284 Sheffield Street
Mountainside, NJ 07092

SDG NARRATIVE

USEPA
SDG # ME2931
CASE # 51900
CONTRACT # 68HERH20D0011
SOW# SFAM01.1
LAB NAME: Alliance Technical Group, LLC
LAB CODE: ACE
LAB ORDER ID # Q1176
MODIFIED ANALYSIS # 3114.1

A. Number of Samples and Date of Receipt

19 Water samples were delivered to the laboratory intact on 01/23/2025, 01/24/2025.

B. Parameters

Test requested for Metals CLP MS = Aluminum, Antimony, Arsenic, Barium, Beryllium, Cadmium, Calcium, Chromium, Cobalt, Copper, Iron, Lead, Magnesium, Manganese, Nickel, Potassium, Selenium, Silver, Sodium, Thallium, Vanadium, Zinc , Hardness Total & Mercury, Cyanide.

C. Cooler Temp

Indicator Bottle**: Presence/**Absence

Cooler: 1.8°C, 1.4°C, 1.5°C, 2.1°C, 1.9°C, 2.3°C, 1.1°C, 2.0°C

D. Detail Documentation (related to Sample Handling Shipping, Analytical Problem, Temp of Cooler etc):

Issue 1: A "P" or "M" prefix was listed at the beginning of a CLP sample ID.

Issue 2: The laboratory received a COC for Case 51847 which is complete.

E. Corrective Action taken for above:

Resolution 1: To maintain COC integrity, ASB requests no changes to the Sample IDs. The laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.

Resolution 2: Per Region 5, the correct Case number is 51900. The laboratory will apply this resolution to all further samples received with the Case number 51847. Please note the issue in the SDG Narrative and proceed with the analysis of the samples.

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F. Analytical Techniques:

All analyses were based on CLP Methodology by method SFAM01.1.

G. Calculation:

Calculation for ICP-MS Water Sample:

$$\text{Concentration or Result } (\mu g/L) = C \times \frac{Vf}{Vi} \times DF$$

Where,

C = Instrument value in ppb (The average of all replicate integrations)
Vf = Final digestion volume (mL)
Vi = Initial aliquot amount (mL) (Sample amount taken in prep)
DF = Dilution Factor

Example Calculation For Sample ME2931 For Antimony:

If C = 0.19 ppb
Vf = 50 ml
Vi = 50 ml
DF = 1

$$\text{Concentration or Result } (\mu g/L) = 0.19 \times \frac{50}{50} \times 1$$

$$= 0.19\ \mu g/L$$

$$= 0.19\ \mu g/L \text{ (Reported Result with Signification)}$$

Calculation for Hg Water Sample:

$$\text{Concentration or Result } (\mu g/L) = C \times DF$$

Where,

C = Instrument response in µg/L from the calibration curve.
DF = Dilution Factor

Example Calculation For Sample ME2940:

If C = 0.033 ppb

DF = 1
Concentration or Result (µg/L) = 0.033 x 1

= 0.033 µg/L

= 0.033 µg/L (Reported Result with Signification)

Calculation for CN Water Sample:

$$\text{Concentration or Result (µg/L)} = C \times \frac{Vf}{Vi} \times DF$$

Where,

C = Instrument response in µg/L CN from the calibration curve.
Vf = Final prepared (absorbing solution) volume (mL)
Vi = Initial aliquot amount (mL) (Sample amount taken in prep)
DF = Dilution Factor

Example Calculation For Sample ME2938 :

If C = 6.8401 ppb
Vf = 50 ml
Vi = 50 ml
DF = 1

$$\text{Concentration or Result (µg/L)} = 6.8401 \times \frac{50}{50} \times 1$$

= 6.8401 µg/L

= 6.8 µg/L(Reported Result with Signification)

H. QA/ QC

Calibrations met requirements. Interference check met requirements. Blank analyses did not indicate any presence of contamination. Laboratory Control sample was within control limits. Spike sample did meet requirements except for Selenium. Duplicate sample did meet requirements. Serial Dilution did meet requirements

Collision cell is being used to remove potential interferences. The analytes Na, Mg, Al, K, V, Cr, Mn, Fe, Co, Ni, Cu, Zn, As are being analyzed with collision cell and analytes Be, B, Ca, Ti, Se, Sr, Zr, Mo, Ag, Cd, Sn, Sb, Ba, Tl, Pb, U are being analyzed with Non-Collision Cell. Helium gas is used for the Collision Cell analysis.

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Internal Standard Association for ICP-MS analysis.

Target Analyte	Associated Internal Standard
Aluminum	45Sc
Antimony	159Tb
Arsenic	89Y
Barium	159Tb
Beryllium	6Li
Cadmium	159Tb
Calcium	45Sc
Chromium	45Sc
Cobalt	45Sc
Copper	45Sc
Iron	45Sc
Lead	209Bi
Magnesium	45Sc
Manganese	45Sc
Nickel	45Sc
Potassium	45Sc
Selenium	89Y
Silver	159Tb
Sodium	45Sc
Thallium	209Bi
Vanadium	45Sc
Zinc	45Sc

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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 Director or his designee, as verified by the following signature.

Signature_____ Name: Nimisha Pandya

Date _____ Title: Document Control Officer

Date: 08/08/2023	**MA:** 3114.1	**Title:** ICP-MS Analysis with Hardness
Method Source: SFAM01.1	**Method:** ICP-MS	
Matrix: Aqueous/Water		

Summary of Modification

The purpose of this modified analysis is to analyze aqueous/water samples by ICP-MS with the additional calculated analyte Hardness. Unless specifically modified by this modification, all analyses, Quality Control (QC), and reporting requirements specified in the SOW listed in your current EPA agreement remain unchanged and in full force and effect.

I. Analyte Modifications **Not applicable** ☐

Analyte	CAS Number	CRQL (mg/L)
Hardness (total)	Hardness	3.3

II. Calibration and QC Requirements **Not applicable** ☒

III. Preparation and Method Modifications **Not applicable** ☒

IV. Special Reporting Requirements **Not applicable** ☐

The Laboratory shall:

- Report Hardness (total) in units of mg/L on Form 1, calculated from the calcium and magnesium results using Equation 4F in Exhibit G, Section 3.2.
- The instructions for reporting Hardness by ICP-AES apply to these ICP-MS analyses. All applicable AnalyteGroupID and AnalysisGroupID data elements shall be reported. Report AnalyteGroup for Hardness, and any necessary AnalysisGroup nodes.
- Report the reported results for Hardness (total) in the EDD with AnalyteType = “Derived” and ClientAnalyteID = “Hardness” for the field samples, field blanks, and PT samples only.
- Ensure the SDG Narrative is updated as stated in the SOW, including any technical and administrative problems encountered and the resolution or corrective actions taken. These problems may include interference problems encountered during analysis, dilutions, re-analyses and/or re-preparations performed, and problems with the analysis of samples. Also, include a discussion of any SOW Modified Analyses, including a copy of the approved modification form with the SDG Narrative.
- Report the “J” and “U” qualifiers in accordance with the requirements in Exhibit B, Section 3.4.3.2.4.2, using the modified CRQL.