



**284 Sheffield Street  
Mountainside, NJ 07092**

## **SDG NARRATIVE**

**USEPA**

**SDG # ME29C5**

**CASE # 51900**

**CONTRACT # 68HERH20D0011**

**SOW# SFAM01.1**

**LAB NAME: Alliance Technical Group, LLC**

**LAB CODE: ACE**

**LAB ORDER ID # Q1339**

**MODIFIED ANALYSIS # 3114.1**

### **A. Number of Samples and Date of Receipt**

07 Water samples were delivered to the laboratory intact on 02/07/2025.

### **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: 2.6°C, 3.0°C, 2.3°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: Laboratory QC is required for SDG ME29C5 for ICP-MS, Hg, and CN analysis for water samples, but a sample was not designated for Laboratory QC on the COC. The laboratory selected sample ME29D2 for Laboratory QC and confirmed the sample is not a blank, rinsate or PT sample.

### **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 SOW SFAM01.1 Exhibit A, Section 5.5.4.1, the laboratory will note the issue in the SDG Narrative and proceed with the analysis of the samples.



**284 Sheffield Street  
Mountainside, NJ 07092**

#### **F. Analytical Techniques:**

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

#### **G. Calculation:**

##### **Calculation for ICP-MS Water Sample:**

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

Where,

C = Instrument value in ppb (The average of all replicate integrations)

V<sub>f</sub> = Final digestion volume (mL)

V<sub>i</sub> = Initial aliquot amount (mL) (Sample amount taken in prep)

DF = Dilution Factor

##### **Example Calculation For Sample ME29C5 For Arsenic:**

If C = 2.27 ppb

V<sub>f</sub> = 50 ml

V<sub>i</sub> = 50 ml

DF = 1

$$\text{Concentration or Result } (\mu\text{g/L}) = 2.27 \times \frac{50}{50} \times 1$$

$$= 2.27 \mu\text{g/L}$$

$$= 2.3 \mu\text{g/L (Reported Result with Signification)}$$

##### **Calculation for Hg Water Sample:**

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

Where,

C = Instrument response in  $\mu\text{g/L}$  from the calibration curve.

DF = Dilution Factor

##### **Example Calculation For ME29C6 :**

If C = 0.0246 ppb

DF = 1

$$\text{Concentration or Result } (\mu\text{g/L}) = 0.0246 \times 1$$

$$= 0.0246 \mu\text{g/L}$$

$$= 0.025 \mu\text{g/L (Reported Result with Signification)}$$



**284 Sheffield Street  
Mountainside, NJ 07092**

**Calculation for CN Water Sample:**

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

Where,

C = Instrument response in  $\mu\text{g/L}$  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 Cyanide:**

If C = 4.1106 ppb

Vf = 50 ml

Vi = 50 ml

DF = 1

$$\text{Concentration or Result } (\mu\text{g/L}) = 4.1106 \times \frac{50}{50} \times 1$$

$$= 4.1106 \mu\text{g/L}$$

$$= 4.1 \mu\text{g/L} (\text{Reported Result with Signification})$$

**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. MS Spike sample did meet requirements except for Mercury. Duplicate sample did meet requirements except for Manganese, Potassium, Zinc. 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.

Internal Standard Association for ICP-MS analysis.

Target Analyte	Associated Internal Standard
Aluminum	45Sc
Antimony	159Tb
Arsenic	89Y



**284 Sheffield Street  
Mountainside, NJ 07092**

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

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

<b>Date:</b> 08/08/2023	<b>MA:</b> 3114.1	<b>Title:</b> ICP-MS Analysis with Hardness
<b>Method Source:</b> SFAM01.1	<b>Method:</b> ICP-MS	
<b>Matrix:</b> Aqueous/Water		
<b>Summary of Modification</b>		
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.		
<b>I. Analyte Modifications</b>		<b>Not applicable</b> <input type="checkbox"/>

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

<b>II. Calibration and QC Requirements</b>	<b>Not applicable</b> <input checked="" type="checkbox"/>
<b>III. Preparation and Method Modifications</b>	<b>Not applicable</b> <input checked="" type="checkbox"/>
<b>IV. Special Reporting Requirements</b>	<b>Not applicable</b> <input type="checkbox"/>
<p>The Laboratory shall:</p> <ul style="list-style-type: none"> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> <li>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.</li> </ul>	