



## AAR MOBILITY SYSTEMS

201 Haynes Street/P.O. Box 550/Cadillac, MI 49601 USA/231-779-8800/Fax 231-779-4931

November 19, 2013

Caryn E. Owens  
Environmental Quality Analyst  
Air Quality Division  
Michigan Department of Environmental Quality  
Cadillac District Office  
120 W. Chapin  
Cadillac, MI 49601

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*Weyford Co.*

**RE: Response for L.O.V. dated October 30, 2013**  
**State Registration Number B4197**  
**Renewable Operating Permit Number MI-ROP-B4197-2011**

Dear Ms. Owens:

This letter is submitted in response to the Letter of Violation issued to AAR dated October 30, 2013.

August 20, 2013 performance stack testing was conducted for the Regenerative Thermal Oxidizer (RTO) located at AAR Mobility Systems, 201 Haynes Street, Cadillac, Michigan. The Department of Environmental Quality (DEQ) Air Quality Division (AQD) was present when the performance stack test was conducted on August 20, 2013.

On October 23, 2013 the DEQ received from AAR Mobility System the RTO destruction efficiency emission test report, dated October 2013, #081370. Based on the report, the average destruction efficiency for the RTO was 89.6 percent. According to the ROP in FGCOATINGS, Condition III.5, the permittee shall maintain a minimum VOC destruction efficiency of 95 percent in the RTO.

Although AAR Mobility Systems is not meeting the 95% destruction efficiency for the RTO at this time, monthly emission calculations have been completed (using 89.6% DE) and AAR is not exceeding permit emission limits. Additionally, AAR has taken a number of proactive actions prior to receiving the Letter of Violation dated October 23<sup>rd</sup>, 2013 to resolve and implement corrective actions to get the RTO back to 95% destruction efficiency. AAR has been in contact with the Cadillac District Office during this process since August 20<sup>th</sup>, 2013 and we have been communicating the actions that have been taken by AAR to improve the RTO destruction efficiency. Below is a summary of the corrective actions AAR has taken to date, AAR's proposed corrective actions to correct the RTO destruction efficiency with dates by which AAR expects each corrective action should take place.

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### **Path forward- Scope of Work to Bring RTO Back to 95% Destruction Efficiency**

AAR contacted Eisenmann Corporation on October 15<sup>th</sup>, 2013 and two additional RTO engineering firms to begin a formal process to receive request for proposals which were to include a more in depth engineering analysis for root causes and corrective actions into the decreased RTO destruction efficiency.

AAR Mobility Systems selected Durr Systems Inc. on October 28<sup>th</sup>, 2013 to begin an on-line assessment and engineering analysis for the RTO. Durr at this time confirmed scheduling a Field Technician for November 12<sup>th</sup>, 2013 to be in Cadillac.

### **RTO On-Line Inspection (Engineering Analysis) November 12th**

AAR contracted Durr Systems Inc. on November 12<sup>th</sup>, 2013 to perform an on-line inspection for AAR's Regenerative Thermal Oxidizer. The on-line inspection by Durr Systems Inc. focus was on three factors that are critical for maximum RTO decreased destruction efficiency:

- Oxidation Conditions (temperature, time and mixing)
- Purge Effectiveness (fan used to purge and remove VOC's from each heat exchanger prior to being exhausting through the RTO stack.)
- Valve (Damper) sealing and cycling.

The on-line inspection/engineering review performed on November 12th was on the general operation, performance, and efficiency of the RTO, including, but not limited to:

- Temperature, pressure, and air-flow measurements at various, critical locations (i.e. RTO inlet duct, RTO exhaust stack, combustion chamber, combustion air ductwork, etc.).
- Burner optimization
- Fault alarm history
- Fan performance
- Purge/flush volume operation and performance

At the conclusion of the inspection, a formal report will be issued and addressing:

- Preventive maintenance items
- Overall condition of the equipment
- Components requiring attention
- Critical factors affecting RTO destruction efficiency

The report will include information from the RTO online inspection. An engineering analysis of the pertinent field data collected on November 12th will also be submitted. The engineering analysis will include potential cause(s) suggestions and corrective actions regarding specific repairs, upgrades, and/or services that could improve the decreased destruction efficiency performance of the RTO.

AAR will utilize the on-line inspection report and engineering analysis to assess, prioritize and initiate specific repairs and or upgrades required to improve the RTO VOC destruction efficiency.

### **August 21<sup>st</sup>-22<sup>nd</sup> CRA RTO Destruction Efficiency Testing**

AAR Mobility Systems had Conestoga-Rovers & Associates, Inc. (CRA) on site to perform destruction efficiency testing for the RTO on August 21-22, 2013. The test was conducted to satisfy compliance requirements for the RTO 5 year Destruction Efficiency Testing as required by AAR Mobility Systems Renewable Operating Permit (ROP) MI-ROP-B44197-2011. To demonstrate compliance the RTO shall meet a minimum destruction efficiency of 95%. The average destruction efficiency for the RTO during the August 21st-22nd testing was 89.6%.

### **September 27<sup>th</sup>-28<sup>th</sup> and October 5<sup>th</sup> RTO Inspection and Maintenance Repairs**

AAR Mobility System contacted Eisenmann Corporation during the week of August 26<sup>th</sup>, 2013 to begin looking into the RTO decreased destruction efficiency with AAR Mobility Systems maintenance and environmental personnel. On September 3, 2013 AAR began reviewing the preliminary stack test data from August 20<sup>th</sup>-22<sup>nd</sup>, RTO Process Flow, Process Instrument diagrams and records for the RTO. On September 16<sup>th</sup>, 2013 Eisenmann scheduled a Field Technician for September 27<sup>th</sup>, 2013 to be on-site to further investigate, assist AAR in troubleshooting and determine a root cause for the decreased destruction efficiency.

September 27<sup>th</sup> and 28<sup>th</sup>, During an internal inspection of the RTO the Eisenmann Technician found that the RTO dampers were not sealing due to excessive wear of the damper seals. At the time of the internal inspection the Eisenmann Technician also visually inspected each of the five RTO heat exchangers and heat exchange media with no further issues reported by the Eisenmann Technician.

AAR mobility systems needed to procure the damper seals from an outside source and within one week initiated changing out all damper seals for each of the five heat exchangers on October 5<sup>th</sup>, 2013. AAR also conducted VOC testing for the RTO stack emission using a Photovac FID before the damper seals were changed out and after the damper seals were changed. The FID was used as a "tool" to measure effectiveness of the damper seal repair and replacement. FID readings after the damper seal repair and replacement indicated an improvement on the stack emissions. Although the FID could not be used to quantify the stack emissions AAR did see a substantial improvement which warranted scheduling Conestoga-Rovers & Associates, Inc. (CRA) back for a retest.

AAR did notify the MDEQ Cadillac office on September 27<sup>th</sup>, 2013 by e-mail in which AAR did provide an update and we also communicated our plan of action for scheduling the Eisenmann Technician and the proposed schedule for re-testing the week of October 14<sup>th</sup>, 2013. AAR did provide advance notice and confirmed the re-test date of October 15<sup>th</sup>, 2013 with the MDEQ office in Cadillac.

### **October 15<sup>th</sup> RTO Destruction Efficiency Re-Test CRA**

AAR rescheduled Conestoga-Rovers & Associates, Inc. (CRA) back for a retest on October 15<sup>th</sup>, 2013. During the initial first run, stack testing indicated that the destruction efficiency for the RTO was not meeting the minimum 95% destruction efficiency. The average destruction efficiency during this first round indicated 93.4% DE. No further testing was performed that day and CRA demobilized that afternoon on October 15<sup>th</sup>, 2013.

AAR Mobility Systems contacted the MDEQ Cadillac Office that same day to communicate the preliminary results for the first round of testing and notice was provided to the MDEQ that AAR was not going to continue with further testing due to the first round results of 93.4%, the Department of Environmental Quality (DEQ) Air Quality Division (AQD) representative was scheduled to be on site that afternoon. Albeit a substantial improvement from the August 20th-22<sup>nd</sup> testing of 89.6%, AAR would continue further investigation for improving the RTO DE back to 95%.

**RTO Repairs and RTO Destruction Efficiency Re-Test Schedule- November 2013-January 2014**

- Durr Systems Inc. completed the on-line inspection and data collection for AAR's RTO on November 12<sup>th</sup>, 2013.
- December 2<sup>nd</sup>, 2013: submittal of the Durr on-line inspection report and engineering analysis is due AAR Mobility Systems.
- December 2<sup>nd</sup>- 22<sup>nd</sup>,2013: During this time AAR Mobility Systems will begin it's review of the on-line inspection, engineering analysis report with support from Durr and the proposed corrective actions. AAR will begin maintenance planning, procurement of any parts not on hand or supplies that could be needed for any suggested repairs by Durr.
- Week of December 23<sup>rd</sup>, 2013: AAR to perform any specific repairs and or upgrades to the RTO based on Durr Systems Inc. findings and engineering analysis.
- Week of January 13<sup>th</sup>, 2014; reschedule the CRA Stack Test Crew to be on-site.

**Steps AAR Mobility System will take to maintain the RTO operational performance, reduce and prevent the reoccurrence for the RTO decreased destruction efficiency:**

- AAR will continue the established and routine preventative maintenance schedule for the RTO.

If you have any questions or comments regarding AAR's response to the letter of violation, please contact Greg Shay (Environmental Specialist) (231) 779-6372.

Respectfully,



Mark Platko  
General Manager  
AAR Mobility Systems  
201 Haynes Street  
Cadillac, Michigan 49601