Appendix H: Summary of Requirements for Performance Test Protocol and Performance Test Report

Appendix H: Summary of Requirements for Performance Test Protocol and Performance Test Report

The Performance Test Protocol must contain a site-specific test plan. Part A of this appendix specifies what shall, at a minimum, be included in the site-specific test plan.

Following the completion of the performance testing contained in the Performance Test Protocol, CLCM shall submit to EPA and DNR a Performance Test Report. Part B of this appendix specifies what information shall, at a minimum, be included in the Performance Test Report.

Part A of Appendix H: Test Plan Requirements

The site-specific test plan contained in the Performance Test Protocol shall be comprised of written descriptions, summary tables, and figures that encompass all aspects of the performance testing that will be conducted to satisfy the terms of the consent decree. The site-specific test plan shall include a Table of Contents, a List of Figures and List of Tables. In addition, the test plan shall include the sections specified in Figure 1 of this appendix.

The remainder of Part A of this appendix specifies content that shall be included in each required section of the test plan required under this Decree.

Appendix H: Figure 1 – Required Test Plan Sections

1.0 Introduction
- 1.1 Summary of Test Program
- 1.2 Test Program Organization

2.0 Source Description
- 2.1 Process Description
- 2.2 Control Equipment Description

3.0 Test Program
- 3.1 Objectives
- 3.2 Test Matrix

4.0 Sampling Locations
- 4.1 Flue Gas Sampling Locations
- 4.2 Process Sampling Locations

5.0 Sampling and Analytical Procedures
- 5.1 Test Methods
- 5.2 Process and Control Data

6.0 QA/QC Activities
- 6.1 QC Procedure
- 6.2 QA Audits
- 6.3 QA/QC Checks for Data Reduction and Validation
- 6.4 Sample Identification and Custody

7.0 Reporting and Data Reduction Requirements
- 7.1 Report Format
- 7.2 Data Reduction and Summary

8.0 Plant Entry and Safety
- 8.1 Safety Responsibilities
- 8.2 Safety Program
- 8.3 Safety Requirements

9.0 Personnel Responsibilities and Test Schedule
- 9.1 Test Site Organization
- 9.2 Test Preparations
- 9.3 Test Personnel Responsibilities and Detailed Schedule

1.0 Introduction: This section shall include a Summary of Test Program subsection and Test Program Organization subsections.

1.1 Summary of Test Program: This subsection shall contain a brief summary that identifies or states the following

1.1.1 Responsible stack testing group/organization

1.1.2 Overall purpose of the emission test. The overall purpose shall include the following objectives:

a. Quantify capture efficiency of the Steel Drum Process Line and the Poly Drum Process Line capture system

b. Quantify destruction efficiency of the Regenerative Thermal Oxidizer (RTO) when controlling the Steel Drum Process Line and when controlling the Poly Drum Process Line

c. Quantify volatile organic compounds (VOC) and hazardous air pollutants (HAP) emission rates (ppm and lbs/hr) from the facility

d. Identify process line and air pollution control (capture and destruction) equipment monitoring parametric set points and/or ranges

1.1.3 Applicable Terms of Consent Decree and Regulations, as applicable

1.1.4 Industry

1.1.5 Name of Plant

1.1.6 Plant Location

1.1.7 Processes of interest

a. Steel Drum Process Line. During the Steel Drum Process Line Test, all processes that make up the Steel Drum Process Line shall be operating. The Paint Process Line shall also be operating during the Steel Process Line Test.

b. Poly Drum Process Line. During the Poly Drum Process Line Test, all processes that make up the Poly Drum Process Line shall be operating.

c. Paint Process Line.

1.1.8 Air pollution control equipment. The air pollution control equipment shall include the capture system for the Steel Drum Process Line, the capture system for the Poly Drum Process Line, the capture system for the Painting Process Line and the RTO.

1.1.9 Emissions points and sampling locations. For each process line, identify all controlled and uncontrolled exhaust points. For uncontrolled exhaust points, provide a description of whether each exhaust point has a fan.

1.1.10 Pollutants to be measured. VOC and HAPs shall be included in the list of pollutants to be measured.

1.1.11 Expected date(s) of test

1.0 Test Program Organization: This subsection shall include the following:

1.0.1 Test program organizational chart with lines of communication

1.0.2 Names and phone numbers of responsible official(s)

2.0 Source Description: This section shall include a Process Description subsection and a Control Equipment Description subsection.

2.1 Process Description: This subsection shall include the following:

2.1.1 Flow diagram and general description of the basic processes. For each process, indicate emission and process stream test points.

2.1.2 Discussion of unit or equipment operations that might affect testing or test results. Discussion should address any emissions unit that will be operating during the test.

2.1.3 Discussion explaining that testing will be conducted while processing drums that formerly contained a solvent or a mixture that includes more than 5% solvent which is defined as a

VOC. These drums should be selected based on reviewing the label (and SDS if available) describing the previous content of the drum.

2.1.4 Discussion of the conditions under which testing will be conducted that are consistent with representative conditions as described in EPA Stack Testing Guidance and Wisconsin Admin. Code ss. NR 439.07(1) (collectively "guidance"), including.[1]

a. Throughput for each process line, including the maximum capacity of each process line (drums per hour)
b. Parametric and operating ranges for processes
c. Ventilation affecting capture efficiency, including whether man doors, garage doors, roof vents will be open, whether fans will be on (at what speed, if variable), water temperature, water pH, VOC content of the wash water, and the age of the wash water[2].

2.1.5 An explanation of how drum staging prior to the test will occur.

2.1.6 Description of TTE under which testing will be conducted, including locations of NDOs and exhaust ducts (whether equipped with a fan, total area of proposed NDOs, evaluation of TTE against Method 204 criteria, with drawing of the locations of emission units, NDOs, and exhaust location(s)).

2.2 Control Equipment Description: This subsection will include the following.

2.2.1 Description of all air pollution control systems (and capture systems).

2.2.2 Discussion of typical control equipment operation and, if necessary, a schematic.

2.2.3 Discussion of the conditions under which testing will be conducted that are consistent with representative conditions as described in EPA Stack Testing Guidance and Wisconsin Admin. Code ss. NR 439.07(1) (collectively "guidance"), including:

a. Parametric and operating ranges for control devices
b. Capture systems control (including when and how dampers and gate valves in the ductwork are modified).

3.0 Test Program: This section shall include an Objectives subsection and a Test Matrix subsection.

3.1 Objectives: This subsection shall include the following:

3.1.1 Restatement of the overall purpose of the test program.

3.1.2 A list in the order of priority of the specific objectives for both emissions and process operation data.

3.2 Test Matrix: This subsection shall include a table showing the following (include schematics, if helpful):

3.2.1 Sampling locations. The sampling location shall include the ones identified below.

a. Air Sampling at Steel Drum Process Line and Painting Process Line
   i. Common duct downstream of the scrubber, prior to junction with ducts from the paint system (System Total after scrubber; RTO inlet excluding the paint system)

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[1] Tests should be performed under conditions that represent the range of combined process and control measure conditions under which the facility expects to operate (regardless of the frequency of the conditions); and, are likely to most challenge the emissions control measures of the facility with regard to meeting the applicable emission standards, but without creating an unsafe condition.
Because this test is also being performed to quantify emissions from the processes, EPA and WDNR are instead requiring that the test be performed while processing drums that formerly contained solvent drums or a mixture that includes more than 5% solvent which is defined as a VOC, as detailed in this appendix.

[2] CLCM will propose to age the wash water (saturating the wash water with VOCs) by running the lines without cleaning the wash tanks out for at least a week prior to the test and running with drums that contain VOCs for at least 30 minutes prior to starting Run 1

ii. Water Tanks common exhaust duct (P12/P13/P14/P15/P01/P02/P03)
iii. Common duct serving P80A, P11, PXX, P72, and P74
iv. Common duct serving P04, P05 and P75
v. RTO inlet
vi. RTO outlet
vii. Fugitive exhaust point(s)

b. Air Sampling at Poly Process Line
i. Common duct serving P80A, P11, PXX, and P72
ii. Common duct serving P42, P41, P06, P07, P04, and P05
iii. Common exhaust duct serving Water Tanks (P12/P13/P14/P15/P01/P02/P03) and P82
iv. RTO inlet
v. RTO outlet
vi. Fugitive exhaust point(s)

c. Water Sampling at Water Tanks. P12/P13/P14/P15/P01/P02/P03.

3.2.2 Number of tests.
a. Air Sampling. Number of runs per sampling location. For each test, CLCM shall conduct at least three sampling runs per measurement location.
b. Water Sampling. Number of samples per water sampling location. For each water test, CLCM shall take at least three samples per location.

3.2.3 Sample type/pollutant.
a. At each process line sampling location, CLCM shall measure volumetric flow, moisture content, VOCs, and HAPs.
b. For each water sampling location, CLCM shall measure VOC content.

3.2.4 Sampling method. The sampling methods identified below shall be used.
a. Air sampling methods should be provided for each location.
i. Sampling Ports and Traverse Points: EPA Method 1 and 2
ii. Molecular weight: EPA Method 3
iii. Moisture Content: EPA Method 4
iv. HAPs: EPA Method 18
v. VOCs: EPA Method 25/25A
b. Water sampling methods. Water tank sampling methods: SW846 8015C/D, SW846 8260B/C/D, 8015D, and waste dilution under Method 3580A, if needed; or alternatives.

3.2.5 Capture Efficiency for air sampling: EPA Method 204, 204B, 204C, 204D, and 204E, as appropriate. Data Quality Objective/Lower Confidence Level provisions as specified in EPA "Guidance for Determining Capture Efficiency" (GD-035) are required for any sampling run less than three hours. CLCM may propose 1 hour sample runs for Methods 204, 204B, 204C, 204D, and 204E, if approved by the agencies.

3.2.6 Sampling runs for air sampling. Each sampling run shall be a minimum of one hour.

3.2.7 Analytical method

3.2.8 Analytical laboratory

4.0 Sampling Locations: This section shall include a Flue Gas Sampling Locations subsection and a Process Sampling Locations subsection.

4.1 Flue Gas Sampling Locations: This subsection shall include the following:

4.1.1 A Schematic of each location. Include in each schematic:
a. Duct diameter
b. Direction of flow
c. Dimensions to nearest upstream and downstream disturbances (include number of duct

diameters)
d. Location and configuration of the sampling ports
e. Nipple length and port diameters
f. Number and configuration of traverse points

4.1.2 Confirm that the sampling location meets EPA Method 1 criteria. If not, give reasons and discuss effect on results.

4.1.3 Discuss any special traversing or measurement schemes.

4.2 Process Sampling Locations: This subsection shall include the following:

4.2.1 Schematic of locations, if helpful (location can be shown in figure in Section 2.0)

4.2.2 Description of each sampling or measurement location

4.2.3 Discussion on the representativeness of each of the process stream sampling locations

4.3 Water Sampling Locations: This subsection shall include the following:

4.3.1 Schematic of locations, if helpful (location can be shown in figure in Section 2.0)

4.3.2 Description of each sampling or measurement location

4.3.3 Discussion on the representativeness of each of the sampling locations

5.0 Sampling and Analytical Procedures: This section shall include a Test Methods subsection and a Process Data subsection.

5.1 Test Methods: This subsection shall include the following:

5.1.1 Schematic of each sampling train

5.1.2 Flow diagram of the sample recovery

5.1.3 Flow diagram of sample analysis

5.1.4 Description of any modifications to EPA test methods and reasons for them. All test method modifications or alternatives require approval prior to testing. Discuss any proposed deviation from the test methods listed above. The discussion shall explain the need for the deviation and provide a detailed proposal for an alternative method, including procedures, QA/QC, a definition of data objectives, and a diagram (if applicable).

5.1.5 Discussion of any problematic sampling or analytical conditions

5.2 Process and Control Data: This subsection shall include a description of analytical, sampling, or other procedures for obtaining process stream and control equipment data. The following parameters and process and control equipment information shall be monitored and recorded for each stack test run.

5.2.1 Throughput (drums per hour)

5.2.2 Ventilation affecting capture efficiency, including whether man doors, garage doors, roof vents will be open, whether fans will be on (at what speed, if variable).

5.2.3 Water temperature, water pH, and the age of the wash water.

5.2.4 Volumetric air flow (ACFM and SCFM) at the RTO inlet and outlet

5.2.5 RTO temperature during each run

5.2.6 RTO cycle time

5.2.7 Fan speed/power (amperage/hertz) for all fans.

5.2.8 Volumetric air flow (ACFM and SCFM) at each sampling location

5.2.9 Damper position (% open) or other system balancing features, including map with location of each damper.

5.2.10 Static pressure measurements at each pressure monitoring location required by Paragraph 30.b of the Consent Decree

5.2.11 Content of each drum processed (photo and summarized in a photolog), with label showing that the drum contained a solvent or a mixture that includes more than 5% solvent which is defined as a VOC.

5.2.12 Any additional parameters required to be monitored by the Consent Decree

6.0 QA/QC Activities: This section shall include a QC Procedures subsection, a QA Audits subsection, a QA/QC Checks for Data Reduction and Validation subsection and a Sample Identification and Custody subsection.

6.1 QC Procedures: This subsection shall provide the following for each test method:

6.1.1 Data sheets

6.1.2 QC check lists, which could be part of the data sheets

6.1.3 QC control limits

6.1.4 Discussion of any special QC procedures

6.1.5 Acceptance criteria

6.1.6 Analytics procedures

Note: *Examples of QC checks would be calibration of instruments, matrix spikes, duplicate analyses, internal standards, blanks, linearity checks, drift checks, response time checks, and system bias checks.*

6.2 QA Audits: For each of the test methods for which an audit is to be conducted, list, if applicable, the following:

6.2.1 Type of audits to be conducted

6.2.2 Limits of acceptability

6.2.3 Supplier of audit material

6.2.4 Audit procedure

6.2.5 Audit data sheet/QC check list

6.3 QA/QC Checks for Date Reduction and Validation: This subsection shall include descriptions of the following:

6.3.1 Procedure for assuring accurate transfer of raw data and accuracy of calculations

6.3.2 Data quality indicators. Such indicators could include, for example:

a. Comparing flow rates measured at different locations or by different sampling trains

b. Comparing relative concentrations at different sampling locations

c. Comparison of data with previous field test results (if applicable)

d. Running mass balances

6.4 Sample Identification and Custody: This subsection shall include the following:

6.4.1 Initial Custodian

6.4.2 Sample identification and chain-of-custody procedure

6.4.3 Sample identification label

6.4.4 Chain-of-custody form

6.4.5 Sample log sheet

7.0 Reporting and Data Reduction Requirements: This section shall include a Report Format subsection and a Data Reduction and Summary subsection.

7.1 Report Format: This subsection shall include the Table of Contents that will be used for the Performance Test Report required to be submitted by this appendix.

7.2 Data Reduction and Summary: This subsection shall include example data summary tables that will be included in the Performance Test Report required to be submitted by this appendix.

8.0 Plant Entry and Safety: This section shall include a Safety Responsibilities subsection, a Safety Program subsection and a Safety Requirements subsection.

8.1 Safety and Responsibilities: This subsection shall identify the following individuals:

8.1.1 Person responsible for ensuring compliance with plant entry, health, and safety requirements

8.1.2 Facility person or safety officer who has the authority to impose or waive facility restrictions

8.1.3 Tester who has authority to negotiate with facility person any deviations from the facility restrictions

8.2 Safety Program: This subsection shall briefly describe the test contractor's health and safety program.

8.3 Safety Requirements: This subsection shall include the following:

8.3.1 A list the facility's safety requirements and emergency response plan.

8.3.2 A description of any deviations from the safety requirements, including a summary of discussions with the plant concerning the deviations, and outcome of the discussions concerning the deviations.

9.0 Personnel Responsibilities and Test Schedule: This section shall include a Test Site Organization subsection, a Test Preparation subsection and a Test Personnel Responsibilities and Detailed Schedule subsection.

9.1 Test Site Organization: This subsection shall list key tasks and task leaders.

9.2 Test Preparations: This subsection shall describe or identify the following, as applicable:

9.2.1 Construction of special sampling and analytical equipment.

a. Description
b. Dates for completion of work
c. Responsible Group

9.2.2 Modifications to the facility, e.g., adding ports, building scaffolding, installing instrumentation, building stacks, and calibrating and maintaining existing equipment

a. Description
b. Dates for completion
c. Responsible Group

9.2.3 Services provided by the facility, such as electrical power, compressed air, and water

a. List of all services to be provided by the facility
b. Description of modifications or added requirements, if necessary

9.2.4 Access to sampling sites

a. Description
b. If modifications are required, requirements and responsible group

9.2.5 Sample recovery area

a. Description
b. If a mobile recovery area or laboratory is used, installation location, dates for installation, and responsible group

9.3 Test Personnel Responsibilities and Detailed Schedule: This section shall include:

9.3.1 Description of pre-test activities and include a table that lists staff assignments and responsibilities

9.3.2 A table that lists staff assignments and responsibilities

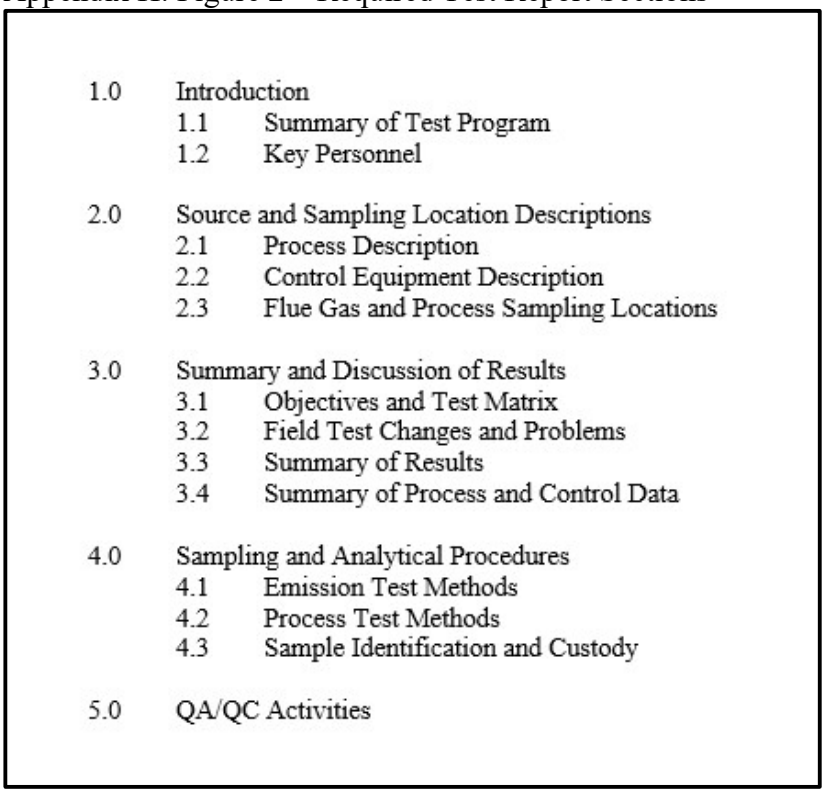
9.3.3 A table or text detailing the test schedule

Part B of Appendix H: Performance Test Report Requirements

The Performance Test Report shall be comprised of written descriptions, summary tables, and/or figures that fully describe the results of the performance testing conducted according to Performance Test Protocol. The Performance Test Report shall include a Table of Contents. In addition, the Performance Test Report shall include the sections specified in Figure 2 of this appendix.

The remainder of Part B of this appendix specifies the information that must be included in the Performance Test Report:

Appendix H: Figure 2 – Required Test Report Sections



1.0 Introduction: This section shall include a Summary of Test Program subsection and Test Program Organization subsections.

1.1 Summary of Test Program: This subsection shall contain a summary of the Test Program conducted.

1.2 Key Personnel: This subsection shall identify key personnel involved with the Test Program.

2.0 Source and Sample Location Descriptions: This section shall include a Process Description subsection, a Control Equipment Description subsection and a Flue Gas and Process Sampling Locations subsection.

2.1 Process Description: This subsection shall include descriptions of the processes tested.

2.2 Control Equipment Description: This subsection shall include a description of all control equipment used as part of the Test Program.

2.3 Flue Gas and Process Sampling Locations: This subsection shall include a discussion of the flue gas characteristics and sampling locations used in the Test Program.

3.0 Summary and Discussion of Results: This section shall include an Objectives and Test Matrix subsection, a Field Test Changes and Problems subsection and a Summary of Results subsection.

3.1 Objectives and Test Matrix: This subsection shall include the following:

3.1.1 A list in the order of priority of the specific objectives for both emissions and process operation data.

3.1.2 A test matrix that includes all the elements describe in Part A, subsection 3.2 of this appendix.

3.2 Field Test Changes and Problems: This subsection shall contain a discussion of all field test changes and problems.

3.3 Summary of Results: This subsection shall contain a summary of results. This subsection shall include the following:

3.3.1 One summary associated with each Objective

3.3.2 Results of PTE and/or TTE evaluations, as applicable

3.4 Summary of Process and Control Data: This subsection shall contain a summary of process and control data consistent with Part A, subsection 5.2 of this appendix for each run and each test.

4.0 Sampling and Analytical Procedures: This section shall include an Emission Test Methods subsection, a Process Test Methods subsection and a Sample Identification and Custody subsection.

4.1 Emission Test Methods: This subsection shall list all test methods used in the Test Program and approvals for modifications or alternatives.

4.2 Process Test Methods: This subsection shall list all process test methods used in the Test Program and approvals for modifications or alternatives.

4.3 Sample Identification and Custody: This section shall include a summary of Appendix C of the Performance Test Report (see below). All the information identified in Part A, subsection 6.4 of this appendix shall be included in Appendix C of the Performance Test Report.

5.0 QA/QC Activities: This section shall include a summary of all QA/QC activities conducted as part of the Test Program.

Appendices: In addition to the report sections identified in Figure 2 of this appendix, the Performance Test Report shall include the following appendices, as applicable:

- **Appendix A** Results and Calculations. Results and calculations shall include, but not limited to, emission rates in parts per million (ppm), emission rates in pounds per hour (lbs/hr), capture efficiency and destruction efficiency in percentage (%), TTE and PTE evaluations, as appropriate.
- **Appendix B** Raw Field Data and Calibration Data Sheets
- **Appendix C** Sampling Log and Chain-of-Custody Records
- **Appendix D** Analytical Data Sheets
- **Appendix E** Audit Data Sheets
- **Appendix F** Process Data, consistent with Part A, subsection 5.2 of this appendix. Facility records shall be signed by the plant representative.
- **Appendix G** List of Participants
- **Appendix H** Additional Information. Appendix H shall include any additional information relevant to how testing was conducted. Such information shall include, but not be limited to, any reference test method and analytical test method modification or alternative approvals as well as any correspondence.