INFORMATION IN THIS APPENDIX IS BUSINESS CONFIDENTIAL AND RESPONDENT ASSERTS A CLAIM OF CONFIDENTIALITY PURSUANT TO 40 C.F.R. § 2.203 AND ANY OTHER RELEVANT STATUTORY OR REGULATORY PROVISIONS

Appendix B

to

JW Aluminum Consent Decree

MELTING FURNACE MONITORING PLAN

MELTING FURNACE MONITORING PLAN

This document constitutes the Melting Furnace Monitoring Plan for the existing Group 1 melting furnaces MF-1, MF-2, MF-3 and MF-4 (also referred to as Furnace 5) at JW Aluminum Company's (JW Aluminum) Goose Creek, South Carolina facility, in accordance with 40 C.F.R. § 63.1510(w). JW Aluminum will implement this Melting Furnace Monitoring Plan as agreed in Paragraph 17 of the Consent Decree to which it is attached. This Melting Furnace Monitoring Plan contains confidential business information pursuant to 40 C.F.R. § 2.203.

1. Description of Melting Furnace Control System

Redacted - Business Confidential

JW Aluminum's melting furnaces employ a proprietary, integrated burner control system to control organic emissions from melting aluminum with organic coatings. Redacted - Business Confidential

A. Charge Well

Redacted - Business Confidential

B. Main Hearth (Primary Stage)

Redacted - Business Confidential

C. Secondary Oxidation Chamber (Secondary Stage)

Redacted - Business Confidential

D. Control System Logic Parameter Set Points

Redacted - Business Confidential

Control System Parameter	Control Limits for Door Opening
Primary Opacity	<50 %
Secondary Opacity	=0 %
Secondary Oxidation Chamber (SOC) Temperature	>1200 °F
Avg of Flue and SOC Temperature	>1400 °F

Redacted - Business Confidential

[redacted]

2. Melting Furnace Maintenance Requirements

The following sets forth the monitoring and maintenance requirements for the existing melting furnaces MF-1, MF-2, MF-3 and MF-4 that JW Aluminum will continue to meet given the unique design of the melting furnaces and use of the integrated burner control system.

A. The owner or operator must install, calibrate, maintain, and operate a device to continuously monitor and record the operating temperature of the integrated burner control system consistent with the requirements for continuous monitoring systems in subpart A of this part.

B. The temperature monitoring device must meet each of these performance and equipment specifications:

(i) The temperature monitoring device must be installed at the locations shown in the attached melting furnace sketch.

(ii) The recorder response range must include zero and 1.5 times the average temperature established according to the requirements in §63.1512(m).

(iii) The reference method must be a National Institute of Standards and Technology calibrated reference thermocouple-potentiometer system or alternate reference, subject to approval by the Administrator.

C. The owner or operator must conduct an inspection of each integrated burner system at least once a year and record the results. At a minimum, an inspection must include:

(i) Inspection of all burners, pilot assemblies, and pilot sensing devices for proper operation and clean pilot sensor;
(ii) Inspection for proper adjustment of combustion air;
(iii) Inspection of internal structures (e.g., baffles) to ensure structural integrity;
(iv) Inspection of dampers, fans, and blowers for proper operation;
(v) Inspection for proper sealing;
(vi) Inspection of motors for proper operation;
(vii) Inspection of combustion chamber refractory lining and clean and replace lining as necessary;
(viii) Inspection of system shell for corrosion and/or hot spots;
(ix) Documentation, for the burn cycle that follows the inspection, that the integrated burner control system is operating properly and any necessary adjustments have been made; and
(x) Verification that the equipment is maintained in good operating condition.
(xi) Following an equipment inspection, all necessary repairs must be completed in accordance with the requirements of the OM&M plan.

D. The owner or operator must install, calibrate, maintain, and operate a device to continuously monitor and record the primary and secondary opacity in the melting furnaces.

E. The opacity monitors must be located according to points shown in the attached melting furnace sketch.

F. The opacity monitors will be maintained as follows:

(i) At least once per week, the opacity monitor lenses must be cleaned.

(ii) Immediately after cleaning, a zero and span check must be performed to ensure proper operation of the opacity monitors

3. Stack Testing to Establish Minimum Operating Temperature for Melting Furnaces

A Site-Specific Test Plan is attached describing the stack test protocol to establish the minimum operating temperature for the Secondary Oxidation Chambers for the existing melting furnaces MF-1, MF-2, MF-3 and MF-4.

Stack testing will be performed on one melting furnace to measure emissions over a continuous 6-hour testing period because the melting furnaces operate with a continuous process and are of the same design. The average Secondary Oxidation Chamber temperature recorded for the 6-hour testing period will then become the new Secondary Oxidation Chamber minimum operating temperature for JW Aluminum's existing melting furnaces MF-1, MF-2, MF-3 and MF-4.

The normal operating cycle for the melting furnaces is 6 hours because normal operations are on a continuous basis. However, at EPA's request, temperatures will be reported and compliance will be evaluated on a 3-hour block average.

4. Additional Operating Parameters for Melting Furnaces

The purpose of the testing performed pursuant to this Appendix B is to establish a minimum average operating temperature for the Secondary Oxidation Chamber using a relatively low ratio of other than clean charge material to clean charge material in order to replicate conditions that result in low operating temperatures in the melting furnaces. This testing does not replace the normal performance testing for the melting furnaces that is done pursuant to 40 C.F.R § 63.1511. Consequently, the testing performed under this Appendix B does not establish any additional operating parameters for any of the melting furnaces other than the following:

A. The control system logic parameter set points will be maintained as specified above in Section 1.D.

B. The Secondary Oxidation Chamber temperature will be continuously monitored and recorded. The 3-hour block average operating temperature of the Secondary Oxidation Chamber will be maintained at or above the minimum operating temperature established during the stack testing

described above in Section 3. A block average period is defined such that each 24-hour calendar day will have 96 15-minute and 8 3-hour block average periods.[1]

These operating parameters will be incorporated into the OM&M plan and be monitored and reported in accordance with the requirements of 40 C.F.R. Subpart RRR. If JW Aluminum wishes to modify these or any other operating parameters for the melting furnaces, new performance testing will be required to demonstrate compliance under the modified parameter(s).

[1] The separate stack testing required under Section 3 of this Melting Furnace Monitoring Plan is designed solely to establish a minimum average operating temperature for the Secondary Oxidation Chamber, and utilizes a relatively low ratio of other than clean charge material to clean charge material in order to replicate conditions that cause low operating temperatures in the melting furnaces. It would therefore be inappropriate to use the stack testing required under Section 3 to establish or modify any operating parameter other than minimum average operating temperature for the Secondary Oxidation Chamber for any of the melting furnaces.

SITE-SPECIFIC TEST PLAN

Melt Furnace No. TBD

J.W. Aluminum
435 Old Mt. Holly Road
Goose Creek, South Carolina 29445

Site-Specific Test Plan

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Site-Specific Test Plan

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Site – Specific Test Plan

PROJECT INFORMATION

Company: J.W. Aluminum Company

Proposed Test Date_____ Date Plan Submitted _____Date Approved _____

1.0 FACILITY INFORMATION

Facility Name: J.W. Aluminum Company Contact: Meredith Deaner

Address: 435 Old Mount Holly Road, Goose Creek, SC 29445

Email: meredithdeander@jwaluminum.com

Phone: 843-764-8238

Air Permit # TV-0420-0033 Source ID # _____Source Description: Melt Furnace

2.0 TEST COMPANY INFORMATION

Test Company Name/Address:

GEL Engineering, LLC 2040 Savage Road / PO Box 30712, Charleston, SC 29407/29417 Phone: (843) 769-7378

Contact Name: Craig McKenzie Email: cam2@gel.com

3.0 LABORATORY INFORMATION

Laboratory #1 Name: Element One Contact: Ken Smith

Address: 5022-C Wrightville Ave., Wilmington, NC 28403 Email: ken.smith@e1lab.com

Phone: 910-793-0128 Fax: 910-792-6853

Laboratory #2 Name: Cape Fear Analytical Contact: Cynde Larkins

Address: 3306 Kitty Hawk Rd., #120, Wilmington, NC 28405 Email: cynde.larkins@cfanalytical.com

Phone: 910-795-0421

Site-Specific Test Plan

4.0 TEST OBJECTIVES

4.1 Description and Overall Purpose of the Tests (i.e. compliance, emission factors, etc.)

The purpose of the test is to measure emissions under conditions that have occurred during normal operations and have also resulted in low exhaust stack temperatures. The average Secondary Oxidation Chamber temperature over the 6-Hr. test period will establish an on-going 3 hour average minimum operating temperature as measured by JW Aluminum's existing thermocouples.

4.2 State or Federal Regulation / Permit Condition No. Requiring Test

Consent Decree

5.0 PROCESS DESCRIPTION

5.1 Description of Each Phase of Batch or Cyclic Processes and Time Required to Complete Each Phase:

The normal continuous process cycle will be defined as: 1. Begin with a clean charge well, 2. Addition of scrap into the charge well, 3. Flux as needed, 4. Remove dross and clean the charge well as needed.

5.2 Summary of Operating Rates:

Description	Value	Units
Process Design Rate	15,000	lb/hr
Normal Operating Rate	1,000 – 12,000	lb/hr
Operating Rate for Source Test	~1,500	lb/hr

5.3 Conditions for Source Test:

Conditions for the test will include one of our production runs that uses a relatively low; i. molten metal demand, ii. total charge material quantity, and iii. ratio of dirty to clean charge material (10 - 20%). All conditions for the test will be within historical ranges. The automated furnace controls will be unchanged. The charge well may be drossed at the end of the 6-Hr. cycle.

5.4 Methods to Verify Operating Rate During the Source Test (Include Proposed Calculations, Equations, and Other Related Information):

Actual charge quantity, Secondary Oxidation Chamber temperature, exhaust flue temperature, opacity from opacity monitors and the ratio of dirty scrap.

Site-Specific Test Plan

5.5 Description of Air Pollution Control Equipment:

Redacted - Business Confidential

5.6 Description of Stack Gas or Opacity Monitoring Systems:

JW Aluminum monitors the temperature of the main hearth and the Secondary Oxidation Chamber using thermocouples. The opacity of the main hearth and the Secondary Opacity are monitored using opacity meters.

5.7 Description of Air Pollution Control Monitors (i.e. pressure gauges, flow indicators, cleaning cycle timers, ESP voltage meters, etc):

Temperature and opacity are measured with the melter operation controlled by PLC.

5.8 Process and Air Pollution Control Operating Conditions to be Monitored (include frequency at which readings will be recorded during stack testing event):

Temperatures on a 15-minute average electronically.
In-process opacity on a continuous basis electronically.
Time, type and quantity of charge material.
Flux time and quantity when required.

Responsible Party: Meredith Deaner Email: meredithdeaner@jwaluminum.com

6.0 SAFETY CONSIDERATIONS

6.1 Identification of Risks (address sampling location and accessibility, toxic releases, electrical hazards, or any other unsafe conditions and a plan of action to correct or abate these hazards):

None other than the standard risks associated with stack sampling.

6.2 Required Safety Equipment:

☐ Hard Hat ☒ Safety Glasses ☒ Hearing Protection ☒ Fall Protection ☒ Steel Toe Boots

☒ Other: Safety equipment is used as identified and needed on the site. Long sleeves required for entry into the melting areas.

Site-Specific Test Plan

7.0 SAMPLING AND ANALYTICAL PROCEDURES

7.1 Sampling Methods Descriptions:

Pollutant	Method #	# of Runs	Duration of each Run	Minimum Sampling Volume for each Run	Maximum Hold Time After Sample Collection	Location of Sample Recovery
	1	---	---	---	---	Sample point locations
Flow	2	1	~ 6 hr	NA	NA	Performed with 5/26A
O2/CO2	3	1	~ 6 hr	NA	1 day	In the field
Moisture	4	1	~ 6 hr	125 dscf	2 weeks	In the field
PM	5	1	~ 6 hr	125 dscf	2 weeks	In the field
HCL	26A	1	~ 6 hr	125 dscf	3 weeks	In the field
D/F	23	1	~ 6 hr	125 dscf	3 weeks	

Pollutant	Method of Storing and Transporting Samples
PM	Filters will be recovered into plastic petri dishes and stored in a protective box for transport back to the laboratory. Acetone probe rinses will be stored in pre-cleaned 250 ml Nalgene storage bottles.
HCL	Impinger solutions and rinses will be stored in new 250 ml Nalgene storage bottles for transport to back to office, where they will then be shipped via FedEx to Element One Laboratory for analysis.

7.2 Analytical Methods:

Explanation of how blank and recovery check results and analytical non-detects will be used in final emission calculations:

Non-detected analytes will be reported as less than the analytical detection limit. Values below the method detection limit for Dioxins/Furans shall be treated as "zero" (0) for purposes of calculating the TEQ in order to be consistent with the way EPA establishes MACT limits.

Blank/Audit corrections will not be used for this test.

Site-Specific Test Plan

8.0 SAMPLING LOCATIONS AND DOCUMENTATION

8.1 Schematics of Sampling Sites: Source meets specification of Method 1.

☒ Refer to Figure 1: (Thermocouple locations are noted)

8.2 Description of All Emission Points (including fugitive emissions, associated with the process to be tested, and when applicable, the method that will be used to measure or include these emissions during the source test):

All furnace off gases vented to stack and released from stack outlet.

8.3 Procedure for Verifying Absence of Cyclonic or Non-Parallel Gas Flow:

Absence of cyclonic flow has been demonstrated in previous sampling.

9.0 INTERNAL QA/QC MEASURES (Address each test method when applicable)

9.1 Citation of the QA/QC Procedures (as specified in the EPA Reference Methods and the EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III):

All laboratory and calibration procedures described in EPA Quality Assurance Handbook for Air Pollution Control Systems, Vol. III, and the QA/QC procedures specified in EPA Reference Methods 1-5, 23, and 26A will be followed.

9.2 Chain of Custody Forms (procedures and copies of forms):

As per EPA Methods 1-5, 23, and 26A and EPA Quality Assurance Handbook for Air Pollution Control Systems, Vol. III. A Chain-of-Custody Record is included in Appendix A.

9.3 Conditioning Particulate Matter Filters (procedures for before and after testing):

Pretest filters will be oven dried at 105 C for a minimum of two hours, then desiccated for a minimum of two hours prior to weighing. Same procedure will be followed for post-test filter analyses. Filters for EPA Method 23 will be conditioned as prescribed in the method.

Site-Specific Test Plan

9.4 Leak Checks (procedure for conducting on vacuum lines, pitot tubes, flexible bags, orsats, etc.):

EPA Methods 2, 3, 4, 5, 23, and 26A Quality Assurance procedures for leak checks, data sheets, etc. will be followed as per the reference method and the EPA Quality Assurance Handbook for Air Pollution Measurement Systems, Volume III.

9.5 Equipment Calibration (frequencies, ranges, and acceptable limits):

All calibration procedures described in the EPA Quality Assurance Handbook for Air Pollution Control Systems, Volume III, and the QA/QC procedures specified in EPA Methods 1-5, 23, and 26A will be followed by the stack testing company.

JW Aluminum will follow calibration procedures described in the OM&M Plan.

9.6 Detection Limits (minimum detection limits of analytical instrumentation):

Particulate: 0.1 milligram
Dioxins/Furans: 2 to 5 picograms per train
Hydrochloric Acid: 5 micrograms

9.7 Subcontract Laboratories QA/QC

Refer to Section 3.0 for names, addresses, and all responsible persons of all sub-contracting laboratories. The following is a description of analytical methods used, chain-of-custody procedures and QA/QC measures:

PM analysis will be conducted by GEL.
HCl analysis will be conducted by Element One Inc.; 5022-C Wrightsville Ave. Wilmington, NC 28403
Dioxins/Furans analysis will be performed by Cape Fear; 2714 Exchange Drive; Wilmington, NC 28405

GEL Chain-of-Custody procedures will be followed.
Samples will be shipped on ice via FedEx Priority (Overnight).
All QA/QC as prescribed in EPA Method 23 will be met or exceeded.

9.8 Process or Raw Material Collection QA/QC (measures associated with the collection and analysis of process or raw material samples and the frequency at which the samples will be collected):

Although no analysis of raw materials will occur for this test, JWA's normal process for raw material selection will be followed. Type of scrap for charging will be recorded by JW Aluminum.

Site-Specific Test Plan

9.9 Methods for Interference and Matrix Effects Checks (specify number of replicate samples):

EPA Method 23 and 26A samples will be analyzed as prescribed by their respective referenced methods.

9.10 Methods and Concentrations for Internal Standards (standards additions prior to extraction):

N/A

9.11 Methods and Concentrations for Surrogate Standards (standards additions to collection media prior to sampling):

Surrogate spiking and recovery checks will be performed on EPA Method 23 samples as prescribed in the referenced method.

9.12 Methods for Recovery Checks, Field Blanks, Reagent Blanks, Proof Rinse Blanks, Analytical Blanks, and Audit Samples:

A field blank of acetone will be collected and analyzed as per EPA Method 5 for blank correction of probe rinse samples. Field blanks for Methods 23 and 26A will be collected and analyzed as prescribed in the referenced methods.

9.13 Proposed Range of Recoveries for Data Acceptability and Method of Data Interpretation if Sample Recovery is not within Proposed Range:

No corrections will be made if analyses fall outside the allowable range of recoveries for each method. Corresponding runs/data for failed QC checks will be deemed unacceptable for regulatory usage.

Site-Specific Test Plan

10.0 FINAL TEST REPORT CONTENT

10.1 Final Report Outline:

Standard EPA source test format supported by JWA process data.

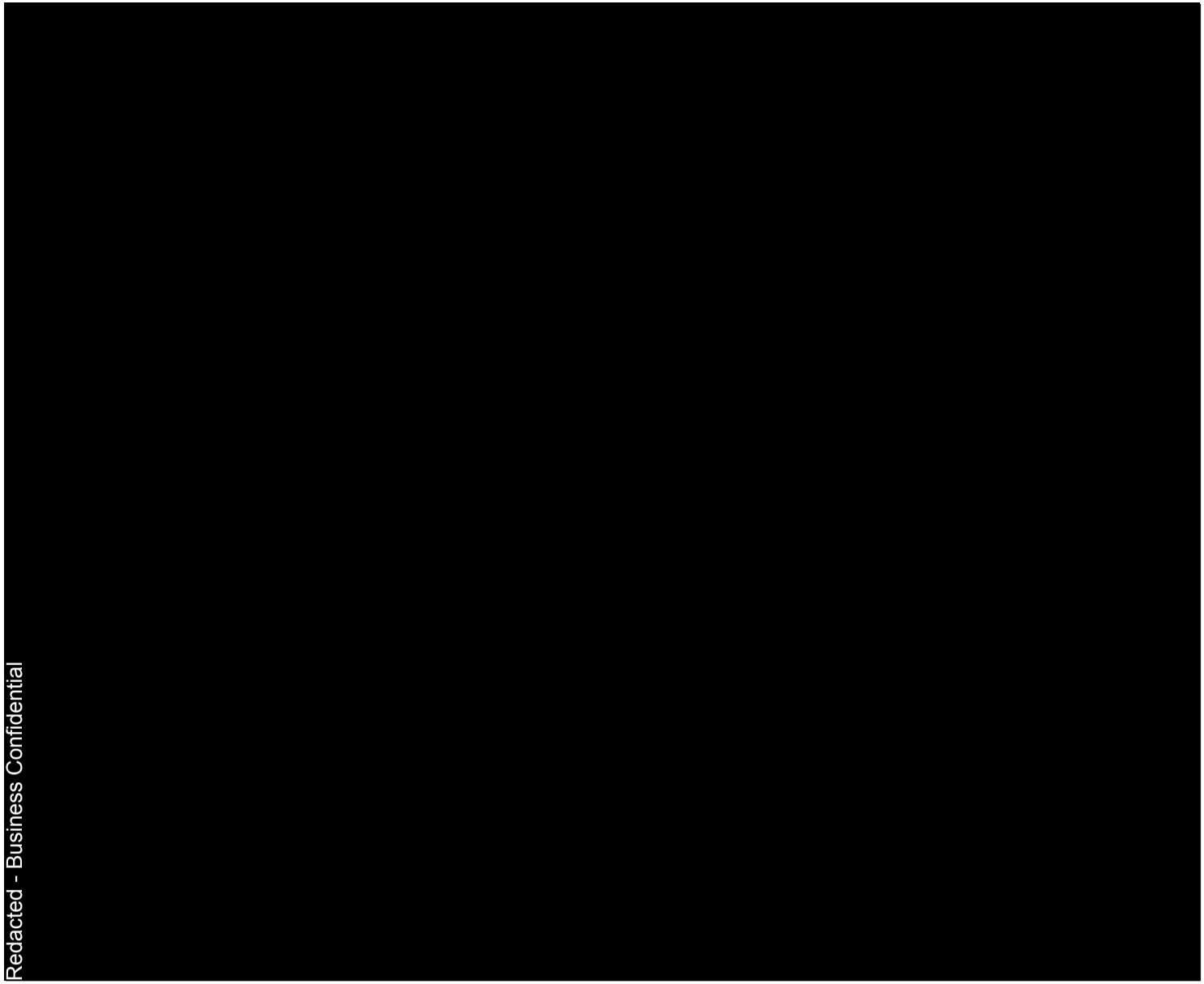
10.2 Example Calculations when using Alternative Test Methods (or for calculation of process operating rates, methods to be used, chain-of-custody procedures):

N/A

10.3 Proposed Report Submission Date (if more than 30 days after the sources test will be needed to complete the report):

60 days after completion of field testing.

JW ALUMINUM PROPRIETARY FURNACE DESIGN



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MT. HOLLY FACILITY

MELTING FURNACE AIR FLOW MODEL

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