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Environmental Management
 Los Alamos Field Office
 P.O. Box 1663, MS M984
 Los Alamos, New Mexico 87545
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Date: October 8, 2020
Refer To: N3B-2020-0345

Mr. Kevin Pierard
 Bureau Chief
 Hazardous Waste Bureau
 New Mexico Environment Department
 2905 Rodeo Park Drive East, Building 1
 Santa Fe, NM 87505-6313

Subject: Request to Use an Equivalent U.S. Environmental Protection Agency Method for Measurement of Potentiometric pH in the Waste Processes in Dome 231 for the Los Alamos National Laboratory Hazardous Waste Facility Permit, EPA ID # NM0890010515

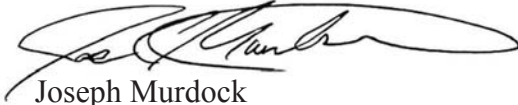
Dear Mr. Pierard:

The U.S. Department of Energy (DOE) and Newport News Nuclear BWXT-Los Alamos, LLC (N3B) are requesting that the New Mexico Environment Department (NMED) Hazardous Waste Bureau review and approve the use of a U.S. Environmental Protection Agency method equivalent to method SW-846 9040C, "pH Electrometric Measurement," as specified in Attachment C, Subsection C.3.2.4.1, of the Los Alamos National Laboratory Hazardous Waste Facility Permit.

Attachment C, Subsection C.3.2.4.1, states that "The Permittees may use an equivalent method, if approved in advance by NMED." DOE and N3B have selected the HALO Smart Electrode HI12302 polyetherimide gel-filled Bluetooth to perform potentiometric pH measurements during waste processing activities in Dome 231 as outlined in the "Class 1 Permit Modification Request Requiring Prior Approval for Treatment in Containers for Los Alamos National Laboratory Hazardous Waste Facility Permit, EPA ID No. NM0890010515," which was approved by NMED on June 29, 2020. This method meets the specification requirements outlined in SW-846 9040C for operation. Enclosure 1 is a letter from Hanna Instruments, the manufacturer of the HALO Smart Electrode, and Enclosure 2 is the Hanna Instruments standard operating procedure for pH measurement.

If you have questions, please contact Emily Day at (505) 695-4243 (emily.day@em-la.doe.gov) or Arturo Duran at (505) 257-7907 (arturo.duran@em.doe.gov).

Sincerely,



Joseph Murdock
Program Manager
Environment, Safety and Health
N3B-Los Alamos

Sincerely,

Arturo Duran

Digitally signed by Arturo Duran
Date: 2020.10.06
06:44:49 -06'00'

Arturo Q. Duran
Compliance and Permit Manager
Environmental Management
Los Alamos Field Office

Enclosure(s):

1. Letter of Equivalency from the Manufacturer
2. Standard Operating Procedure from the Manufacturer

cc (letter and enclosure[s] emailed):

Laurie King, EPA Region 6, Dallas, TX
Chris Catechis, NMED-DOE-OB
Steve Yanicak, NMED-DOE-OB
Siona Briley, NMED-HWB
Neelam Dhawan, NMED-HWB
Mitchell Schatz, NMED-HWB
Karen Armijo, NA-LA
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Arturo Duran, EM-LA
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David Nickless, EM-LA
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Michael Hazen, LANL
Jackie Hurtle, LANL
Patrick L. Padilla, LANL
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n3brecords@em-la.doe.gov
Public Reading Room (EPRR and HPRR)
PRS website

Enclosure 1

Letter of Equivalency from the Manufacturer



Hanna Instruments United States Inc.

270 George Washington Hwy. Smithfield, RI, 02917

Tel: 401-765-0045

www.hannainst.com

September 1, 2020

To Whom It May Concern,

The purpose of this document is to certify that the following Hanna Instruments Products

HALO® family of Bluetooth® Smart Electrodes, including the HI12302 PEI gel filled Bluetooth® electrode

meets all required specifications for operation in compliance with

EPA Method 9040C, Revision 3, November 2004, "pH Electrometric Measurement."

In accordance with this certification, Hanna's product meets compliancy criteria when used per the operational guidelines outlined in the methodology.

Warm Regards,

A handwritten signature in black ink that reads 'Michelle L. Salisbury'.

Michelle Salisbury

APPLICATIONS MANAGER, HANNA USA

Enclosure 2

Standard Operating Procedure from the Manufacturer

1.0 Purpose

Accurate pH determinations require several important maintenance, calibration, and measurement processes. Improper calibration, storage, or cleaning of the pH electrode can cause inaccurate readings, which can impact quality and safety.

The purpose of this standard operating procedure (SOP) is to establish all the necessary steps to use, store, and care for a pH electrode. Specific attention is given to address the differences in measuring solid and liquid samples.

2.0 Materials

- [pH meter](#) with [electrode](#)
- Pure water (e.g. [deionized](#) (DI), reverse osmosis (RO), distilled)
- pH [calibration buffers](#) (e.g. pH 4.01, 7.01, 10.01)
- pH electrode [cleaning solution](#)
- pH electrode [storage solution](#)
- Beakers
- [Magnetic stir](#) plate and stir bars (optional)

3.0 Setup (Before You Measure)

3.1 Electrode Preparation

- Remove protective cap from the electrode.
- Inspect the electrode for any scratches or cracks. If present, replace the electrode.
- Shake the electrode down to remove any air bubbles inside the glass bulb.
- Ensure that the electrode was cleaned and stored properly (see 5.0 Maintenance).
- Rinse electrode with pure water to remove any salt deposits.

3.2 Calibration

- Fill a beaker with enough pH calibration buffer to cover the electrode junction (about 75 mL in a 100 mL beaker).
- Place the electrode in the beaker containing pH calibration buffer and gently stir.
- Confirm the calibration point when the reading is stable, or when the digits do not change for at least 5 seconds.
- Repeat for additional calibration points. Be sure to rinse with pure water between calibration points. At least two calibration points are recommended.

NOTE: In general, pH 4 and 7 buffers can last 4-8 weeks after opening, and an alkaline pH buffer (i.e. pH 10) will last 1-2 weeks after opening.

4.0 Measurement

4.1 Liquid Samples

- Rinse the electrode with pure water.
- Immerse the tip in the sample and stir gently, or use a magnetic stirrer.
- Wait until the reading is stable, or when the digits do not change for at least 5 seconds before recording the measurement.
- Rinse the electrode with pure water until all residues are removed.
- Repeat this procedure for additional samples.

NOTE: For solid or semi-solid samples, it is possible to create a slurry of deionized water and solid sample and perform measurements as above. Follow approved methods.

4.2 Solid Samples

- Rinse the electrode with pure water.
- Use a knife or auger to make a hole for the pH electrode. Some pH electrodes have an integrated blade. In these cases, simply insert the probe into the sample.
- Insert the tip of the probe into the hole. Ensure electrode junction coverage by placing the electrode at least 2 cm (0.75") into the sample.

5.0 Maintenance (After You Measure)

5.1 Electrode Cleaning

- Fill a 100 mL beaker with approximately 75 mL cleaning solution.
- Place the pH electrode into the cleaning solution for at least 15 minutes, making sure the junction is covered.
- If a refillable electrode is visibly contaminated, drain the reference electrolyte chamber with a syringe or capillary pipette and refill with fresh electrolyte. Allow the electrode to stand upright for one hour.
- Place in storage solution for at least 1 hour and re-calibrate before next use.

5.2 Electrode Storage

- Replace the storage solution in the protective cap or beaker.
- Submerge the glass bulb and junction in protective cap or beaker with solution.
- A dry electrode should soak in storage solution for at least one hour prior to use and should be re-calibrated. However, overnight is optimal.

Pamela T. Maestas

From: Martinez, Cynthia, NMENV <cynthia.martinez1@state.nm.us>
Sent: Tuesday, October 13, 2020 11:40 AM
To: Pamela T. Maestas
Subject: RE: Submittal to NMED on 10/8/2020 of Rqst to Use an Equiv EPA Method for pH in Dome 231

Received.
Does Mr. Pierard ever respond to your submittals?
Just wondering....

From: Pamela T. Maestas <pamela.maestas@em-la.doe.gov>
Sent: Tuesday, October 13, 2020 11:38 AM
To: Martinez, Cynthia, NMENV <cynthia.martinez1@state.nm.us>
Subject: [EXT] RE: Submittal to NMED on 10/8/2020 of Rqst to Use an Equiv EPA Method for pH in Dome 231

Hi Cynthia,
Can you please acknowledge receipt of the document listed below?
Thank you.

From: Pamela T. Maestas <pamela.maestas@em-la.doe.gov>
Sent: Thursday, October 8, 2020 4:49 PM
To: Pierard, Kevin, NMENV <Kevin.Pierard@state.nm.us>
Cc: Dhawan, Neelam, NMENV <neelam.dhawan@state.nm.us>; siona.briley@state.nm.us; mitchell.schatz@state.nm.us; Emily M. Day <Emily.Day@em-la.doe.gov>; Regulatory Documentation <RegDocs@EM-LA.DOE.GOV>; Martinez, Cynthia, NMENV <cynthia.martinez1@state.nm.us>; Arturo Duran <arturo.duran@em.doe.gov>; Ellen Gammon <ellen.gammon@em-la.doe.gov>
Subject: Submittal to NMED on 10/8/2020 of Rqst to Use an Equiv EPA Method for pH in Dome 231

Mr. Pierard,
Attached for submittal is a pdf file of the following:

- Request to Use an Equivalent U.S. Environmental Protection Agency Method for Measurement of Potentiometric pH in the Waste Processes in Dome 231 for the Los Alamos National Laboratory Hazardous Waste Facility Permit, EPA ID # NM0890010515 (N3B-2020-0345, letter and enclosures)

Please acknowledge receipt of this submittal by responding to this email.
Let me know if you have any questions.
Thank you.

Pamela T. Maestas
Regulatory Documentation Manager
Newport News Nuclear BWXT-Los Alamos, LLC
c. 505-927-7882
regdocs@em-la.doe.gov



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Los Alamos, NM 87544