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SHAKEOUT CEMS INTEGRATED PLAN
OPERATIONS & MAINTENANCE (O&M)
INSPECTIONS
PREVENTATIVE MAINTENANCE PLAN (PMP)
OPERATING LIMIT PARAMETERS
CORRECTIVE ACTION PLAN (CAP)
MALFUNCTION ABATEMENT PLAN (MAP)
STARTUP, SHUTDOWN, AND MALFUNCTION (SSM)

BREMBO NORTH AMERICA FOUNDRY
HOMER, MICHIGAN

PREPARED BY

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1.0 INTRODUCTION

The Brembo North America, Inc. foundry, located in Homer, Michigan (Homer Foundry), will operate and maintain the facility, including air pollution capture, collection, control and monitoring systems, in a manner consistent with good air pollution control practices for minimizing emissions as presented in this integrated plan. [40 CFR §63.6(e)(1)(i)]

1.1 Applicability

[Permit to Install (PTI), §63.6, §63.7710, and R336.1911]

This integrated plan has been prepared to comply with the applicable requirements of:

- Permit to Install (PTI) No. 199-14A
- National Emission Standards for Hazardous Air Pollutants (NESHAP) for Source Categories
    - 40 CFR Part 63 Subpart A General Provisions
    - 40 CFR Part 63 Subpart EEEEE (NESHAP 5E) for Iron and Steel Foundries
- Michigan Department of Environmental Quality (MDEQ) Rules (R336.1911-1912)

The applicable sections and plan location are presented in Table 1.

Table 1: Regulatory Applicability and Plan Location

Citation	Regulations	Plan Location	
40 CFR Part	**NESHAP Subpart EEEEE (5E) Description**	**Section**	**Appendix**
§63.6	Applicable sections referenced throughout plan	[1]	[1]
§63.6(e)(3)	Startup, Shutdown, Malfunction (SSM)	6.0	C
§63.8	Monitoring requirements as applicable to monitor	4.0	-
§63.10	Monitor recordkeeping requirements; SSM reporting requirements	7.0	B, C
§63.7710(b)	Written Operation and Maintenance plan	[2]	[2]
§63.7710(b)(1)	Monthly inspections	3.3	-
§63.7710(b)(3)	Preventative Maintenance Plan (PMP)	3.0	A
§63.7710(b)(6)	Ignition source to mold vents	[2]	-
§63.7720(c)	Startup, Shutdown, Malfunction Plan (SSM) per 63.6(e)(3)	6.0	C
§63.7734(a)(10)	Initial compliance with emissions limitations	4.0	-
§63.7743(a)(10)	Continuous compliance with emissions limitations	4.0	D
§63.7746	Deviations and reporting	7.0	C,D
§63.7751-52	Reports and Records	7.0	B,C,D
MDEQ R336	**Emission Limitations and Prohibitions - Misc.**	**Section**	**Appendix**
R336.1911(1)	MAP prepared to prevent, detect, correct malfunctions or equipment failures	[1]	-
R336.1911(2)(a)	PMP prepared and updated Inspection performed List of replacement parts maintained and inventory	3.0	A,B
R336.1911(2)(b)	Operating variables to be monitored to detect malfunctions; normal range; monitoring program	4	-
R336.1911(2)(c)	Description of corrective action or operation changes in event of malfunction or failure to achieve compliance	5.0	C
R336.1911(3)	MAP submitted for review and approval	[1]	-
R336.1911(4)	MAP implemented	[1]	-
R336.1912	Excess Emissions Evaluation	7.0	D

[1] General applicability

[2] Prepared under separate document

2.0 SOURCE DESCRIPTION

The emission sources, air pollution control equipment, and affected emissions from the facility are detailed within the PTI No. 199-14A and include:

Table 2: Emission Unit and Pollutants

Emission Unit (EU) ID	Description	NESHAP 5E Limits[1]
EUSHAKEOUT	During shakeout the metal is removed from the sand mold using a rotating drum system. The Shakeout CEMS monitors VOHAP emissions at the stack.	**VOHAP:** 20 ppmv

[1]Limit for Cooling and Shakeout lines

2.1 Emission Unit and Monitor Description

During Shakeout the metal is removed from the sand mold using a rotating drum system. The emissions from the shakeout line are collected and controlled by the Sand System Baghouses system. The exhaust air from the two baghouses is discharged through a single stack. Monitoring of the control system will be conducted according to the Sand System Baghouses - MAP and referenced throughout this document.

A Horiba Model ENDA-5100 Total Hydrocarbon (THC) Continuous Emissions Monitoring System (CEMS) is installed on the stack outlet for THC measurement. Measurement values will be output on the PLC according to required measurements presented in Section 4.3. The system includes a flame ionization detector (FID) based THC analyzer. The FID measures THC as a surrogate for volatile organic compounds (VOCs) and the VOC concentration is a worst-case approximation of volatile organic hazardous air pollutants (VOHAP).

It is important to note that natural gas (methane) is combusted in a duct heater upstream from the CEMS. Because methane is a hydrocarbon it solicits a response by the FID; however, it is not a VOC. One bag sample of Sand System Baghouse exhaust gas has indicated that methane constitutes 11% of hydrocarbon measured by the FID. Therefore, the measured THC concentrations are biased high as a surrogate for VOC.

3.0 PREVENTATIVE MAINTENANCE PROGRAM

This preventative maintenance program identifies the personnel responsible for the program elements; proper equipment operations; and equipment inspection and maintenance schedule.

3.1 Responsible Personnel

[R336.1911(2)(a)]

The personnel responsible for this integrated plan are expected to be as follows.

Table 3: Personnel Responsible for Integrated Plan

Position	Responsibility
Plant Manager or equivalent	Overall Operations and Maintenance
Maintenance / Engineering Manager or equivalent	Training, maintaining plan
Health, Safety & Environmental Manager or equivalent	Reporting to the MDEQ, verifying requirements
Maintenance technician or equivalent	Preventative maintenance inspections, repairs, and spare part inventory

3.2 Equipment Operations

Proper equipment operation will be maintained on a regular basis.

3.3 Equipment Inspections and Maintenance

[§63.8(c), §63.7710(b)(1) and (3), §63.7740(c), R336.1911(2)(a)]

Preventative maintenance is a key component to ensuring the reliability, availability, efficiency, and production at the facility. Routine maintenance and inspection of the equipment will be conducted in accordance with the manufacturer's written maintenance instructions and maintenance schedule, and applicable regulatory requirements. All maintenance work performed will be documented in either hard copy or electronic format and kept for a minimum of five (5) years from the date of the maintenance activity. Maintenance includes equipment inspections, scheduled replacement of parts, and maintaining an inventory of critical spare parts.

The inspection and maintenance for the CEMS is presented in Table 4. Portions of the quarterly, semi-annual and annual inspections and maintenance for the CEMS are conducted by subcontractors. Not all tasks completed by the contractors are included in

the table. The frequency and scope of these inspections depend on manufacturer recommendations. The maintenance department maintains an electronic version of the up-to-date and most accurate inspection and preventative maintenance requirements.

Table 4: Equipment Inspection and Maintenance Schedule

Item	Control System and CEMS	Weekly	Bi-Annual	Annual
Horiba CEMS				
1	Zero gas and span gas calibration	x[2]		
2	Confirm the flow amount supplied to the analyzer during calibration	x		
3	Confirm that the protective filter at the opening for the analyzer is not clogged		x[1]	
4	Confirm if there is residue in the sampling pipes		x[1]	
5	Silica gel replacement			x[1]
6	Replace air filter			x[1]
7	Horiba contract calibration, inspection, and maintenance		x[1]	

[1]Conducted by Subcontractors
[2]Daily

3.4 Equipment Spare Parts

[§63.8(c)(1)(ii), R336.1911 (2)(a)]

The ability to quickly replace components which malfunction during operations largely depends on three factors:

- The availability of off-site sources for replacement parts,
- The willingness of the source to shut down while waiting for such parts, and
- The ability to replace parts without the necessity of a shutdown.

In an effort to minimize potential equipment downtime, an inventory of spare parts for the Horiba CEMS is maintained onsite. A summary of the spare parts maintained onsite as recommended by the manufacturer is included in Appendix A. A comprehensive up-to-date list is maintained in electronic format in the maintenance department.

4.0 OPERATING VARIABLES TO BE MONITORED

Routine monitoring and collection of operating data is an integral part of equipment operation and necessary to maintaining the equipment operation as per the requirements of the PTI. Often it is the data collected during routine observation of equipment operation that necessitates large-scale equipment servicing or repairs. The operating variables for the Horiba CEMS are presented below.

4.1 Capture System

The shakeout system is not subject to the NESHAP 5E regulations; therefore, it is not subject to the capture system requirements under §63.7690(b).

4.2 Horiba CEMS – Operating Variables

[§63.7740(h), §63.7741(g), §63.8]

The CEMS monitoring is conducted according to the following requirements, per §63.7741(g).

- The CEMS must be installed, operated, and maintained according to Performance Specification 8 in 40 CFR Part 60, appendix B.
- A performance evaluation of the CEMS was conducted according to §63.8 and Performance Specification 8.
- The CEMS must complete a minimum of one cycle of operation (sampling, analyzing, and data recording) for each successive 15-minute period. [§63.8(c)(4)(ii)]
- CEMS data must comply with §63.8(g)(2) which states that data be reduced to one hour averages computed from four or more data points equally spaced over each 1-hour period, except during periods when calibration, quality assurance, or maintenance activities are being performed. During these periods, a valid hourly average shall consist of at least two data points with each representing a 15-minute period. Alternatively an arithmetic or integrated 1-hour average of CEMS data may be used. [§63.8(g)(2)]
- The CEMS must determine and record the 3-hour average emissions using all the hourly averages collected for periods during which the CEMS is not out-of-control. Note: the CEMS and/or the PLC and SCADA are used to generate averages and data collection.
- Inspections, calibration, and validation checks are recorded

4.2.1 Zero and High Level Check

[§63.8(c)(6)]

- The zero (low-level) and high-level calibration drifts are checked at least once daily.

- The zero (low-level) and high-level calibration drifts are adjusted, at a minimum, whenever the 24-hour zero drift exceeds two times the limits of the applicable performance specification standard. [Performance Specification 8 includes standard of 2.5% drift; therefore, adjustment applies at 5% span value.]
- The system allows the amount of excess zero (low-level) and high-level drift measured at the 24-hour internal checks to be recorded and quantified whenever specified.

4.2.2 Out of Control

[§63.8(c)(7)]

- The zero (low-level), mid-level (if applicable), or high-level calibration drift (CD) exceeds two times the applicable CD specification in the applicable performance specification or relevant standard; or
- The CEMS fails a performance test audit (e.g. cylinder gas audit), relative accuracy audit, relative accuracy test.

4.2.3 Horiba CEMS Quality Control Measures

[§63.8(d)]

Quality control measures for the Horiba CEMS include the following criteria, as required by §63.8(d):

- Initial and any subsequent calibration,
- Determination and adjustment of the calibration drift,.
- Preventative maintenance of the system, including parts inventory,
- Data recording, calculations, and reporting,
- Accuracy audit procedures, including sampling and analysis methods, and
- Program of corrective action for malfunctions.

4.2.4 Initial and Continuous Compliance for VOHAP Emissions

[§63.7734(a)(10), §63.7743(a)(10)]

Initial compliance consists of:

- CEMS data reduced to 3-hour averages according to the performance test procedures in §63.7732(f)(1) or (2); and
- The 3-hour flow-weighted average VOHAP concentration will be measured according to the performance test procedures in §63.7332(f)(1) or (2), and compliance will be achieved if emissions do not exceed 20 ppmv for the Cooling and Shakeout exhaust concentrations averaged.

Continuous compliance will consist of:

- Maintaining the 3-hour flow-weighted average VOHAP concentration in the Cooling and Shakeout exhaust streams at or below 20 ppmv,
- Inspecting and maintaining the CEMS according to the requirements of §63.7741(g) and recording all information needed to document conformance with these requirements, and
- Collecting and reducing monitoring data in accordance with §63.7741(g) and recording all information needed to document conformance with these requirements.

4.2.5 Compliance for VOC and CO Emissions [PTI EUSHAKEOUT]

The PTI does not require VOC and CO emissions to be tracked on an hourly basis. Performance testing will provide a production based emission factor that will be used to maintain required recordkeeping. Therefore, the CEMS will not be used to support compliance with VOC and CO emission limits.

5.0 CORRECTIVE ACTION PROCEDURES

Troubleshooting procedures shall be well-documented prior to equipment activation to increase the likelihood of timely and effective repairs. Thorough completion of the troubleshooting procedures also reduces the risks of adverse operating conditions which can lead to the discharge of excess emissions. In addition, training of personnel in the typical operations and troubleshooting/repair of the equipment is essential to minimize emissions and maximize operational time.

5.1 Corrective Action Procedures

[§63.6(e)(3), R336.1911(2)(c)]

This section presents the actions to be taken to correct (e.g.,, repair) the malfunctioning process and air pollution monitoring equipment as soon as practical after the malfunctions happens to minimize emissions. Corrective action procedures for the listed malfunction scenarios are presented in the Sand System Baghouses – MAP and the following.

5.1.1 Loss of Electrical Power Supply

The following corrective action procedures are used when there is a malfunction when there is no electrical power that can result in excess emissions.

A. Check circuit breaker.
B. Identify if link to power supply path not operational.
C. Restore power.

5.2 Corrective Action Responsibilities

[§63.7710(b)(5), §63.6(e), and MDEQ Rule 336.1911(2)(c)]

In the event a CEMS alarm is triggered, the following procedures will be followed. The response times presented below are based on regulatory guidance for baghouse systems under §63.7710(b)(5).

A. Maintenance Technician

1. Contact Maintenance / Engineering Manager upon discovery of any malfunction, alarm, or abnormal startup or shutdown.
2. Determine the cause of any alarm or malfunction within 1 hour,
3. Determine if there has been an exceedance of any emission or operating limit, see Appendix D – Excess Emissions Evaluation,
4. Initiate corrective action to correct the cause of any problem within 24 hours of the alarm or malfunction,

5. Complete the corrective action as soon as practicable.
6. Complete startup, shutdown, or malfunction recordkeeping per Table 7 and form in Appendix C.

B. Maintenance / Engineering Manager

1. Contact HS&E Manager upon discovery of any malfunction, alarm, or abnormal startup or shutdown.
2. Verify the cause of any alarm or malfunction within 1 hour,
3. Determine if there has been an exceedance of any emission or operating limit, see Appendix D,
4. Verify that corrective action to correct the cause of any problem within 24 hours of the alarm or malfunction,
5. Complete the corrective action as soon as practicable, and
6. Complete startup, shutdown, or malfunction recordkeeping per forms in Table 7.

C. HS&E Manager

1. Determine if there has been an exceedance of any emission or operating limit,
2. Determine if there has been a malfunction that is not included in the corrective action procedures, **Section 5.1**, above. **If a malfunction occurs that is not consistent with the listed corrective action procedures, then the problem will be logged and reported to the agency as an Immediate SSM Report (Section 7.4.3.B.),**
3. Verify that corrective actions are taken within 1 hour of alarm or malfunction and within 24 hours to correct any problem,
4. Complete the corrective action as soon as practicable,
5. Verify all recordkeeping procedures are followed, and
6. Follow Startup, Shutdown, Malfunction Reporting procedures, as required.

6.0 STARTUP, SHUTDOWN AND MALFUNCTION

The startup, shutdown, and malfunction requirements are presented under regulations including: PTI General Conditions (GC) 7, §63.7710(a), 63.7720(b), 63.6(e)(3), MDEQ Rule 336.1911.

6.1 Definitions

[40 CFR §63.2]

- **Startup** - the "setting in operation of an affected source or portion of an affected source for any purpose".
- **Shutdown** - "the cessation of operation of an affected source or portion of an affected source for any purpose".
- **Malfunction** - "any sudden, infrequent, and not reasonably preventable failure of air pollution control and monitoring equipment, process equipment, or a process to operate in a normal or usual manner which causes, or has the potential to cause, the emission limitations in an applicable standard to be exceeded. Failures that are caused in part by poor maintenance or careless operation are not malfunctions".

6.2 Startup, Shutdown, and Malfunction (SSM)

[PTI GC 7, 40 CFR 63.7720(b), 63.6(e)(3), MDEQ Rule 336.1911]

This startup, shutdown, and malfunction has been prepared to describe the procedures for operating and maintaining the source during periods of startup, shutdown, and malfunction; and a program of corrective action for the monitoring equipment used to comply with the relevant standard. This SSM does not address any scenario that would not cause the source to exceed an applicable emission limitation presented in the PTI or NESHAP 5E. The purpose of the SSM plan is to:

- Provide procedures for operating and maintaining the control system and monitoring equipment during periods of startup, shutdown, and malfunction consistent with safety and good air pollution control practices to minimize emissions;
- Ensure actions to correct malfunctions are taken as soon as practicable after their occurrence in order to minimize excess emissions; and
- Reduce the reporting burden with periods of startup, shutdown, and malfunction.

During these periods of startup, shutdown, and malfunction the equipment will be operated consistent with the procedures and corrective actions of this SSM.

6.3 Typical Startup and Shutdown Procedures

[40 CFR §63.6(e)(3)]

Typical startup and shutdown will be conducted in accordance with manufacturer specifications such that excess emissions are minimized during the event. The following steps are followed during startup and shutdown.

Table 5: Typical Startup and Shutdown Procedures

Item	Start-up
1	Monitor operating parameters during production startup
2	Initiate Horiba CEMS monitor per manufacturer specification and verify readings are within operating range
3	Verify operating parameters during production startup
4	Report abnormal conditions immediately
Item	**Shutdown**
1	After production has stopped, shutdown system according to manufacturer specifications

6.4 Malfunctions

[40 CFR §63.6(e)(3)]

This list can periodically be revised as necessary to reflect operations without prior approval. However, each change must be reported in the semi-annual report. If the SSM fails to address or inadequately addresses a malfunction event, the plan must be revised within 45 days of the event to correct the deficiency. A written notice must be provided to the agency if the revision 'alters the scope or the activities at the source which are deemed to be startup, shutdown, or malfunctions'.

If a malfunction occurs that is not listed below with corresponding corrective actions, then the problem will be logged and reported to the agency as an Immediate SSM Report.

Table 6: Possible Malfunctions

Item	Potential Malfunctions	Typical Corrective Actions See Manufacturer Corrective Action Procedures
1	Loss of electrical power supply	●Inspect and correct mechanical / electric equipment ●Check and correct for plugging / physical failure of lines ●Check and correct physical / electrical failure of instrumentation ●Check and correct failure of utility supply ●Inspect and correct physical / mechanical internal equipment failure ●Check and correct electrical components ●Restart, replace tank, follow calibration procedures
2	Loss of instrument / Plant air supply	
3	Monitoring and Recording system failure	
5	CMS malfunction	
6	CPU Failure and associated components (e.g. IO cards)	
7	Loss of fuel	

7.0 PLAN MAINTENANCE, RECORDKEEPING AND REPORTING

7.1 Initial Plan Requirements

[PTI Condition III, R336.1911]

- The integrated plan has been submitted to the Air Quality District (AQD) for review and approval in accordance with the PTI and applicable regulations.

7.2 Plan Revisions

[PTI Condition III, R336.1911(3) and (4)]

- If at any time the SSM fails to address or inadequately addresses an event that meets the characteristics of the malfunction, the SSM / MAP shall be amended within 45 days after such an event occurs.
- The plan must be revised within 45 days, if new equipment is installed.
- The plan must be revised upon request from the AQD.
- The permittee shall submit the plan and any amendments to the plan to the AQD District Supervisor for review and approval. If the AQD does not notify the permittee within 90 days of the submittal, the MAP or amended MAP shall be considered approved. Until amended plan is approved, the permittee shall implement corrective procedures or operational changes to achieve compliance with all applicable emission limits.
- Revisions must be logged on form in Appendix B.

7.3 Record Keeping

[PTI Condition VI, §63.6, §63.8, §63.10]

- All current plans and superseded plans for Sand System Baghouse and CEMS will be maintained for the life of the affected source. [63.8(d)(3)]
- All other information necessary to demonstrate compliance with each plan requirement will be kept on-site for a period of at least 5 years. [§63.6(e)(3)]
- Recordkeeping requirements will be consistent with Table 7, below.

Table 7: Recordkeeping Requirements

Recordkeeping Requirements [40 CFR §63.6 and §63.10]	
Files must be maintained for 5 years following the date of each occurrence, measurement, maintenance, corrective action, report or record; in form suitable and readily available for expeditious inspection and review.	
§63.10(b)	**General Recordkeeping Requirements**
(2)(i)	● Occurrence and duration of each startup or shutdown when the event causes the source to exceed limits
(2)(ii)	● Occurrence and duration of each malfunction of operation of the monitoring equipment
(2)(iii)	● All required maintenance performed on the monitoring equipment
(2)(iv)	● Actions taken during periods of startup, shutdown or malfunction when the source exceeded applicable emission limitations in a relevant standard and when the actions taken are different from the procedures of the SSM (see 63.6(e)(3)
(2)(v)	● All information necessary, including actions taken, to demonstrate conformance with the affected source's SSMP when all actions taken during periods of startup or shutdown and malfunction are consistent with the procedures specified in the SSM
(2)(vi)	● Each period during which a CEMS is malfunctioning or inoperative (Including out-of-control periods)
(2)(vii)	● All required measurements needed to demonstrate compliance with the relevant standard
(2)(viii)	●All results of performance tests, CEMS performance evaluations, and opacity and visible emission observations
(2)(ix)	●All measurements as may be necessary to determine the conditions of performance tests and performance evaluations
(2)(x)	●All CEMS calibration checks
(2)(xi)	●All adjustments and maintenance performed on CEMS
(2)(xii)	●All emission levels relative to the criterion for obtaining permission to use an alternative to the relative accuracy test, if the source has been granted such permission under §63.8(f)(6)
(2)(xiv)	●All documentation supporting initial notifications and notifications of compliance status under §63.9.
§63.10(c)	**CEMS Recordkeeping requirements**
(1)	● All required CEMS measurements (including monitoring data recorded during unavoidable CEMS breakdowns and out-of-control periods)
(5)	● The date and time identifying each period during which the CEMS was inoperative except for zero (low-level) and high-level checks
(6)	● The date and time identifying each period during which the CEMS was out of control, as defined in §63.8(c)(7)
(10)	● The nature and cause of any malfunction (if known)
(11)	● The corrective action taken or preventive measures adopted
(12)	● The nature of the repairs or adjustments to the CEMS that was inoperative or out of control
(13)	● The total process operating time during the reporting period
(14)	● All procedures that are part of a quality control program developed and implemented for CEMS under §63.8(d)
(15)	● In order to satisfy the requirements of paragraphs (c)(10) through (c)(12) of this section and to avoid duplicative recordkeeping efforts, the owner or operator may use the affected source's SSM or records kept to satisfy the recordkeeping requirements of the SSM specified in §63.6(e), provided that such plan and records adequately address the requirements of paragraphs (c)(10) through (c)(12)
§63.6(e)	**CEMS Recordkeeping requirements**
(1)	● All required CEMS measurements (including monitoring data recorded during unavoidable CEMS breakdowns and out-of-control periods)
(5)	● The date and time identifying each period during which the CEMS was inoperative except for zero (low-level) and high-level checks
(6)	● The date and time identifying each period during which the CEMS was out of control, as defined in §63.8(c)(7)

7.4 Malfunction Reporting Requirements

[PTI GC 7, §63.6(e)(3), R336.1912]

- Include any emission exceedance or deviation from operating requirements on semi-annual monitoring and deviation report and annual report. [40 CFR §63.10(d)(5) and MDEQ Rule 336.1213(3)]

7.4.1 Regulatory Excess Emissions Reporting Requirements

[40 CFR §63.6(e)(3), MDEQ Rule 336.1912(3)]

Excess emissions reporting requirements according to the NESHAP Supbart 5E and MDEQ are summarized in Table 8 below.

Table 8: Excess Emissions Reporting Requirements

Citation	VOC, CO Excess Emission Duration[2]	VOHAP Excess Emission Duration[3]	Verbal Report	Written Report
	Hours	Hours	Days	Days
NESHAP 5E §63.6(e)(3)	Any (not consistent with SSM or did not follow SSM)		2	7
MDEQ R336.1912	2	1	2	10[1]

[1]Written report, if required, filed within 10 days after startup or shutdown occurred, within 10 days after abnormal conditions or malfunction corrected, or within 30 days of discovery of the abnormal condition or malfunction, whichever is first.

[2]See Appendix D for Excess Emissions Evaluation.

[3]Exceedance of the 3-hr flow-weighted average VOHAP concentration of 20ppmV will be considered a reportable excess emissions event.

7.4.2 MDEQ - Excess Emissions Reporting

[PTI, MDEQ Rule 336.1912(3), (4), and (5)]

A. Excess Emissions HAPs

Rule 336.1912(2) defines excess emissions as any abnormal condition, start-up, shutdown, or a malfunction that results in emissions of **HAPs** continuing for more than **1 hour** in excess of a standard or limitation established by the PTI. The emissions data collection for the Cooling and Shakeout CEMS will comply with NESHAP 5E requirements for 3-hour averaging, as discussed in Section 4.2.4. An exceedance of the 3-hour

flow-weighted average VOHAP limit of 20 ppmv will be considered a reportable excess emission event..

Reporting requirements are summarized in Table 9.

B. Excess Emissions CO, VOCs

Excess emissions reporting is required for the Shakeout for any abnormal condition, start-up, shutdown, or a malfunction that results in emissions of **CO, VOCs** continuing for more than **2 hours** in excess of a standard or limitation established by the PTI. Since hourly data is not required to be maintained, in the event of such conditions occurring, excess emissions for CO and VOCs will be manually calculated and reviewed when emissions of VOHAPs exceed limits. The hourly emissions will be based on data obtained during performance testing, see Appendix D.

Reporting requirements are summarized in Table 9.

7.4.3 NESHAP Subpart 5E - Excess Emissions Reporting VOHAP

[PTI, 40 CFR §63.6(e)(3), §63.10(d) and (e), §63.7751]

Excess emissions reporting under NESHAP Subpart 5E is dependent on whether it is a result of actions taken that are consistent with the SSM. Records must be maintained as follows and are only required where the Shakeout line exceeds the **VOHAP** emission standard or limit established in the PTI or NESHAP Subpart 5E. Excess emissions evaluation will be conducted as described in Section 7.4.2.

Reporting requirements are summarized in Table 9 and listed below.

A. Excess Emissions Consistent with SSM

[§63.6(e)(5)(i)]

For actions taken during startup or shutdown (and the startup or shutdown causes the source to exceed any applicable emission limitation), or malfunction (including actions taken to correct a malfunction) that are **consistent** with the procedures specified in the SSM.

- **Records** must reflect that SSM was followed; as well as including records of occurrence and duration, see list below.
  - Date and time of the startup and duration
  - Date and time of the shutdown and duration
  - Date and time of the malfunction and duration
  - Description of the malfunctioning equipment or condition
  - Cause of the malfunctions
  - Actions taken to minimize emissions or correct malfunction

- Determination of whether plan was followed

- **Reporting** of event must be included in semi-annual and annual report. Include any emission exceedance on semi-annual monitoring and deviation report and annual report [§63.10(d)(5) and R 336.1213(3)].

B. Excess Emissions Not Consistent with SSM – Immediate Report [§63.6(e)(5)(ii)]

For actions taken during startup, shutdown, or malfunction (including action taken to correct a malfunction) that are **not consistent** with the procedures of the SSM, or the SSM was not followed, and the source exceeds the applicable emission limits.

- **Records** must reflect actions taken for that event and must report such actions according to the following:
- **Reporting** of event is subject to the most stringent reporting requirement listed in Table 9.
  - For each deviation from an emissions limitation (including an operating limit) or work practice standard occurring at the facility using a continuous monitoring system to comply with the emissions limitation or work practice standard, the monitoring requirements listed on Table 9 will be provided.
  - For all emissions from Shakeout line the worst-case regulatory reporting criteria is followed.
- **Reporting** of event must be included in semi-annual and annual report. Include any emission exceedance on semi-annual monitoring and deviation report and annual report [40 CFR §63.10(d)(5) and MDEQ Rule 336.1213(3)].

Table 9: Excess Emissions Reporting Requirements

Requirement	MDEQ [MDEQ Rule 226.1912]	NESHAP Subpart EEEEE [§63.10(d)(5)(i and ii) and §63.7751]
Criteria	**HAP - Excess Emissions Reporting** [R 336.1912(2)] **See Appendix D - Excess Emissions Evaluation**	**VOHAP - Excess Emissions Reporting** [§63.10(c)(5)(ii) Immediate Reporting **See Appendix D - Excess Emissions Evaluation**
	VOC or CO - Excess Emissions Reporting [R 226.1912(3)] **See Appendix D - Excess Emissions Evaluation**	Follow reporting below for actions taken during SSM (including action taken to correct a malfunction) that is **NOT** consistent with the procedures of the SSM (See Section 7.4.3 For actions taken during SSM consistent with the procedures of the SSM)
Initial Notification	**Excess Emissions HAP, VOC, CO [MDEQ Rule 226.1912(4)]**	**Excess Emissions VOHAPs [§63.10(d)(5)(ii)]**
Timing	As soon as reasonable but not more than two (2) business days after discovery	Within two (2) working days after commencing action inconsistent with the SSM
Method	Any reasonable means, including electronic, telephone call, or oral communication	Telephone call or facsimile transmission
Requirements [40 CFR §63.10(d)(5)(ii)]	**Verbal or Other Acceptable Report to Include:**	
	● Name, title, and signature of responsible official certifying accuracy of report	
	● Explain circumstances of the event	
	● Reason for not following SSM, describing all excess emissions and/or parameter monitoring exceedances which are believed to have occurred (or could have occurred in the case of malfunctions)	
	● Description of the malfunctioning equipment or condition	
	● Corrective action taken	
	● Other actions taken to minimize emissions in conformance with 63.(e)(1)(i)	
Written Report	**Excess Emissions Any Contaminant [40 CFR §63.7751(b)(8) and MDEQ Rule 226.1912(5)]**	
Timing	Whichever is first: ● Within 10 days after start-up or shutdown occurred; ● Within 10 days after abnormal conditions or malfunction has been corrected; or ● Within 30 days of discovery of the abnormal conditions or malfunction.	● Letter delivered or postmarked within 7 working days after the end of the event
Method	● Written Report - Requires Certification by Responsible Official (using ROP Cert Form):	● Letter - Name, title, signature - Certified by Responsible Official
Process and Control System Requirements [Per MDEQ 336.1912 and 40 CFR §63.10(5)(ii)]	**Written Report or Letter to Include:**	
	● The time and date, the probable causes or reasons for, and the duration of the abnormal conditions, start-up, shutdown, or malfunction.	
	● An identification of the source, process, or process equipment that experienced abnormal conditions, was started up or shut down, or which malfunctioned and all other affected process or process equipment that have emissions in excess of an applicable requirement, including a description of the type and, where known or where it is reasonably possible to estimate, the quantity or magnitude of emissions in excess of applicable requirements.	
	● Information describing the measures taken and air pollution control practices followed to minimize emissions.	
	● For abnormal conditions and malfunctions, the report shall also include a summary of the actions taken to correct and to prevent a reoccurrence of the abnormal conditions or malfunction and the time taken to correct the malfunction.	
	● Reason for not following the SSM	
Monitoring Reporting Requirements [§63.7751(b)(8)]	● The date and time that each malfunction started and stopped.	
	● The date and time that each continuous monitoring system was inoperative, except for zero (low-level) and high-level checks.	
	● The date, time, and duration that each continuous monitoring system was out-of-control.	
	● The date and time that each deviation started and stopped, and whether each deviation occurred during a period of startup, shutdown, or malfunction or during another period.	
	● A summary of the total duration of the deviations during the reporting period and the total duration as a percent of the total source operating time during that reporting period.	
	● A breakdown of the total duration of the deviations during the reporting period into those that are due to startup, shutdown, control equipment problems, process problems, other known causes, and unknown causes.	
	● A summary of the total duration of continuous monitoring system downtime during the reporting period and the total duration of continuous monitoring system downtime as a percent of the total source operating time during the reporting	
	● A brief description of the process units.	
	● A brief description of the continuous monitoring system.	
	● The date of the latest continuous monitoring system certification or audit.	
	● A description of any changes in continuous monitoring systems, processes, or controls since the last reporting period.	
Additional Reporting	See PTI for Semi-annual an Annual reporting	See Section 7.4.3 for Semi-annual an Annual reporting [§63.10(d)(5)(i)]

Appendix A – List of Replacement Parts

Homer Foundry

Appendix A - Summary of Manufacturer Recommended Sprare Parts - Comprehensive and Up-to-Date List In Maintenance Department

Horiba CEMS Spare Parts

Qty.	Horiba Part No.	Description
1	320343	Silica Gel; 500 gram bottle
1	F022562900	Catalyst HP-1002; 40 grams
1	352653	Air Filter; 0.30 micron
1	384893	Charcoal; 10 grams
2	251904-1	Glass Wool
4	384275	Filter Element; SO2 55
6	303002	Mist Catcher; MC-050
4	592530	Diaphragm Assembly; HP-55
2	320050	Filter Element; SO2 55
2	G0226360	Chopper Motor Assembly
2	503447	Filter, Cabinet Louver, Air, Glass Fiber
5	384270-1	Primary Filter Element; 5 pieces/set
1	384272	Holder Cap; 10 pieces/set
1	384273	Element Cap; 10 pieces/set
5	F020032900	O-ring; 5 pieces
1	320343	Silica Gel; 500 gram bottle

Horiba Formal ENDA-5100 Factory Acceptance Testing

Appendix B – Plan Revisions

Homer Foundry
Appendix B
Plan Revisions

Revision Date	Revision No.	Reviewer	Summary of Changes
Jan-19	Rev 1	JConard	Table 1 - Revise Section references Table 4 - Change calibration to daily Table 6 - Additions to list Section 4.3.1 - Include reference to PS8 and adjustment value

Appendix C – **Startup, Shutdown, Malfunction Report**

Homer Foundry
Appendix C
Startup, Shutdown, Malfunction Report

Information	Description
Date	
Type of Malfunction	
Provide detailed explanation of the circumstances of event	
Provide description of corrective actions taken	
Describe the reasons the Integrated Plan was not followed.	
Describe any proposed revisions to the Integrated Plan and list revisions in table in Appendix B.	
Name	
Title	

Appendix D – Excess Emissions Evaluation

Homer Foundry
Appendix D
Excess Emissions Evaluation

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