Final Quantity: 500.000 ml								



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1349	CRA/CRI (Hg 0.2 PPB SOLUTION)	MP83706	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG)	Sarabjit Jaswal
A) FROM 2.50000ml of M6126 + 247.30000ml of W3112 + 0.20000ml of MP83695 = Final Quantity: 250.000 ml								

<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
1350	CHK STD (Hg 7.0 PPB SOLUTION)	MP83707	12/19/2024	12/20/2024	Mohan Bera	None	METALS_PIPETTE_5 (HG A)	Sarabjit Jaswal 12/20/2024
<u>FROM</u>	2.50000ml of M6126 + 240.50000ml of W3112 + 7.00000ml of MP83695 = Final Quantity: 250.000 ml							



<u>Recipe ID</u>	<u>NAME</u>	<u>NO.</u>	<u>Prep Date</u>	<u>Expiration Date</u>	<u>Prepared By</u>	<u>ScaleID</u>	<u>PipetteID</u>	<u>Supervised By</u>
68	STANNOUS CHLORIDE SOLUTION	MP83709	12/19/2024	12/20/2024	Mohan Bera	METALS_SCALE_3 (M SC-3)	None	Sarabjit Jaswal 12/20/2024
<u>FROM</u> 450.00000ml of W3112 + 50.00000gram of M5882 + 50.00000ml of M6121 = Final Quantity: 500.000 ml								

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	MSHG-10PPM / MERCURY HCl 125mL 10ug/mL	S2-HG709270	09/22/2026	05/28/2022 / mohan	01/27/2022 / mohan	M5062

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-3980-01 / Stannous Chloride (cs/4x500g)	232820	08/31/2028	04/30/2024 / mohan	04/25/2024 / mohan	M5882

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
EPA	ICV-5 / ICV (HG) STOCK SOLN	ICV5-0415	01/01/2025	07/01/2024 / mohan	03/30/2023 / mohan	M5953

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-1 / Laboratory Fortified Stock Solution 1, 125 ml	T2-MEB723367	08/30/2026	08/13/2024 / Jaswal	05/14/2024 / Jaswal	M6000

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Inorganic Ventures	WW-LFS-2 / Laboratory Fortified Stock Solution 2, 125 ml	U2-MEB731108	03/17/2028	08/13/2024 / Jaswal	05/14/2024 / Jaswal	M6009

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9530-33 / Hydrochloric Acid, Instra-Analyzed (cs/6x2.5L)	0000275677	05/13/2025	11/13/2024 / Eman	10/13/2024 / Eman	M6121

CHEMICAL RECEIPT LOG BOOK

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	BA-9598-34 / Nitric Acid, Instra-Analyzed (cs/4x2.5L)	24D1062002	06/03/2025	12/03/2024 / Janvi	11/12/2024 / Janvi	M6126

Supplier	ItemCode / ItemName	Lot #	Expiration Date	Date Opened / Opened By	Received Date / Received By	Chemtech Lot #
Seidler Chemical	DIW / DI Water	Daily Lab-Certified	07/03/2029	07/03/2024 / Iwona	07/03/2024 / Iwona	W3112

M5882
 M3

Certificate of Analysis

1 Reagent Lane
 Fair Lawn, NJ 07410
 201.796.7100 tel
 201.796.1329 fax

Thermo Fisher Scientific's Quality System has been found to conform to Quality Management System
 Standard ISO9001:2015 by SAI Global Certificate Number CERT – 0120633

This is to certify that units of the lot number below were tested and found to comply with the specifications of the grade listed. Certain data have been supplied by third parties. Thermo Fisher Scientific expressly disclaims all warranties, expressed or implied, including the implied warranties of merchantability and fitness for a particular purpose. Products are for research use or further manufacturing. Not for direct administration to humans or animals. It is the responsibility of the final formulator and end user to determine suitability based upon the intended use of the end product. Products are tested to meet the analytical requirements of the noted grade. The following information is the actual analytical results obtained.

Catalog Number	T142	Quality Test / Release Date	08/17/2023
Lot Number	232820		
Description	STANNOUS CHLORIDE, DIHYDRATE CERTIFIED ACS (Suitable for Mercury Determination)		
Country of Origin	United States	Suggested Retest Date	Aug/2028
Chemical Origin	Inorganic-non animal		
BSE/TSE Comment	No animal products are used as starting raw material ingredients, or used in processing, including lubricants, processing aids, or any other material that might migrate to the finished product.		

N/A			
Result Name	Units	Specifications	Test Value
APPEARANCE		REPORT	Clear crystals
ASSAY	%	Inclusive Between 98 - 103	100.65
CALCIUM	%	<= 0.005	0.0017
IDENTIFICATION	PASS/FAIL	= PASS TEST	PASS TEST
IRON (Fe)	%	<= 0.003	0.0011
LEAD (Pb)	%	<= 0.01	0.0006
MERCURY (Hg)	ppm	<= 0.05	<0.05
POTASSIUM (K)	%	<= 0.005	0.0001
SODIUM (Na)	%	<= 0.01	<0.01
SOLUBILITY IN HCL	PASS/FAIL	= PASS TEST	PASS TEST
SULFATE (SO4)	PASS/FAIL	= P.T. (ABOUT 0.003%)	P.T. (ABOUT 0.003%)



Harout Sahagian - Quality Control Supervisor - Fair Lawn

Note: The data listed is valid for all package sizes of this lot of this product, expressed as an extension of this catalog number listed above.

If there are any questions with this certificate, please call at (800) 227-6701.

*Based on suggested storage condition.



Refine your results. Redefine your industry. RD:05/14/2024

Certificate of Analysis

300 Technology Drive
Christiansburg, VA 24073 USA
inorganicventures.com

P: 800-669-6799/540-585-3030

F: 540-585-3012

info@inorganicventures.com

1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code:	Multi Analyte Custom Grade Solution
Catalog Number:	WW-LFS-1
Lot Number:	T2-MEB723367
Matrix:	5% (v/v) HNO ₃

Value / Analyte(s):	1 000 µg/mL ea: Potassium,	
	600 µg/mL ea: Phosphorus,	
	300 µg/mL ea: Sodium,	Iron,
	200 µg/mL ea: Magnesium, Cerium, Thallium,	Aluminum, Selenium,
	100 µg/mL ea: Lead,	Calcium,
	80 µg/mL ea: Arsenic,	
	70 µg/mL ea: Mercury,	
	50 µg/mL ea: Nickel,	
	40 µg/mL ea: Chromium,	
	30 µg/mL ea: Copper, Vanadium,	Boron,
	20 µg/mL ea: Zinc, Barium, Cadmium, Manganese,	Strontium, Beryllium, Cobalt, Lithium,
	7.5 µg/mL ea: Silver	

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Aluminum, Al	200.0 ± 0.7 µg/mL	Arsenic, As	80.0 ± 0.7 µg/mL
Barium, Ba	20.00 ± 0.09 µg/mL	Beryllium, Be	20.00 ± 0.13 µg/mL
Boron, B	30.00 ± 0.18 µg/mL	Cadmium, Cd	20.00 ± 0.09 µg/mL
Calcium, Ca	100.0 ± 0.4 µg/mL	Cerium, Ce	200.0 ± 0.8 µg/mL
Chromium, Cr	40.00 ± 0.30 µg/mL	Cobalt, Co	20.00 ± 0.10 µg/mL
Copper, Cu	30.00 ± 0.13 µg/mL	Iron, Fe	300.0 ± 1.3 µg/mL
Lead, Pb	100.0 ± 0.4 µg/mL	Lithium, Li	20.00 ± 0.08 µg/mL
Magnesium, Mg	200.0 ± 0.8 µg/mL	Manganese, Mn	20.00 ± 0.08 µg/mL
Mercury, Hg	70.0 ± 0.3 µg/mL	Nickel, Ni	50.00 ± 0.22 µg/mL
Phosphorus, P	600.0 ± 2.7 µg/mL	Potassium, K	1 000 ± 4 µg/mL
Selenium, Se	200.0 ± 1.3 µg/mL	Silver, Ag	7.50 ± 0.03 µg/mL
Sodium, Na	300.0 ± 1.4 µg/mL	Strontium, Sr	20.01 ± 0.08 µg/mL
Thallium, Tl	200.0 ± 1.4 µg/mL	Vanadium, V	30.00 ± 0.13 µg/mL
Zinc, Zn	20.00 ± 0.09 µg/mL		

Density: 1.034 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Ag	ICP Assay	3151	160729
Ag	Volhard	999c	999c
Ag	Calculated		See Sec. 4.2
Al	ICP Assay	3101a	140903
Al	EDTA	928	928
As	ICP Assay	3103a	100818
B	ICP Assay	3107	190605
Ba	ICP Assay	3104a	140909
Ba	Gravimetric		See Sec. 4.2
Be	ICP Assay	3105a	090514
Ca	ICP Assay	3109a	130213
Ca	EDTA	928	928
Cd	ICP Assay	3108	130116
Cd	EDTA	928	928
Ce	ICP Assay	3110	090504
Ce	EDTA	928	928
Co	ICP Assay	3113	190630
Co	EDTA	928	928
Cr	ICP Assay	3112a	170630
Cu	ICP Assay	3114	121207
Cu	EDTA	928	928
Fe	ICP Assay	3126a	140812
Fe	EDTA	928	928
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
K	ICP Assay	3141a	140813
K	Gravimetric		See Sec. 4.2
Li	ICP Assay	3129a	100714
Li	Gravimetric		See Sec. 4.2
Mg	ICP Assay	3131a	140110
Mg	EDTA	928	928
Mn	ICP Assay	3132	050429
Mn	EDTA	928	928
Na	ICP Assay	Traceable to 3152A	S2-NA700842
Na	Gravimetric		See Sec. 4.2
Ni	ICP Assay	3136	120619
Ni	EDTA	928	928
P	ICP Assay	3139a	060717
P	Acidimetric	84L	84L
Pb	ICP Assay	3128	101026
Pb	EDTA	928	928
Se	ICP Assay	3149	100901
Sr	EDTA	928	928
Sr	ICP Assay	Traceable to 3153a	K2-SR650985
Tl	ICP Assay	3158	151215
V	IC Assay	3165	160906
V	EDTA	928	928
Zn	ICP Assay	3168a	120629
Zn	EDTA	928	928

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum (1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty (z)} = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum ((w_i)^2 (u_{\text{char } i}^2))]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty (z)} = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{ts}}^2 + u_{\text{ts}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Low Silver Note: This solution contains "LOW" levels of Silver. Please store this entire bottle inside a sealed glass jar.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va. 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; info@inorganicventures.com; inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

August 30, 2022

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- August 30, 2026

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





Refine your results. Redefine your industry.

RD:05/14/2024

Certificate of Analysis

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P: 800-669-6799/540-585-3030
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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Multi Analyte Custom Grade Solution
Catalog Number: WW-LFS-2
Lot Number: U2-MEB731108
Matrix: 5% (v/v) HNO₃
tr. HF
Value / Analyte(s):
200 µg/mL ea:
Silica,
80 µg/mL ea:
Antimony,
70 µg/mL ea:
Tin,
40 µg/mL ea:
Molybdenum,
20 µg/mL ea:
Titanium

3.0 CERTIFIED VALUES AND UNCERTAINTIES

ANALYTE	CERTIFIED VALUE	ANALYTE	CERTIFIED VALUE
Antimony, Sb	80.1 ± 0.6 µg/mL	Molybdenum, Mo	40.03 ± 0.18 µg/mL
Silica, SiO ₂	200.2 ± 1.3 µg/mL	Tin, Sn	70.0 ± 0.4 µg/mL
Titanium, Ti	20.01 ± 0.13 µg/mL		

Density: 1.025 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Mo	ICP Assay	3134	130418
Mo	Calculated		See Sec. 4.2
Sb	ICP Assay	3102a	140911
SiO ₂	ICP Assay	3150	130912
Sn	ICP Assay	3161a	140917
Ti	ICP Assay	3162a	130925
Ti	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of $k = 2$.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{\text{CRM/RM}}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{\text{CRM/RM}} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{\text{char } i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance:

$$w_i = (1/u_{\text{char } i}^2) / (\sum (1/u_{\text{char } i}^2))$$

$$\text{CRM/RM Expanded Uncertainty } (z) = U_{\text{CRM/RM}} = k (u_{\text{char}}^2 + u_{\text{bb}}^2 + u_{\text{ITS}}^2 + u_{\text{TS}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char}} = [\sum (w_i)^2 (u_{\text{char } i}^2)]^{1/2}$ where $u_{\text{char } i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ITS} = long term stability standard uncertainty (storage)

u_{TS} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{\text{CRM/RM}}$, where one method of characterization is used is the mean of individual results:

$$X_{\text{CRM/RM}} = (X_a) (u_{\text{char } a})$$

X_a = mean of Assay Method A with

$u_{\text{char } a}$ = the standard uncertainty of characterization Method A

$$\text{CRM/RM Expanded Uncertainty } (z) = U_{\text{CRM/RM}} = k (u_{\text{char } a}^2 + u_{\text{bb}}^2 + u_{\text{ITS}}^2 + u_{\text{TS}}^2)^{1/2}$$

k = coverage factor = 2

$u_{\text{char } a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{ITS} = long term stability standard uncertainty (storage)

u_{TS} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

N/A

6.0 INTENDED USE

6.1 This standard is intended for the calibration of analytical instruments and validation of analytical methods as appropriate. This CRM may be used in connection with EPA Methods 6010, 6020 (all versions), Standard Methods 3120 B and USP <232> / ICH Q3D.

6.2 For products attaining traceability through Inorganic Ventures' Primary Certified Reference Materials (PCRM™) see the Limited License to Use PCRM™ in the Inorganic Ventures Terms and Conditions of Sale, <https://www.inorganicventures.com/terms-and-conditions-sale>. The Terms and Conditions contain information on the use of materials traceable to PCRM™ certified reference materials. This Limited License agreement is especially pertinent for laboratories accredited under ISO:17034.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

HF Note: This standard should not be prepared or stored in glass.

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

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11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

March 17, 2023

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **March 17, 2028**

- The date after which this CRM/RM should not be used.

- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Approved By:

Thomas Kozikowski
Manager, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director



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info@inorganicventures.com

MS062
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1.0 ACCREDITATION / REGISTRATION

INORGANIC VENTURES is accredited to ISO 17034, "General Requirements for the Competence of Reference Material Producers" and ISO/IEC 17025, "General Requirements for the Competence of Testing and Calibration Laboratories". Inorganic Ventures is also an ISO 9001 registered manufacturer (QSR Certificate Number QSR-1034).



2.0 PRODUCT DESCRIPTION

Product Code: Single Analyte Mass Spec Solution
Catalog Number: MSHG-10PPM
Lot Number: S2-HG709270
Matrix: 10% (v/v) HCl
Value / Analyte(s): 10 µg/mL ea:
Mercury
Starting Material: Hg metal
Starting Material Lot#: 1959
Starting Material Purity: 99.9994%

3.0 CERTIFIED VALUES AND UNCERTAINTIES

Certified Value: 10.001 ± 0.053 µg/mL
Density: 1.020 g/mL (measured at 20 ± 4 °C)

Assay Information:

ANALYTE	METHOD	NIST SRM#	SRM LOT#
Hg	ICP Assay	3133	160921
Hg	EDTA	928	928
Hg	Calculated		See Sec. 4.2

The following equations are used in the calculation of the certified value and the uncertainty. Reported uncertainties represent expanded uncertainties expressed at approximately the 95% confidence level using a coverage factor of k = 2.

Characterization of CRM/RM by Two or More Methods

Certified Value, $X_{CRM/RM}$, where two or more methods of characterization are used is the weighted mean of the results:

$$X_{CRM/RM} = \sum (w_i) (X_i)$$

X_i = mean of Assay Method i with standard uncertainty $u_{char i}$

w_i = the weighting factors for each method calculated using the inverse square of the variance.

$$w_i = (1/u_{char i}^2) / (\sum (1/(u_{char i}^2)))$$

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char} = [\sum ((w_i)^2 (u_{char i})^2)]^{1/2}$ where $u_{char i}$ are the errors from each characterization method

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

Characterization of CRM/RM by One Method

Certified Value, $X_{CRM/RM}$, where one method of characterization is used is the mean of individual results:

$$X_{CRM/RM} = (X_a) (u_{char a})$$

X_a = mean of Assay Method A with

$u_{char a}$ = the standard uncertainty of characterization Method A

$$CRM/RM \text{ Expanded Uncertainty } (\pm) = U_{CRM/RM} = k (u_{char a}^2 + u_{bb}^2 + u_{lts}^2 + u_{ts}^2)^{1/2}$$

k = coverage factor = 2

$u_{char a}$ = the errors from characterization

u_{bb} = bottle to bottle homogeneity standard uncertainty

u_{lts} = long term stability standard uncertainty (storage)

u_{ts} = transport stability standard uncertainty

4.0 TRACEABILITY TO NIST

- This product is traceable to NIST via an unbroken chain of comparisons. The uncertainties for each certified value are reported, taking into account the SRM/RM uncertainty error and the measurement, weighing and volume dilution errors. In rare cases where no NIST SRM/RM are available, the term 'in-house std.' is specified.

4.1 Thermometer Calibration

- All thermometers are NIST traceable through thermometers that are calibrated by an accredited calibration laboratory.

4.2 Balance Calibration

- All analytical balances are calibrated by an accredited calibration laboratory and procedure. The weights used for testing are annually compared to master weights and are traceable to NIST.

4.3 Glassware Calibration

- An in-house procedure is used to calibrate all Class A glassware used in the manufacturing and quality control of CRM/RMs.

5.0 TRACE METALLIC IMPURITIES (TMI) DETERMINED BY ICP-MS AND ICP-OES (µg/mL)

CRM/RMs are tested for trace metallic impurities by Axial ICP-OES and ICP-MS. The result from the most sensitive method for each element, is reported below. Solutions tested by ICP-MS were analyzed in an ULPA-Filtered Clean Room. An ULPA-Filter is 99.9985% efficient for the removal of particles down to 0.3 µm.

O	Ag	0.000011	M	Eu	<	0.000201	O	Na	0.000004	M	Se	<	0.015915	O	Zn	<	0.001510	
O	Al	0.000001	O	Fe		0.000001	M	Nb	<	0.000201	O	Si		0.000005	M	Zr	<	0.000201
M	As	<	0.000402	M	Ga	<	0.000201	M	Nd	<	0.000201	M	Sm	<		0.000201		
M	Au	<	0.003631	M	Gd	<	0.000201	M	Ni	<	0.000402	M	Sn	<		0.001007		
M	B	<	0.001208	M	Ge	<	0.000201	M	Os	<	0.000605	M	Sr	<		0.000201		
M	Ba	<	0.000201	M	Hf	<	0.000201	O	P	<	0.032370	M	Ta	<		0.000201		
M	Be	<	0.000201	s	Hg	<		M	Pb	<	0.000201	M	Tb	<		0.000201		
M	Bi	<	0.000201	M	Ho	<	0.000201	M	Pd	<	0.000403	M	Te	<		0.002216		
O	Ca	0.000007	M	In	<	0.000201	M	Pr	<	0.000201	M	Th	<		0.000201			
M	Cd	<	0.000201	M	Ir	<	0.000201	M	Pt	<	0.000402	M	Ti	<		0.000402		
M	Ce	<	0.000201	O	K		0.000020	M	Rb	<	0.000201	O	Tl	<		0.016508		
M	Co	<	0.000201	M	La	<	0.000201	M	Re	<	0.000201	M	Tm	<		0.000201		
O	Cr	<	0.003021	O	Li	<	0.000107	M	Rh	<	0.000201	M	U	<		0.008058		
M	Cs	<	0.001208	M	Lu	<	0.000201	M	Ru	<	0.000201	M	V	<		0.000201		
M	Cu	<	0.000402	O	Mg		0.000001	O	S	<	0.053950	M	W	<		0.000604		
M	Dy	<	0.000201	M	Mn	<	0.000604	M	Sb	<	0.001208	M	Y	<		0.000201		
M	Er	<	0.000201	M	Mo		0.000009	M	Sc	<	0.000201	M	Yb	<		0.000201		

M - Checked by ICP-MS O - Checked by ICP-OES i - Spectral Interference
n - Not Checked For s - Solution Standard Element

6.0 INTENDED USE

- For the calibration of analytical instruments and validation of analytical methods as appropriate.

7.0 INSTRUCTIONS FOR THE CORRECT USE OF THIS REFERENCE MATERIAL

7.1 Storage and Handling Recommendations

- Store between approximately 4° - 30° C while in sealed TCT bag.

- While stored in the sealed TCT bag, transpiration of this CRM/RM is negligible. After opening the sealed TCT bag transpiration of the CRM/RM will occur, resulting in a gradual increase in the analyte concentration(s). It is the responsibility of the user to account for this effect. When the bottle is weighed both before and after being placed in storage, the mass difference observed will be a measure of transpiration mass loss.

- After opening the sealed TCT bag, keep cap tightly sealed when not in use and store between 4° - 24° C to minimize the effects of transpiration. Use at 20° ± 4° C to minimize volumetric dilution error when using the reported density. Do not pipette from the container. Do not return removed aliquots to container.

- For more information, visit www.inorganicventures.com/TCT

Atomic Weight; Valence; Coordination Number; Chemical Form in Solution - 200.59 +2 4 Hg(OH)(aq) 1+

Chemical Compatibility - Stable in HNO₃. Avoid basic media forming insoluble carbonate. The sulfide, basic carbonate, oxalate, phosphate, arsenite, arsenate and iodide are insoluble in water.

Stability - 2-100 ppb levels not stable in 1% HNO₃ / LDPE container, stable in 10% HNO₃ packaged in borosilicate glass. 1-100 ppm levels stable in 7% HNO₃ packaged in borosilicate glass. 1000-10,000 ppm solutions are chemically stable for years in 5-10% HNO₃ / LDPE container.

Hg Containing Samples (Preparation and Solution) - Metal (soluble in HNO₃); Oxide (Soluble in HNO₃); Ores and Organic based (The literature has more references to the preparation of Hg containing samples than any other element. Please consult the literature for your specific sample type, since such preparations are prone to error. Or e-mail our technical staff and we will contact you to discuss your particular sample preparation questions in further detail.).

Atomic Spectroscopic Information (ICP-OES D.L.s are given as radial/axial view):

Technique/Line	Estimated D.L.	Order	Interferences (underlined indicates severe)
ICP-MS 202 amu	9 ppt	n/a	186W16O
ICP-OES 184.950 nm	0.03 / 0.005 µg/mL	1	
ICP-OES 194.227 nm	0.03 / 0.005 µg/mL	1	V
ICP-OES 253.652 nm	0.1 / 0.03 µg/mL	1	Ta, Co, Th ,Rh , Fe, U

8.0 HAZARDOUS INFORMATION

- Please refer to the Safety Data Sheet for information regarding this CRM/RM.

9.0 HOMOGENEITY

- This solution was mixed according to an in-house procedure and is guaranteed to be homogeneous. Homogeneity data indicate that the end user should take a minimum sample size of 0.2 mL to assure homogeneity.

10.0 QUALITY STANDARD DOCUMENTATION

10.1 ISO 9001 Quality Management System Registration

- QSR Certificate Number QSR-1034

10.2 ISO/IEC 17025 "General Requirements for the Competence of Testing and Calibration Laboratories"

- Chemical Testing - Accredited / A2LA Certificate Number 883.01

10.3 ISO 17034 "General Requirements for the Competence of Reference Material Producers"

- Reference Material Producer - Accredited / A2LA Certificate Number 883.02

Inorganic Ventures, 300 Technology Drive, Christiansburg, Va, 24073, USA; Telephone: 800.669.6799; 540.585.3030, Fax: 540.585.3012; inorganicventures.com; info@inorganicventures.com

11.0 CERTIFICATION, LOT EXPIRATION AND PERIOD OF VALIDITY

11.1 Certification Issue Date

September 22, 2021

- The certification is valid within the measurement uncertainty specified provided the CRM/RM is stored and handled in accordance with instructions given in Sec 7.1. This certification is nullified if instructions in Sec 7.1 are not followed or if the CRM/RM is damaged, contaminated, or otherwise modified.

11.2 Lot Expiration Date

- **September 22, 2026**

- The date after which this CRM/RM should not be used.
- The lot expiration date reflects the period of time that the stability of a CRM/RM can be supported by long term stability studies conducted on properly stored and handled CRM/RMs. Lot expiration is limited primarily by transpiration (loss of water from the solution) and infrequently by chemical stability.

11.3 Period of Validity

- Sealed TCT Bag Open Date: _____

- This CRM/RM should not be used longer than one year (or six months in the case of a 30 mL bottle) from the date of opening the aluminized bag or after the date given in Sec. 11.2, whichever comes first. This is contingent upon the CRM/RM being stored and handled in accordance with the instructions given in Sec. 7.1.

12.0 NAMES AND SIGNATURES OF CERTIFYING OFFICERS

Certificate Prepared By:

Uyen Truong
Supervisor, Product Documentation



Certificate Approved By:

Michael Booth
Director, Quality Control



Certifying Officer:

Paul Gaines
Chairman / Senior Technical Director





QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

Instructions for QATS Reference Material: *Inorganic ICV Solutions*

QATS LABORATORY INORGANIC REFERENCE MATERIAL
INITIAL CALIBRATION VERIFICATION SOLUTIONS
(ICV1, ICV5, AND ICV6)

NOTE: These instructions are for advisory purposes only. If any apparent conflict exists between these instructions and the analytical protocol or your contract, disregard these instructions.

APPLICATION: For use with the CLP SFAM01.0 SOW and revisions.

CAUTION: Read instructions carefully before opening bottle(s) and proceeding with the analyses.



M5528-32
M5953
3/30/23

(A) **SAMPLE DESCRIPTION**

Enclosed is a set of one (1) or more Aqueous Inorganic Reference Materials containing various analyte concentrations. ICV1 and ICV5 are in a matrix of dilute nitric acid. ICV6 is in a matrix of dilute basic solution. **For the reference material source in reporting ICVs use "USEPA". For the reference material lot number for the ICV1, ICV5, and ICV6 solutions use "ICV1-1014", "ICV5-0415", and "ICV6-0400", respectively.**

(B) **BREAKAGE OR MISSING ITEMS**

Check the contents of the shipment carefully for any broken, leaking, or missing items. Check that the seal is intact on each bottle. Refer to the enclosed chain of custody record. Report any problems to Mr. Keith Strout, APTIM Federal Services, LLC, at (702) 895-8722. If requested, return the chain-of-custody record with appropriate annotations and signatures to the address provided below.

QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
APTIM Federal Services, LLC
2700 Chandler Avenue - Building C
Las Vegas, NV 89120

(C) **ANALYSIS OF SAMPLES**

The Initial Calibration Verification Solutions (ICVs) are to be used to evaluate the accuracy of the initial calibrations of ICP, AA, and Cyanide colorimetric instruments, and are to be used with the CLP SOWs and revisions. The values for each element in the ICVs are listed below in µg/L (ppb) for the resulting solution(s) after the dilution of the concentrate(s) according to the following instructions. Use Class 'A' glassware to prepare the solution(s).

ICV1-1014 For ICP-AES analysis, use a 10-fold dilution by pipetting 10 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid.





QUALITY ASSURANCE TECHNICAL SUPPORT LABORATORY
"An ISO 9001:2015 Certified Program"

Instructions for QATS Reference Material: Inorganic ICV Solutions

ICV1-1014

For ICP-MS analysis, use a 50-fold dilution by pipetting 2 mL of the ICV1 concentrate into a 100 mL volumetric flask and dilute to volume with 1% (v/v) nitric acid.

ICV5-0415

For the cold vapor analysis of mercury by AA, use a 100-fold dilution by pipetting 1 mL of the ICV5 concentrate into a 100 mL volumetric flask and dilute to volume with 2% (v/v) nitric acid. The ICV5 concentrate is prepared in 0.05% (w/v) $K_2Cr_2O_7$ and 5% (v/v) nitric acid.

ICV6-0400

For the analysis of cyanide, use a 100-fold dilution by pipetting 1 mL of the ICV6 concentrate into a 100 mL volumetric flask and dilute to volume with Type II water. Distill this solution along with the samples before analysis. The cyanide concentrate is prepared from $K_3Fe(CN)_6$, Type II water, and 0.1 % sodium hydroxide, and will decompose rapidly if exposed to light.

NOTE: USE TYPE II WATER AND HIGH-PURITY ACIDS FOR ALL DILUTIONS.

(D) CERTIFIED CONCENTRATIONS OF QATS ICV1, ICV5, AND ICV6 SOLUTIONS

ICV1-1014		
Element	Concentration (µg/L) (after 10-fold dilution)	Concentration (µg/L) (after 50-fold dilution)
Al	2500	500
Sb	1000	200
As	1000	200
Ba	520	100
Be	510	100
Cd	510	100
Ca	10000	2000
Cr	520	100
Co	520	100
Cu	510	100
Fe	10000	2000
Pb	1000	200
Mg	6000	1200
Mn	520	100
Ni	530	110
K	9900	2000
Se	1000	200
Ag	250	50
Na	10000	2000
Tl	1000	210
V	500	100
Zn	1000	200

ICV5-0415		ICV6-0400	
Element	Concentration (µg/L) (after 100-fold dilution)	Analyte	Concentration (µg/L) (after 100-fold dilution)
Hg	4.0	CN ⁻	99

Hydrochloric Acid, 36.5-38.0%
BAKER INSTRA-ANALYZED® Reagent
For Trace Metal Analysis



R → 16/13/24
Met dig

M 6121

Material No.: 9530-33
Batch No.: 0000275677
Manufactured Date: 2020/12/16
Retest Date: 2025/12/15
Revision No: 1

Certificate of Analysis

Test	Specification	Result
ACS - Assay (as HCl) (by acid-base titrn)	36.5 - 38.0 %	37.6
ACS - Color (APHA)	<= 10	5
ACS - Residue after Ignition	<= 3 ppm	1
ACS - Specific Gravity at 60°/60°F	1.185 - 1.192	1.190
ACS - Bromide (Br)	<= 0.005 %	< 0.005
ACS - Extractable Organic Substances	<= 5 ppm	1
ACS - Free Chlorine (as Cl ₂)	<= 0.5 ppm	< 0.5
Phosphate (PO ₄)	<= 0.05 ppm	< 0.03
Sulfate (SO ₄)	<= 0.5 ppm	< 0.3
Sulfite (SO ₃)	<= 0.8 ppm	0.3
Ammonium (NH ₄)	<= 3 ppm	< 1
Trace Impurities - Arsenic (As)	<= 0.010 ppm	< 0.003
Trace Impurities - Aluminum (Al)	<= 10.0 ppb	< 0.2
Arsenic and Antimony (as As)	<= 5 ppb	< 3
Trace Impurities - Barium (Ba)	<= 1.0 ppb	< 0.2
Trace Impurities - Beryllium (Be)	<= 1.0 ppb	< 0.2
Trace Impurities - Bismuth (Bi)	<= 10.0 ppb	< 1.0
Trace Impurities - Boron (B)	<= 20.0 ppb	< 5.0
Trace Impurities - Cadmium (Cd)	<= 1.0 ppb	< 0.3
Trace Impurities - Calcium (Ca)	<= 50.0 ppb	29.7
Trace Impurities - Chromium (Cr)	<= 1.0 ppb	< 0.4
Trace Impurities - Cobalt (Co)	<= 1.0 ppb	< 0.3
Trace Impurities - Copper (Cu)	<= 1.0 ppb	< 0.1
Trace Impurities - Gallium (Ga)	<= 1.0 ppb	< 0.2

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

Material No.: 9530-33
Batch No.: 0000275677

Test	Specification	Result
Trace Impurities – Germanium (Ge)	<= 3.0 ppb	< 2.0
Trace Impurities – Gold (Au)	<= 4.0 ppb	< 0.2
Heavy Metals (as Pb)	<= 100 ppb	< 50
Trace Impurities – Iron (Fe)	<= 15.0 ppb	< 1
Trace Impurities – Lead (Pb)	<= 1.0 ppb	< 0.5
Trace Impurities – Lithium (Li)	<= 1.0 ppb	0.2
Trace Impurities – Magnesium (Mg)	<= 10.0 ppb	0.4
Trace Impurities – Manganese (Mn)	<= 1.0 ppb	< 0.4
Trace Impurities – Mercury (Hg)	<= 0.5 ppb	0.1
Trace Impurities – Molybdenum (Mo)	<= 10.0 ppb	< 5.0
Trace Impurities – Nickel (Ni)	<= 4.0 ppb	< 0.3
Trace Impurities – Niobium (Nb)	<= 1.0 ppb	< 0.2
Trace Impurities – Potassium (K)	<= 9.0 ppb	< 2.0
Trace Impurities – Selenium (Se), For Information Only	ppb	1.0
Trace Impurities – Silicon (Si)	<= 100.0 ppb	< 10.0
Trace Impurities – Silver (Ag)	<= 1.0 ppb	< 0.3
Trace Impurities – Sodium (Na)	<= 100.0 ppb	< 5.0
Trace Impurities – Strontium (Sr)	<= 1.0 ppb	< 0.2
Trace Impurities – Tantalum (Ta)	<= 1.0 ppb	< 0.9
Trace Impurities – Thallium (Tl)	<= 5.0 ppb	< 2.0
Trace Impurities – Tin (Sn)	<= 5.0 ppb	< 0.8
Trace Impurities – Titanium (Ti)	<= 1.0 ppb	0.2
Trace Impurities – Vanadium (V)	<= 1.0 ppb	< 0.2
Trace Impurities – Zinc (Zn)	<= 5.0 ppb	0.3
Trace Impurities – Zirconium (Zr)	<= 1.0 ppb	< 0.1

For Laboratory, Research or Manufacturing Use

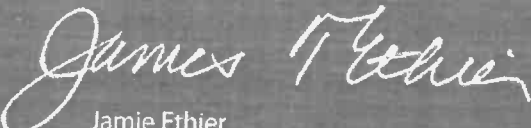
Product Information (not specifications):

Appearance (clear, fuming liquid)

Meets ACS Specifications

Country of Origin: US

Packaging Site: Phillipsburg Mfg Ctr & DC


Jamie Ethier
Vice President Global Quality

For questions on this Certificate of Analysis please contact Technical Services at 855.282.6867 or +1.610.386.1700

Avantor Performance Materials, LLC

100 Matsonford Rd, Suite 200, Radnor, PA 19087. U.S.A. Phone: 610.386.1700

Nitric Acid 69%
CMOS



R → 11/12/24

M6126

Material No.: 9606-03
Batch No.: 24D1062002
Manufactured Date: 2024-03-26
Retest Date: 2029-03-25
Revision No.: 0

Certificate of Analysis

Test	Specification	Result
Assay (HNO ₃)	69.0 – 70.0 %	69.7 %
Appearance	Passes Test	Passes Test
Color (APHA)	≤ 10	5
Residue after Ignition	≤ 2 ppm	1 ppm
Chloride (Cl)	≤ 0.08 ppm	< 0.03 ppm
Phosphate (PO ₄)	≤ 0.10 ppm	< 0.03 ppm
Sulfate (SO ₄)	≤ 0.2 ppm	< 0.2 ppm
Trace Impurities – Aluminum (Al)	≤ 40.0 ppb	< 1.0 ppb
Arsenic and Antimony (as As)	≤ 5.0 ppb	< 2.0 ppb
Trace Impurities – Barium (Ba)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Beryllium (Be)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Bismuth (Bi)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Boron (B)	≤ 10.0 ppb	< 5.0 ppb
Trace Impurities – Cadmium (Cd)	≤ 50 ppb	< 1 ppb
Trace Impurities – Calcium (Ca)	≤ 50.0 ppb	2.3 ppb
Trace Impurities – Chromium (Cr)	≤ 30.0 ppb	< 1.0 ppb
Trace Impurities – Cobalt (Co)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Copper (Cu)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Gallium (Ga)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Germanium (Ge)	≤ 20 ppb	< 10 ppb
Trace Impurities – Gold (Au)	≤ 20 ppb	< 5 ppb
Heavy Metals (as Pb)	≤ 100 ppb	100 ppb
Trace Impurities – Iron (Fe)	≤ 40.0 ppb	< 1.0 ppb
Trace Impurities – Lead (Pb)	≤ 20.0 ppb	< 10.0 ppb
Trace Impurities – Lithium (Li)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Magnesium (Mg)	≤ 20 ppb	< 1 ppb
Trace Impurities – Manganese (Mn)	≤ 10.0 ppb	< 1.0 ppb
Trace Impurities – Nickel (Ni)	≤ 20.0 ppb	< 5.0 ppb

>>> Continued on page 2 >>>

Nitric Acid 69%
CMOS

 **avantor**TM



Material No.: 9606-03
Batch No.: 24D1062002

Test	Specification	Result
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For Microelectronic Use

Country of Origin: USA
Packaging Site: Phillipsburg Mfg Ctr & DC



Jamie Croak
Director Quality Operations, Bioscience Production



SHIPPING DOCUMENTS

CHEMTECH

CHAIN OF CUSTODY RECORD

284 Sheffield Street, Mountainside, NJ 07092
(908) 789-8900 • Fax (908) 789-8922
www.chemtech.net

CHEMTECH PROJECT NO. **P5279**
QUOTE NO.
COC Number **2041523**

CLIENT INFORMATION

REPORT TO BE SENT TO:
COMPANY: **Tully Construction Co.**
ADDRESS: **112-01 beach Channel**
CITY: **Rockaway** STATE: **NJ** ZIP:
ATTENTION: **Dean Devoe**
PHONE: FAX:

CLIENT PROJECT INFORMATION

PROJECT NAME:
PROJECT NO.: LOCATION:
PROJECT MANAGER:
e-mail:
PHONE: FAX:

CLIENT BILLING INFORMATION

BILL TO: PO#:
ADDRESS:
CITY: **Same** STATE: ZIP:
ATTENTION: PHONE:

DATA TURNAROUND INFORMATION

FAX (RUSH) DAYS*
HARDCOPY (DATA PACKAGE): DAYS*
EDD: DAYS*
*TO BE APPROVED BY CHEMTECH
STANDARD HARDCOPY TURNAROUND TIME IS 10 BUSINESS DAYS

DATA DELIVERABLE INFORMATION

☐ Level 1 (Results Only) ☐ Level 4 (QC + Full Raw Data)
☐ Level 2 (Results + QC) ☐ NJ Reduced ☐ US EPA CLP
☐ Level 3 (Results + QC) ☐ NYS ASP A ☐ NYS ASP B
+ Raw Data ☐ Other
☐ EDD FORMAT

SVOC-PAH
TCLP
Corrosivity
PCB
Mercury
TPH
VOC-TCLVOC-10

ANALYSIS

PRESERVATIVES

COMMENTS

CHEMTECH SAMPLE ID	PROJECT SAMPLE IDENTIFICATION	SAMPLE MATRIX	SAMPLE TYPE		SAMPLE COLLECTION		# OF BOTTLES										COMMENTS
			COMP	GRAB	DATE	TIME		1	2	3	4	5	6	7	8	9	
1.	Rockaway Park	90L	X		12-13-24	0820	9	X	X	X	X	X	X				PID=0.0
2.	1	1		X	1	0822	4							X			PID=0.0
3.																	
4.																	
5.																	
6.																	
7.																	
8.																	
9.																	
10.																	

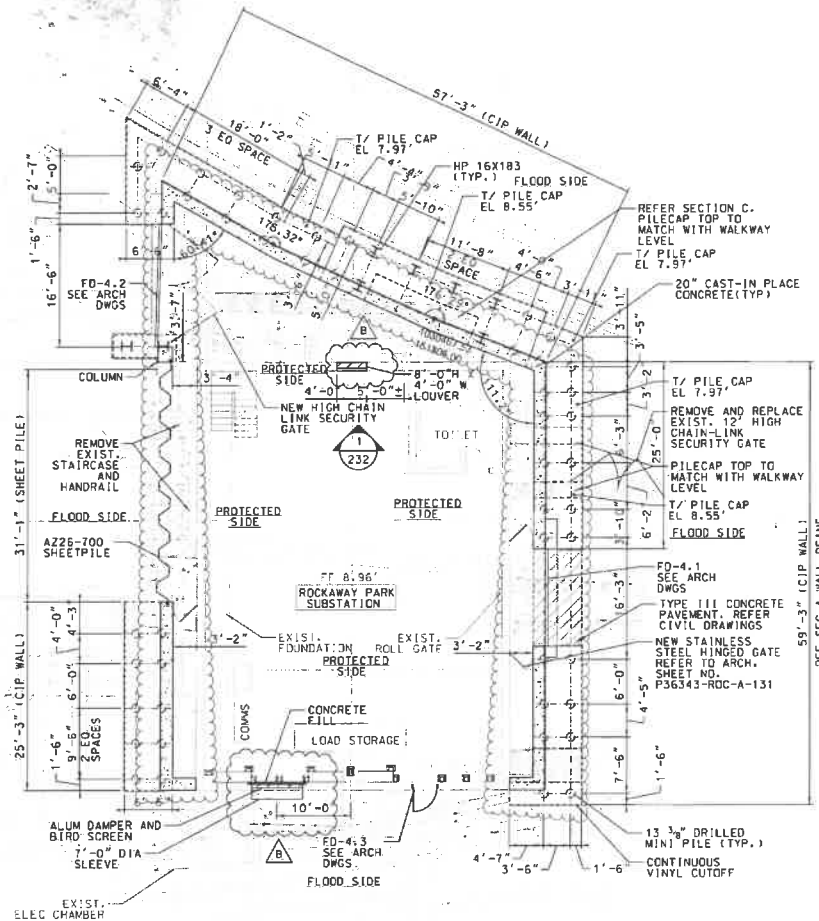
SAMPLE CUSTODY MUST BE DOCUMENTED BELOW EACH TIME SAMPLES CHANGE POSSESSION INCLUDING COURIER DELIVERY

RELINQUISHED BY SAMPLER: 1. L. C.	DATE/TIME: 0900 12-13-2024	RECEIVED BY: 1. L. C.	Conditions of bottles or coolers at receipt: ☐ COMPLIANT ☐ NON COMPLIANT X COOLER TEMP 2.9°C Comments: *PID Meter Calibrated 12-13-2024 Equal volume of soil used 5:1 composite
RELINQUISHED BY SAMPLER: 2. L. C.	DATE/TIME:	RECEIVED BY: 2. L. C.	
RELINQUISHED BY SAMPLER: 3. L. C.	DATE/TIME: 12:00 12-13-2024	RECEIVED BY: 3. L. C.	

Page **1** of **1**

CLIENT: ☐ Hand Delivered ☐ Other
CHEMTECH: ☐ Picked Up ☐ Field Sampling

Shipment Complete
☐ YES ☐ NO



Rockaway Park

NOTE:

1. REFER TO P36343-A-G-701 FOR FLOOD DEVICE OPENING SCHEDULE.

FLOOD WALL LAYOUT PLAN

SCALE: 1/8"=1'-0"



IT IS A VIOLATION OF THE PROFESSIONAL LICENSE LAW FOR ANY PERSON TO ALTER THIS DRAWING IN ANY WAY, UNLESS ACTING UNDER THE DIRECTION OF A LICENSED PROFESSIONAL ENGINEER/REGISTERED ARCHITECT. THE ALTERING ENGINEER/ARCHITECT SHALL AFFIX TO THE DRAWING HIS/HER SEAL AND THE DATE OF SUCH ALTERATION, AND A SPECIFIC DESCRIPTION OF THE ALTERATION.

REVISION	DESCRIPTION	DATE	APPROVED
B	ADDED NEW LOUVER	11/06/2024	CJ
A	REVISED PILE AND INTERNAL HARDENING LAYOUT	09/26/2024	CJ

REVISIONS



CONTRACT P-36343
FLOOD MITIGATION AT TWENTY-SIX (26) SUBSTATIONS
IN THE BOROUGH OF BROOKLYN, MANHATTAN AND QUEENS
**ROCKAWAY PARK SUBSTATION
FLOOD WALL PLAN**



DRAWN BY	R. NUTHAN	DATE	11/06/2024
DESIGNED BY	K. UDAY	DISCIPLINE	STRUCTURE
CHECKED BY	DINAKAR KN	PROJECT NO.	P36343-ROC-CS-131
APPROVED BY	C. JEDRICH, PE	REVISION	

SDDESIGN\$FILE\$EXPANDED\$SPEC\$

PRINT AS OF SDATES\$OF\$PLOTTINGS

USER\$NAME

CHEMTECH

Environmental Laboratory

www.chemtech.net | EMAIL: PM@chemtech.net

Project Name: Rockaway Park
Queens

Chemtech Order ID: _____
Sampler Name: Lawrence Carter
Client Project Coordinator & Phone: _____

Service Order #: _____

Work Order #: _____

Labor WBS #: _____

Facility/Site: _____

Site Address: 112-01 beach

Page #: 1 of 1
Date: 12.13.2024

Channel Backway Queens, n.y.

Arrive Time: 0730

Depart Time: 0900

Waste Stream (circle one): drum / roll-off / soil pile / in-situ / linear construction / frac-tank

Sample Matrices (circle all that apply): Water / ☒ Solid / ☒ NAPL / Concrete / Wipe

soil cover

Collection Depths: _____

Dimensions/CY: _____

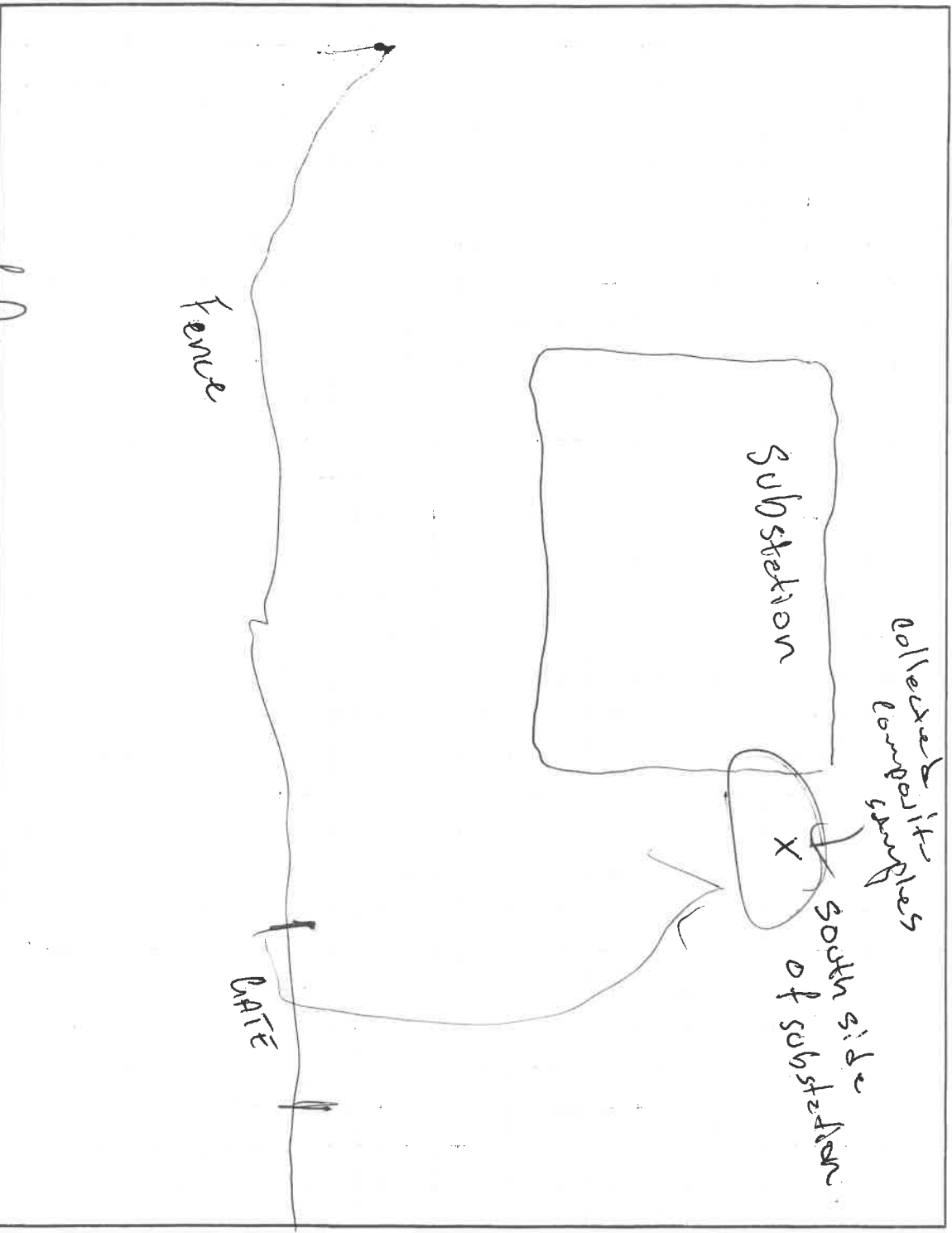
Temp (range): _____ °C PID Readings (range): 0.0 PPM Odor: Y / ☒ N Color: Y / N

Sample Description: Dark GRAY soil.

Field Observations: Sampled, Rockaway Park.

Grid/Area Composite Map:

QA Control # A3041134



Sampler Signature: [Signature] 12.13.2024

Supervisor Review/Date: _____

Client Signature: _____

Date/Time Arrived at Lab: _____



284 Sheffield Street, Mountainside NJ 07092 (908)-789-8900 Fax : 908 789 8922

Laboratory Certification

Certified By	License No.
CAS EPA CLP Contract	68HERH20D0011
Connecticut	PH-0830
DOD ELAP (ANAB)	L2219
Maine	2024021
Maryland	296
New Hampshire	255424 Rev 1
New Jersey	20012
New York	11376
Pennsylvania	68-00548
Soil Permit	525-24-234-08441
Texas	T104704488

LOGIN REPORT/SAMPLE TRANSFER

Order ID : P5279	TULL02	Order Date : 12/13/2024 12:03:00 PM	Project Mgr :
Client Name : Tully Construction Co., Inc.		Project Name : Rockaway Park	Report Type : Level 1
Client Contact : Dean Devoe		Receive DateTime : 12/13/2024 12:00:00 AM	EDD Type : Excel NY 375
Invoice Name : Tully Construction Co., Inc.		Purchase Order :	Hard Copy Date :
Invoice Contact : Dean Devoe			Date Signoff :

LAB ID	CLIENT ID	MATRIX SAMPLE DATE	SAMPLE TIME	TEST	TEST GROUP	METHOD	FAX DATE	DUE DATES
P5279-03	ROCKAWAY-PARK	Solid	12/13/2024	08:22		VOC-TCLVOA-10	8260D	5 Bus. Days

Relinquished By :

Date / Time : 12-13-2024 12:18

Received By :

Date / Time : 12-13-24 12:18

Storage Area : VOA Refrigerator Room