



**Mercury Relative Accuracy Test Audit
Test Report**

**Lansing Board of Water and Light
Erickson Station
Unit 1 Stack
Lansing, Michigan
September 7, 2022**

**Report Submittal Date
October 11, 2022**

© Copyright 2022
All rights reserved in
Mostardi Platt

Project No. M223207C

RECEIVED

OCT 25 2022

AIR QUALITY DIVISION

TABLE OF CONTENTS

| | |
|--|----|
| 1.0 EXECUTIVE SUMMARY | 1 |
| 2.0 TEST METHODOLOGY | 2 |
| Mercury Determination by Method 30B (Sorbent Trap Method)..... | 2 |
| 3.0 TEST RESULT SUMMARY | 3 |
| 4.0 CERTIFICATION..... | 4 |
| APPENDIX | |
| Appendix A - Test Section Diagram..... | 6 |
| Appendix B - Sample Train Diagrams | 8 |
| Appendix C - Calculation Nomenclature and Formulas | 10 |
| Appendix D - Sample Analysis Data | 14 |
| Appendix E - Mercury QA/QC Data | 22 |
| Appendix F - Reference Method Test Data (Computerized Sheets)..... | 28 |
| Appendix G - Continuous Emissions Monitoring System Data and Plant Operating Data..... | 34 |
| Appendix H - Calibration Data..... | 76 |
| Appendix I - Field Data Sheets | 84 |

1.0 EXECUTIVE SUMMARY

Mostardi Platt conducted a mercury (Hg) continuous emission monitoring system (CMMS) relative accuracy test audit (RATA) test program for Lansing Board of Water and Light at the Erickson Station in Lansing, Michigan on the Unit 1 Stack on September 7, 2022. This report summarizes the results of the test program and test methods used.

The test location, test date, and test parameter are summarized below.

| TEST INFORMATION | | |
|-------------------------|-------------------|-----------------------|
| Test Location | Test Dates | Test Parameter |
| Unit 1 Stack | September 7, 2022 | Mercury (Hg) |

The purpose of this test program was to determine the relative accuracy of the CMMS during specified operating conditions in units of micrograms per dry standard cubic meters ($\mu\text{g}/\text{dscm}$). The test consisted of twelve (12) paired Method 30B Hg sampling runs performed on September 7, 2022. Each sample was extracted at three test points. Reference method and CMMS traps were analyzed onsite utilizing an Ohio Lumex analyzer. Selected results of the test program are summarized below. A complete summary of emission test results follows the narrative portion of this report.

| RELATIVE ACCURACY TEST AUDIT TEST RESULTS SUMMARY | | | |
|--|---------------------------|---|-------------------------------|
| Parameter | Units | Relative Accuracy Acceptance Criteria* | Relative Accuracy (RA) |
| Hg | $\mu\text{g}/\text{dscm}$ | $\leq 20\%$ of the mean reference value | 11.00% |

The test results from this test program indicate that the CMMS pass criteria for relative accuracy as detailed in the United States Environmental Protection Agency (USEPA) annual RATA Performance Specification 12B, as published in 40 CFR Part 60.

The identifications of individuals associated with the test program are summarized below.

| TEST PERSONNEL INFORMATION | | |
|-----------------------------------|---|---|
| Location | Address | Contact |
| Test Coordinator | Lansing Board of Water and Light 1201 S. Washington Ave. Lansing, Michigan 48910 | Nathan Hude Environmental Regulatory Compliance – Air (517) 705-6170 (phone) Nathan.hude@lbwl.com |
| Test Facility | Lansing Board of Water and Light Erickson Station 3725 S. Canal Road Lansing, Michigan 48917 | |
| Testing Company Representative | Mostardi Platt 888 Industrial Drive Elmhurst, Illinois 60126 | Stuart Burton Project Manager (630) 993-2100 (phone) sburton@mp-mail.com |

The test crew consisted of C. Buglio, K. Beckham, T. Long, T. Yanowsky, and S. Burton of Mostardi Platt.

2.0 TEST METHODOLOGY

Emissions testing was conducted following the methods specified in 40 CFR, Part 60, Appendix A and Appendix B, Performance Specification 12B. A drawing depicting the sampling ports and test point locations is found in Appendix A, drawings depicting sampling trains are found in Appendix B, calculation and nomenclature explanations are found in Appendix C, sample analysis data are found in Appendix D, mercury sampling QA/QC data are found in Appendix E, reference test method data are found in Appendix F, CMMS data are found in Appendix G, calibration data are found in Appendix H, and copies of field data sheets are included in Appendix I.

The following methodology was used during the test program:

Mercury Determination by Method 30B (Sorbent Trap Method)

Paired trains were utilized sampling three test points at the Unit 1 Stack test location.

Per Method 30B sampling, each sample was collected on the paired in-situ sorbent traps. A tube of silica was used to capture remaining moisture prior to the sample reaching the gas metering system.

The sample train used for this test program was designed by APEX, Inc. and meets all requirements for Method 30B sampling. Samples were analyzed onsite utilizing an Ohio Lumex, Inc. analyzer for total gaseous mercury.

3.0 TEST RESULT SUMMARY

| Client: Lansing Board of Water and Light | | | | Location: Unit 1 Stack | | | | |
|---|----------|-----------|------------|--------------------------------------|--------------|--------------|---------------------------|--|
| Plant: Erickson Station | | | | Date: 9/7/22 | | | | |
| Project #: M223207 | | | | Test Method: Sorbent Hg (30B) | | | | |
| Hg ug/dscm RATA | | | | | | | | |
| CMMS Monitor Information | | | | | | | | |
| 1=accept 0=reject | Test Run | Test Date | Start Time | End Time | RM ug/dscm | CMMS ug/dscm | (RM-CMMS) Difference (di) | (RM-CMMS) Difference ² (di ²) |
| 0 | 1 | 09/07/22 | 6:45 | 7:15 | 0.732 | 0.610 | 0.122 | 0.015 |
| 1 | 2 | 09/07/22 | 8:35 | 9:05 | 0.606 | 0.575 | 0.031 | 0.001 |
| 1 | 3 | 09/07/22 | 9:25 | 9:55 | 0.662 | 0.615 | 0.047 | 0.002 |
| 1 | 4 | 09/07/22 | 10:15 | 10:45 | 0.599 | 0.574 | 0.025 | 0.001 |
| 1 | 5 | 09/07/22 | 11:02 | 11:32 | 0.601 | 0.531 | 0.070 | 0.005 |
| 1 | 6 | 09/07/22 | 11:50 | 12:20 | 0.551 | 0.548 | 0.003 | 0.000 |
| 0 | 7 | 09/07/22 | 12:35 | 13:05 | 0.798 | 0.680 | 0.118 | 0.014 |
| 0 | 8 | 09/07/22 | 13:25 | 13:55 | 0.815 | 0.636 | 0.179 | 0.032 |
| 1 | 9 | 09/07/22 | 14:10 | 14:40 | 0.659 | 0.562 | 0.097 | 0.009 |
| 1 | 10 | 09/07/22 | 14:55 | 15:25 | 0.671 | 0.658 | 0.013 | 0.000 |
| 1 | 11 | 09/07/22 | 15:42 | 16:12 | 0.738 | 0.650 | 0.088 | 0.008 |
| 1 | 12 | 09/07/22 | 16:30 | 17:00 | 0.609 | 0.625 | -0.016 | 0.000 |
| n | | | | | 9 | | | |
| t(0.025) | | | | | 2.306 | | | |
| Mean Reference Method Value | | | | | 0.633 | | RM avg | |
| Mean CMM Value | | | | | 0.593 | | CMM avg | |
| Sum of Differences | | | | | 0.358 | | di | |
| Mean Difference | | | | | 0.040 | | d | |
| Sum of Differences Squared | | | | | 0.026 | | di² | |
| Standard Deviation | | | | | 0.039 | | sd | |
| Confidence Coefficient 2.5% Error (1-tail) | | | | | 0.030 | | cc | |
| Relative Accuracy | | | | | 11.00 | | RA | |

4.0 CERTIFICATION

Mostardi Platt is pleased to have been of service to Lansing Board of Water and Light. If you have any questions regarding this test report, please do not hesitate to contact us at 630-993-2100.

As project manager, I hereby certify that this test report represents a true and accurate summary of emissions test results and the methodologies employed to obtain those results, and the test program was performed in accordance with the methods specified in this test report.

MOSTARDI PLATT



Stuart L. Burton

Project Manager



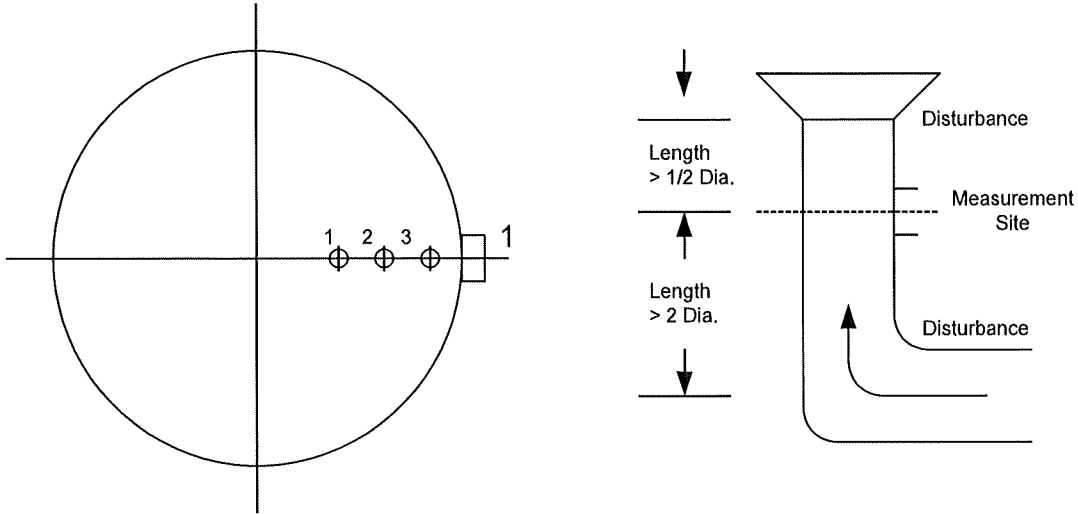
Scott W. Banach

Quality Assurance

APPENDICES

Appendix A- Test Section Diagram

GASEOUS TRAVERSE FOR ROUND DUCTS



Job: Lansing Board of Water and Light
 Erickson Station
 Lansing, Michigan

Distance from inside wall
 at port to traverse point:

Date: September 7, 2022

1. 6.56 Feet (2.0 Meters)
2. 3.94 Feet (1.2 Meters)
3. 1.31 Feet (0.4 Meters)

Test Location: Unit 1 Stack

Stack Diameter (Feet): 17.0

Stack Area (Square Feet): 226.98

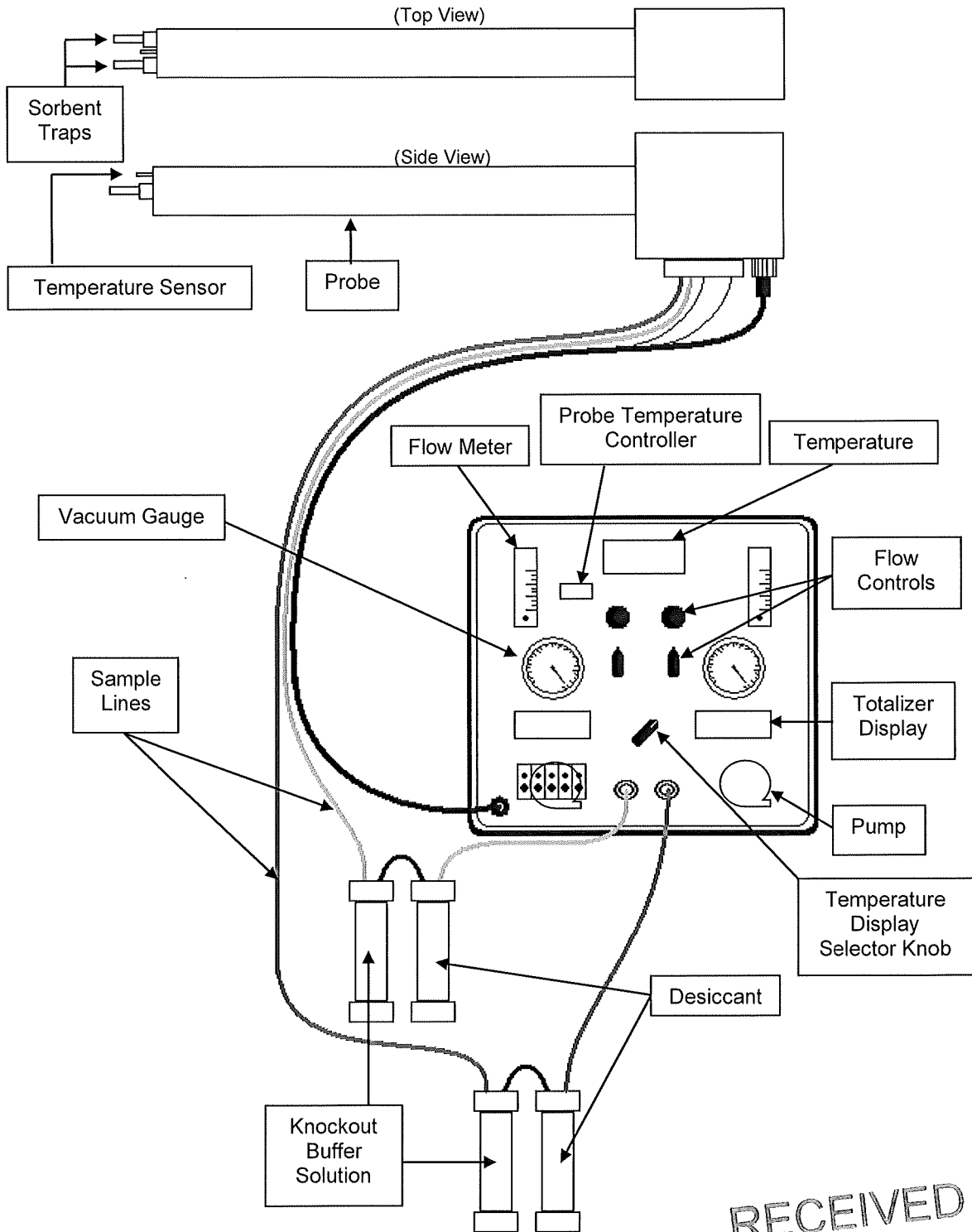
No. Sample Points: 3

No of Ports: 1

Port Length (Inches): 78.0

Appendix B- Sample Train Diagram

USEPA Method 30B- Mercury Sorbent Trap Sampling Train



RECEIVED

OCT 25 2021/2021

Appendix C- Calculation Nomenclature and Formulas