MICHIGAN SUGAR COMPANY

April 4, 2019

Certified Mail & Electronic

Mr. Chris Hare
District Supervisor
DEQ-AQD
401 Ketchum St., Suite B
Bay City, MI 48708

Subject: Updated MAP plan
Michigan Sugar – Croswell Factory
ROP-MI-B2876-2013

Dear Mr. Hare:

Please find enclosed a Malfunction Abatement Plan (MAP) for Michigan Sugar – Croswell Factory with a signed certification form (C-001).

As always, we wish to continue to cooperate with MDEQ on this and other air quality matters. If you have any questions or require additional information, please contact me.

Sincerely,

Steven Smock

cc: B. Witkopp, DEQ/AQD (electronic)
J. Lowry
K. Bennett

MICHIGAN DEPARTMENT OF ENVIRONMENTAL QUALITY
AIR QUALITY DIVISION

RENEWABLE OPERATING PERMIT REPORT CERTIFICATION

Authorized by 1994 P.A. 451, as amended. Failure to provide this information may result in civil and/or criminal penalties.

Reports submitted pursuant to R 336.1213 (Rule 213), subrules (3)(c) and/or (4)(c), of Michigan's Renewable Operating Permit (ROP) program must be certified by a responsible official. Additional information regarding the reports and documentation listed below must be kept on file for at least 5 years, as specified in Rule 213(3)(b)(ii), and be made available to the Department of Environmental Quality, Air Quality Division upon request.

Source Name Michigan Sugar County Sanilac

Source Address 159 S. Howard Street City Croswell

AQD Source ID (SRN) B2876 ROP No. MI-ROP-B275-2013 ROP Section No. _____

Please check the appropriate box(es):

☐ **Annual Compliance Certification (Pursuant to Rule 213(4)(c))**

Reporting period (provide inclusive dates): From _____ To _____

☐ 1. During the entire reporting period, this source was in compliance with **ALL** terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference. The method(s) used to determine compliance is/are the method(s) specified in the ROP.

☐ 2. During the entire reporting period this source was in compliance with all terms and conditions contained in the ROP, each term and condition of which is identified and included by this reference, **EXCEPT** for the deviations identified on the enclosed deviation report(s). The method used to determine compliance for each term and condition is the method specified in the ROP, unless otherwise indicated and described on the enclosed deviation report(s).

☐ **Semi-Annual (or More Frequent) Report Certification (Pursuant to Rule 213(3)(c))**

Reporting period (provide inclusive dates): From _____ To _____

☐ 1. During the entire reporting period, **ALL** monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred.

☐ 2. During the entire reporting period, all monitoring and associated recordkeeping requirements in the ROP were met and no deviations from these requirements or any other terms or conditions occurred, **EXCEPT** for the deviations identified on the enclosed deviation report(s).

☒ **Other Report Certification**

Reporting period (provide inclusive dates): From April 2019 To April 2019

Additional monitoring reports or other applicable documents required by the ROP are attached as described:

Malfunction Abatement Plan (MAP) revised ~~3/20/2019~~ 4/3/2019 SS

I certify that, based on information and belief formed after reasonable inquiry, the statements and information in this report and the supporting enclosures are true, accurate and complete

Ken Bennett	Factory Manager	810-679-2241
Name of Responsible Official (print or type)	Title	Phone Number

Kenneth W. Bennett 4/2/2019

Signature of Responsible Official Date

MALFUNCTION ABATEMENT PLAN

Michigan Sugar Company – Croswell
SRN B2879
Revised 4-3-2019

General Background

The Factory Manager is responsible for all aspects of the sugar production process and maintenance of all factory equipment, including all air pollution control equipment. During the campaign the majority of the maintenance supervision is delegated to the Maintenance Manager. Depending on the nature of the mechanical problem all supervisory staff on-site may become involved.

Since it is very important to the factory to avoid break-down of any kind, all of the inter-campaign season (approximately six-month period during the growing season) is dedicated to repairing, maintaining and improving the physical condition of all of the factory equipment. The goal of the summer preventive maintenance activities is to avoid the need for repairs and equipment replacement (which is the subject of this plan) during the campaign production period. Specific inter-campaign activities that are considered routine maintenance checks and repair activities are identified for each of the emissions units. The identification of the routine maintenance checks and, as appropriate, repairs are suggestive in nature and do not constitute a "violation" of this MAP for failures to conduct. Rather, the suggestive identification is intended to be guidance for maintenance staff and proper communication.

The goal of this malfunction abatement plan is to minimize emissions to the extent possible by determining those elements that can impact the effective operation of air pollution control devices. The process equipment of greatest concern at the Croswell factory is the pulp dryer. The lime kiln has no air pollution controls of significance and therefore is not subject to these regulatory requirements. The remaining devices are small baghouse units with airflows generally less than 30,000 cfm each. A section of this MAP has been included for the Riley Boiler, which is a large natural gas fired steam boiler equipped with low NOx burners.

Baghouses – General Procedures

Baghouses are highly effective air-cleaning/air pollution control devices. They are used at a number of locations throughout the factory. Baghouses require a minimal amount of monitoring to ensure proper operation.

For monitoring purposes each unit is equipped with a differential pressure monitor (a pressure gauge or manometer). Except during periods of start-up and shutdown, the measured pressure drop across a baghouse should be one inch of water column (1" In. H_2O) or more. Baghouse differential pressures that are above the unit upper range, as detailed for each specific unit, are an indication of bag blinding (plugging). Excess emissions are typically not associated with plugged bags, since particles are not allowed to bypass the filter media; however, loss of

collection effectiveness may also occur and as a result excessively high differential pressure situations should be addressed and corrected as soon as can be facilitated.

After bags are replaced and during initial start of the equipment, a gradual initial load on the fabric of the bags can result in lower than normal differential readings. Normally, this low-pressure situation does not result in significant emissions to the atmosphere and the condition will correct itself as a filter cake gradually forms on the filter media. In the event that the differential pressure readings do not return to the normal range, the unit should be shut down and the filter bags should be inspected. The filter cake buildup period during start-up can take several hours (for example 36 to 48 hours) after any prolonged (more than 48 hours) shut-down or stoppages. Pressure drops of <1.0 In. H_2O during these periods are considered typical/acceptable, so long as the pressure drop increases to normal ranges following the filter cake period build up period.

The pressure drop will be monitored periodically to determine the ongoing system performance. If the pressure drop is less than one inch of water, the baghouse will be shut down and inspected to determine if there has been a malfunction of the unit or damage to the filter bags and repaired as appropriate. If necessary, process equipment will be shut down until necessary repairs are made. In general, differential pressures below normal range may indicate either a lack of proper air flow or loss or damage to the filter medial, or both. Generally, differential pressure readings that exceed normal high range may indicate excessive air flow, or filter blockage (blinding) or both.

A general troubleshooting process description and flow chart are included in the Appendix for use as a guide for situations which go beyond the foreseeable events and procedures outlined in this written plan.

PULP DRYER

EU-PULPDRYER

Air Cleaning Device:	Multiclone, mechanical separation
Installed:	1975/1990
Design flow:	Approximately 72,000 ACFM
Updated:	2018 with automation of the dryer controls

Emissions from the pulp dryer are reduced using a mechanical separator, also called a multiclone, equipped with a rotary air lock for removal of collected materials. Heavy particles drop from multiclone through a rotary airlock and into the dried pulp feed system. The collected particulate may then be directed to the pellet mill where the dried pulp is used to make pellets. The following standard operating procedures apply to the operation of the pulp dryer exhaust gas control system:

Campaign/Operational Considerations

1. An operator monitors temperature and furnace draft at all times. The process variables also include the relative pressed pulp feed rates with checks on the incoming and outgoing pulp moisture rates.
2. Instrumentation is used to continuously measure the pressure drop across the multi-cyclone. Acceptable operating parameters are between 2" and 8" W.C. Lower pressure drops (below 2") generally occur during startup, shutdown and low pressed pulp feed operating periods. The dryer is equipped with automatic response provisions for various components such as the induced draft (ID) fan. Therefore, before making manual adjustments during periods of low-pressure readings, the operator must first determine if the readings are the result of low pulp loadings in the rotary dryer.
3. A written log of pulp dryer operation and maintenance is kept and maintained on file for a period of five (5) years.
4. If the dryer operation cannot be run properly for the feed rate, the amount of drying desired, and the normal and proper operation of the multiclone system, the pulp dryer will be shut down in 60 minutes or less.

Inter-campaign and Nonproduction period Considerations

In addition to the process equipment checks, lubrication and repairs, and during those periods when the pulp dryer is not in production mode for extended periods, (a.k.a. during the inter-campaign) inspections to the air pollution control equipment should include an internal inspection of the multiclone inlet plenum for signs of accumulated dry pulp and debris. Accumulated materials may block the multiclone inlets and prevent proper operation.

Accumulated materials should be removed. Periodic checks of the multiclone spinners, fans and pressure measurement equipment should also be checked between campaigns to ensure the mechanical components are ready for the next campaign period. All pressure gauges will be checked for proper operating condition, free and clear/proper pressure lines and unit adjustments for proper zero readings. Gauges that are not in proper working order shall be repaired or replaced as deemed appropriate. Records of all inspections, findings, and resulting actions taken will be kept. No major components or replacement parts are maintained on site since the major components are readily available from off-site resources and suppliers.

FGSUGAR Malfunction Abatement Plan

Michigan Sugar – Croswell Factory
SRN: B2876

The flexible group (FG) and emissions units were established/created pursuant to PTI 21-15B and are referenced here for inclusion in the MAP and ROP.

EUSUGARDRYER
- Air Cleaning Device: Rotoclone with water injection system and droplet separator:
  - Installed: September 1988
  - Design flow: 15,000 ACFM design (original)

EUSUGARCOOLER,
- Air Cleaning Device: Baghouse:
  - Installed: August 2017
  - Filter cloth: approximately 2,000 ft^2 filter,
  - Design flow: 5,000 ACFM design (original)

EUSUGTRANSPORT
- Air Cleaning Device: Baghouse:
  - Installed: September 1991
  - Filter cloth: approximately 1,000 ft^2 filter,
  - Design flow: 6,000 ACFM design (original)

I. Introduction

This plan has been developed to satisfy Special Condition III.1. for the flexible group FGSUGAR. FGSUGAR includes several emissions units and while FGSUGAR functionally includes post extraction processing, the individual emissions units and their function vary.

Two of the emissions units utilize baghouses for the collection and control of particulates from sugar processing and handling. Baghouses are highly effective air-cleaning/air pollution control devices. They are used at a number of locations throughout the factory. They need a minimal amount of monitoring to ensure proper operation. The Rotoclone is an effective control especially for emission units that may have a high moisture exhaust.

II. Supervision of operation and maintenance

R 336.1911 Malfunction abatement plans.
Rule 911. (1) Upon request of the department, a person responsible for the operation of a source of an air contaminant shall prepare a malfunction abatement plan to prevent, detect, and correct

malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation.

(2) A malfunction abatement plan required by Subrule (1) of this rule shall be in writing and shall, at a minimum, specify all of the following:

(a) A complete preventative maintenance program, including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.

During the beet processing campaign the process **EUSUGARDRYER** and **EUSUGARCOOLER** operate non-stop except for breakdowns causing production to temporarily cease. The beet processing campaign varies with the crop condition and storage and is approximately 6 months long. The campaign commences during the fall harvest and continues into late winter or early spring. During the remainder of the year, repairs and preventive maintenance are conducted to ensure reliable processing equipment operation during the active beet processing campaign. **EUSUGTRANSPORT** operates as needed, mostly during first shift (7:00 am to 3:00 pm), and is dependent on the demand for bulk packaging. Supervision for the active beet processing versus inter-campaign periods is slightly different.

- During operation (campaign): Primary – Packaging and warehouse supervisor. Back-up On-duty shift supervisor.
- During inter-campaign: Primary – Packaging and warehouse supervisor. Back-up – Maintenance manager. For unusual projects the Maintenance manager may take lead.

EUSUGARCOOLER and EUSUGTRANSPORT

All annual preventive maintenance activities for these two emissions units are conducted during inter-campaign.

- Initial action
  - Inspection of all air cleaning components. This may include removal of some to all of the bags for individual inspection.
  - Inspection will be for any defects in the filter media as well as the cloth or filter media connection points.
  - Operating range: 1" to 10" of water pressure
- Replacement of all defective air cleaning components as needed.
- Spare parts: filter media

EUSUGARDRYER

All annual maintenance activities are conducted during inter-campaign.

- Initial action
  - Inspection of the impeller and volute for wear.
- Replacement of all defective components as needed.
- Spare parts: spray nozzles and valves.

III. Monitoring to detect malfunction or failure

Rule 911(2)(b). An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.

EUSUGARCOOLER and EUSUGTRANSPORT

Each baghouse is equipped with a differential pressure monitor (a pressure gauge or manometer). Except during process start-up, the measured pressure drop across a baghouse should be greater than one inch of water column (1" WC). A slow start-up may occur if the material flow through the emission unit is lower than normal. Normally, this is not an issue despite the lack of an operating filter cake (which may cause low pressure drop reading.

Pressure drop will be read and recorded on each baghouse, on each operating shift but no less frequently than once per operating day (for example during the beet processing campaign). If the pressure drop is less than one inch of water, the baghouse will be inspected to determine if there has been a malfunction of the primary filtration component, and, repaired as appropriate. If necessary, process equipment will be shut-down until and while repairs are completed.

EUSUGARDRYER

The sugar dryer is served by a Rotoclone, which combines an induced draft (ID) fan with water/liquid sprays to provide wet scrubbing and exhaust flow. Loss of the Rotoclone fan will cause the process to shut down. Loss of the water flow will compromise emission control which could result in excess emissions.

The Rotoclone water discharge will be monitored and recorded during each shift of an operation day for a "go or no-go" operating conditional determination, but no less frequently than once per operating day to ensure effective water flow. No discharge from the Rotoclone to the sugar end melter is an indication of a pump failure or a plugged water nozzle.

IV. Corrective action or operational changes

Rule 911(2)(c). A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

EUSUGARCOOLER and EUSUGTRANSPORT

- Bag house – low pressure reading
  - In the event of loss of pressure, either the ventilation fan has failed or the filter cloth has failed. In the event of a ventilation fan failure, initiate fan maintenance as soon as possible. In the event of a bag failure, initiate baghouse maintenance to repair or replace the filter sock.
  - In the event of an over pressure situation of 10 Inches of water, initiate bag cleaning, rapping or reverse pulse to remove the filter cake from the bag surface. If the bag cleaning is not effective, bag replacement should be initiated.

EUSUGARDRYER

- Rotoclone – water flow failure
  - in the event of a loss in air flow, all sugar drying (processing) and emissions will stop. Initiate fan maintenance as soon as possible in order to resume processing/drying sugar. Note loss of Rotoclone fan will halt emissions.
  - in the event of the loss of water, conduct water pump maintenance and/or nozzle cleaning as may be dictated by conditions.

V. Reference Documents

Rule 911(3). A malfunction abatement plan required by Subrule (1) of Rule 911 shall be submitted to the department and shall be subject to review and approval by the department. If, in the opinion of the commission, the plan does not adequately carry out the objectives as set forth in Subrules (1) and (2) of this rule, then the department may disapprove the plan, state its reasons for disapproval, and order the preparation of an amended plan within the time period specified in the order. If, within the time period specified in the order, an amended plan is submitted which, in the opinion of the department, fails to meet the objective, then the department, on its own initiative, may amend the plan to cause it to meet the objective.

Rule 911(4). Within 180 days after the department approves a malfunction abatement plan, a person responsible for the preparation of a malfunction abatement plan shall implement the malfunction abatement plan required by Subrule (1) of Rule 911.

a) Michigan Air Use Permit to Install 21-15B, May 16, 2017
b) Michigan Pollution Rule 911, Malfunction abatement plans, (R336.1911)

History
Original: December 2004 by S. Smock, Michigan Sugar Company
Officially removed from ROP when emission units were removed from ROP under Rule 285(dd)
Modified October 2015 by S. Smock and J. Pfost of EPI; changes made to address DEQ's comments regarding PTI 21-15A
Modified April, 2019 during ROP renewal and updates to reflect DEQ comments.

Malfunction Abatement Plan

Michigan Sugar – Croswell Factory SRN: B2876
EU-RILEYBLR
175.5 MMBTU/hour Natural Gas Fired Riley Boiler
Built 1969 Relocated to Croswell 2015
Air cleaning devices: none present
Process Air Pollution Control Devices: Low NO_x Burner

I Introduction

The emissions unit EU was established/created pursuant to PTI 21-15B and is referenced here for inclusion in the MAP and ROP. This plan is to satisfy the Special Condition III.1. of PTI 21-15B. Due to the lack of an air cleaning device the company believes the referenced Special Condition applies only to the low NO_x burner technology which EPA has indicated is process equipment. The operation and maintenance documentation for the burner notes the burner is not adjustable by the operators. The Company concludes the burner is a pollutant emitting device and is not an air cleaning device and is advantaged to keep the burner in good operating conditions to minimize fuel costs as well as to minimize air pollution impacts.

Low NOx burners are highly specialized stable devices and adjusting or replacing components of the burner is not conducted by MSC employees. Rather, a manufacturer's technician, or equivalent will complete any needed adjustments or installations.

The primary indicator of an issue with the burner is detected by the NO_x CEM. Should the emissions exceed 90% of the NSPS emission limit (0.18 lb/mmBTU) the operator will initiate an investigation to determine the cause.

II Supervision of operation and maintenance

R 336.1911 Malfunction abatement plans.

Rule 911. (1) Upon request of the department, a person responsible for the operation of a source of an air contaminant shall prepare a malfunction abatement plan to prevent, detect, and correct malfunctions or equipment failures resulting in emissions exceeding any applicable emission limitation.

Rule 911(2). A malfunction abatement plan required by Subrule (1) of this rule shall be in writing and shall, at a minimum, specify all of the following:

Rule 911(2)(a). A complete preventative maintenance program, including identification of the supervisory personnel responsible for overseeing the inspection, maintenance, and repair of air-cleaning devices, a description of the items or conditions that shall be inspected, the frequency of the inspections or repairs, and an identification of the major replacement parts that shall be maintained in inventory for quick replacement.

There are two lengthy and distinct periods for the boiler house and boiler operation at the factory; 1) during the campaign the boiler will operate non-stop except for breakdowns

causing production to temporarily cease, and 2), during the non-processing/non-operation when repairs and preventive maintenance activities are conducted to ensure reliable operation during the processing campaign. Supervision for these two periods is slightly different.

- During operation (campaign): Primary – On-duty shift supervisor. Back-up Maintenance manager
- During inter-campaign: Primary – boiler house area supervisor (temporary assignment). Back-up – Maintenance manager for unusual projects the Maintenance manager may take lead.

All annual preventive maintenance will be conducted inter-campaign.

- Initial action
  - Inspection of all air cleaning components – None present.
  - Inspection will be conducted of components of the boiler including
    - the burner (air emissions source),
    - boiler drums – have never had an issue with this other than scaling and other deposits. Examination for cracks will be conducted each year.
    - boiler tubes (components which may affect the air emissions source). Generally, boiler tube issues are leaks which reveal themselves either by
      - Changing the flame appearance as seen through the view port. This is generally an inner tube and would be noted during the campaign when the unit is operational.
      - A water leak from the boiler. There is a greater tendency of water leaks from outer tubes.
      - A change in the differential measurements between a measure of the boiler feed water volume and a measure of the steam volume. Generally, this indicator is reliable for detecting larger water leaks when it is apparent water use to steam generation is out of formula. The differential pressures may be determined during the campaign period when the unit is operational.
- Replacement of all defective air cleaning components – None present. Boiler tubes will be replaced or repaired as needed using parts from suppliers. The boiler drums will be cleaned as needed. A technician from the burner manufacturer (or equivalent) will be called in to address issues found or suspected with proper operation of the burner. This contract service will be responsible for bringing or acquiring the necessary parts to conduct appropriate service and needed adjustments/parts replacements.
- Since there is no air cleaning equipment, no spare parts are needed.

As specified in 40 CFR part 63.7540(a)(12), and since the unit utilizes oxygen ($O_{2)}$ trim, a boiler tune-up will be conducted at least every 61 months. Proper boiler operation will be monitored using a combination of the exhaust gas O_2 and NO_x along with the steam production.

III Monitoring to detect malfunction or failure

Rule 911(2)(b). An identification of the source and air-cleaning device operating variables that shall be monitored to detect a malfunction or failure, the normal operating range of these variables, and a description of the method of monitoring or surveillance procedures.

A description of the device (the natural gas fired boiler) is provided in the boiler introduction description above. There are no air cleaning devices and as a result there are no proposed monitoring or surveillance procedures for this unit.

Rule 911(2)(c). A description of the corrective procedures or operational changes that shall be taken in the event of a malfunction or failure to achieve compliance with the applicable emission limits.

The source of the emissions is from the burning of Natural Gas (in the burner) to produce steam in the boiler tube section of the boiler. There is no air-cleaning device to be monitored. The NO_x CEM will be used to monitor the emissions of O_2 and NO_x from the gas burner. The allowed NO_x emission rate is 0.20 lbs./MMBTU on a 30-day rolling average (see 40 CFR §60.44b). An action level has been established at 90% of the allowed emission rate (or 0.18 lbs. NOx/MMBTU).

The boiler is equipped with O_2 trim for the dynamic adjustment of air for a given fuel rate and steam demand. The O_2 target is normally in the range of 2% to 4%, as recommended by the manufacturer, except during periods of start-up, shut-down and very low or minimal steam demand loads (defined as 10% of full load or less).

The boiler O_2 trim is continuously monitored and controlled by the boiler control computer. The control computer automatically shuts down the boiler to avoid unstable operation and to prevent damage to the boiler and boiler components. Typical triggers for automatic shut-downs include: O_2 outside of recommended range except during start-up and shut-down and operation below 10% of maximum load. Annual RATAs and quarterly Cylinder Gas Audits (CGA), for those annual quarters in which the unit has operational time, will be conducted to ensure the proper operation of this monitoring equipment. In the event a quarter does not include boiler operation, CGAs are not conducted.

Corrective action or operational changes for the boiler and the boiler CEMs

- Depending on when the previous CEM autoCAL was completed, a manual calibration may be initiated to check the reading. While drift between autoCALs is unusual it should be evaluated and ruled out as a first step in the diagnosis.
- Early in the inter-campaign period, the burner will be visually inspected and compared to the specifications set by the most recent tune-up technician or manufacturer's representative. If issues are detected, a manufacturer's representative will be utilized to fully evaluate the identified issue to initiate corrective action(s). Boiler components and parts which show excessive, unusual wear, or damage will be ordered and replaced by qualified technicians as

appropriate. Manufacturer's technicians or an equivalent contractor service will conduct parts replacements since significant adjustments may be required with the parts replacement.

- The NOx CEMS and O_2 monitors are used to detect and determine unsatisfactory and unusual boiler operation.
    - Historically, boiler tube leaks have been the most common causes of higher emissions. Tube leaks can be identified by visual inspection of the combustion chamber during operation, water leaks out of the boiler and/or excessive water make-up volumes relative to steam output. When leaks are detected, the boiler will be shut-down and the leaking tube or source repaired.
    - For all other causes of unsatisfactory NOx emissions, the burner representatives will be consulted to determine the correct fuel and air burner ratios.
    - During periods when the NOx CEMs may not be operational, the boiler operators will maintain the proper combustion operational ranges utilizing readings from the O2 CEMs on the O2 trim system. Excess O2 readings may indicate the combustion ratio of fuel to air is too lean and NOx emissions may be higher than normal and/or allowed. The NOx CEMS SOP manual will also be consulted.

IV Reference Documents

Rule 911(3) A malfunction abatement plan required by Subrule (1) of this rule shall be submitted to the department and shall be subject to review and approval by the department. If, in the opinion of the commission, the plan does not adequately carry out the objectives as set forth in Subrules (1) and (2) of this rule, then the department may disapprove the plan, state its reasons for disapproval, and order the preparation of an amended plan within the time period specified in the order. If, within the time period specified in the order, an amended plan is submitted which, in the opinion of the department, fails to meet the objective, then the department, on its own initiative, may amend the plan to cause it to meet the objective.

Rule 911(4). Within 180 days after the department approves a malfunction abatement plan, a person responsible for the preparation of a malfunction abatement plan shall implement the malfunction abatement plan required by Subrule (1) of this rule.

a) Instructions for Operation and maintenance, for COEN Variflame Burner, John Zink Hamworthy Combustion, 11920 East Apache, Tulsa, OK 74116
b) Michigan Air Use Permit to Install 21-15B, May 16, 2017
c) Michigan Pollution Rule 911, Malfunction abatement plans, (R336.1911)

History

Original Draft August 2015 by S. Smock, Michigan Sugar Company
Update and amendments April 2019 by J. Pfost Environmental Partners, Inc.

Appendix

GENERIC TROUBLESHOOTING PROCESS TO FIND ROOT CAUSE(S)

1. Problem or Deviation Identified by Operator of Equipment according to the operating conditions outlined for the specific emissions unit (see above)

2. Operator of Equipment Troubleshoots to Find Root Cause(s)

3. Appropriate Hourly Leader and the Operator of the Equipment work together in Troubleshooting to Find Root Cause(s)

4. Shift Superintendent, appropriate Hourly Leader and the Operator of the Equipment work together in Troubleshooting to Find Root Cause(s)

5. As needed the Assistant Maintenance Manager joins the Shift Superintendent, appropriate Hourly Leader and the Operator of the Equipment in Troubleshoots to Find Root Cause(s)

6. As needed the Maintenance Manager joins the Assistant Maintenance Manager, Shift Superintendent, appropriate Hourly Leader and the Operator of the Equipment in Troubleshooting to Find Root Cause(s)

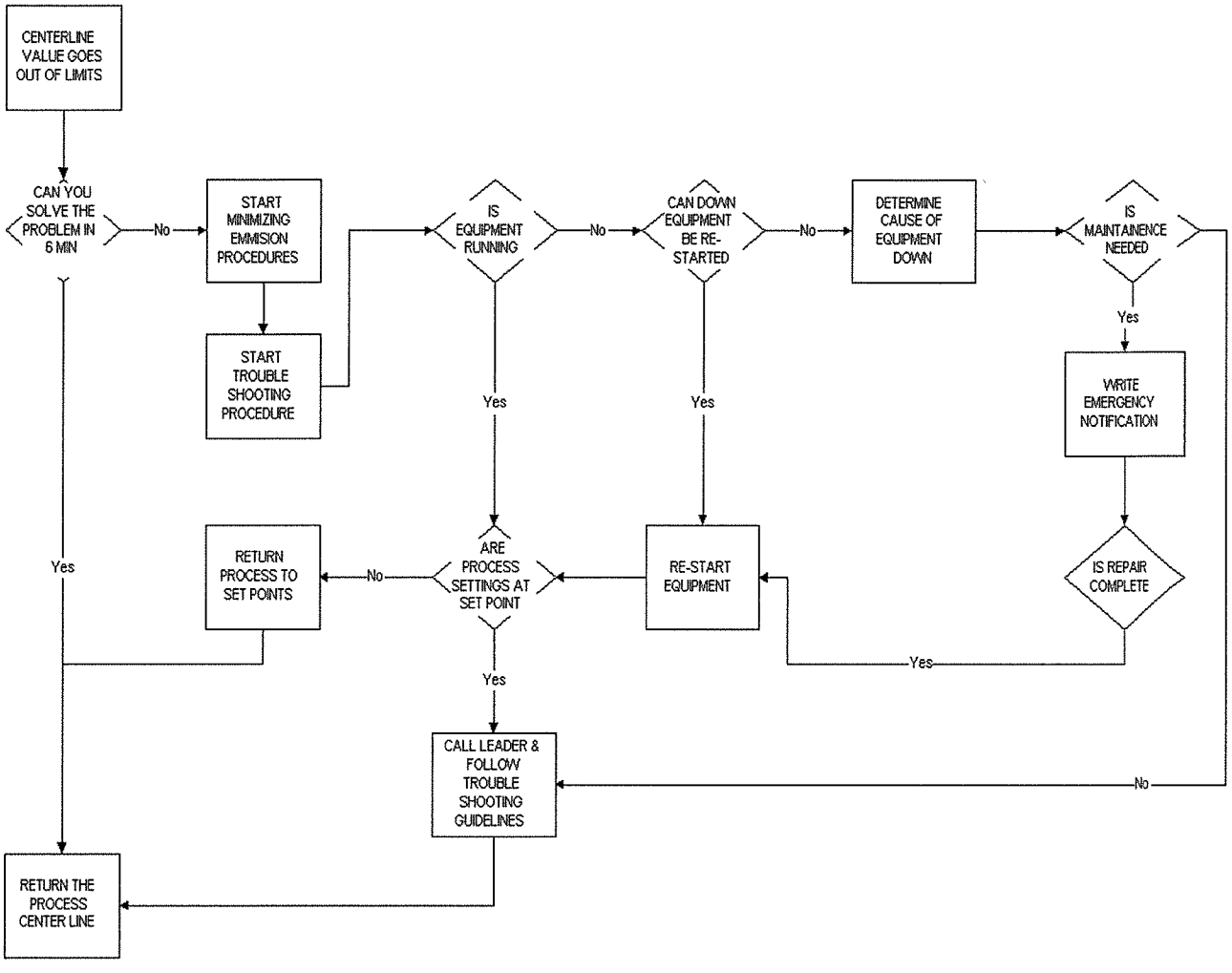
7. None of the Above Steps should ever be skipped unless it is an Emergency

NOTE: WHEN FACED WITH A REQUEST FOR ANY ASSISTANCE BECAUSE OF A DEVIATION, THE SHIFT SUPERINTENDENT WILL ENSURE THAT THE STEPS ABOVE WERE PROPERLY COMPLETED PRIOR TO FULLFILLING THE REQUEST (SAVE CATISTROPHIC FAILURES, AND EMERGENCIES)

SHUTDOWN

If the root cause cannot be determined or fixed promptly, the Factory Manager is responsible for making the decision concerning shutting down the equipment in question

MALFUNCTION ABATEMENT FLOW CHART



(i)