



Memo

Date: Wednesday, June 08, 2016

Project: Durham York Energy Centre

To: Mirka Januszkiewicz, PEng, Regional Municipality of Durham

Laura McDowell, PEng, Regional Municipality of York

From: Bruce Howie, PE, HDR Corporation (HDR)
John Clark, PE, HDR

Subject: **Final Abatement Plan, dated June 7, 2016**

During the May 2016 Compliance Testing required by the Regional Municipalities of Durham and York (the "Regions"), the DYEC emissions of dioxin/furans from boiler #1 were measured to be an average of 818 pg-TEQ/Rm³ compared to the Environmental Compliance Approval (ECA) limit of 60 pg-TEQ/Rm³. Based on this exceedance, Covanta voluntarily shut down and secured boiler #1 on May 26 to allow for inspections and cleaning of the entire system.

Subsequent to the shutdown, Covanta was asked by the Regions and the Ministry of Environment and Climate Control (MOECC) to develop an Abatement Plan. Based on discussion between the Regions, Covanta and HDR, the Abatement Plan was intended to; (a) summarize the events and history, (b) provide a checklist of the items that will be inspected, cleaned or repaired while the unit is off-line, (c) develop a list of operational items to be checked and monitored after startup during operations, (d) develop an assessment of potential cause(s) of the exceedance, and (e) develop a list of corrective actions that will be taken to prevent a reoccurrence of the exceedance. The corrective actions to be taken were to include (1) action items that would be undertaken during the shutdown period, (2) action items to be taken after the boiler is started up, and (3) action items to be taken over longer term operations.

HDR, as the technical consultant for the Regions, was asked to review the Plan to confirm that Covanta was following the MOECC guidelines and good engineering practice. As part of review of the Plan, HDR performed the following activities regarding the development of the Plan prepared by Covanta:

- On May 27, HDR had a conference call with Covanta to discuss the items that HDR felt should be considered in the Abatement Plan. After the call, HDR provided this list to Covanta via email.
- Covanta provided the first Draft Abatement Plan to HDR on May 29, 2016. HDR reviewed the draft Plan and developed a list of outstanding concerns that were sent to Covanta on May 30th, which was followed by a conference call between HDR and Covanta staff. HDR's specific comments included but were not limited to the need for Covanta to develop a Pre-Startup Checklist that would identify the actions they need to take prior to restarting boiler #1, as well

as identify what longer-term monitoring and actions needed to be taken after startup and going forward into operations.

- Covanta submitted a second draft Plan to HDR on May 30th, which was followed by another conference call to discuss HDR's comments and concerns. Based on this discussion, Covanta prepared another revision to the Plan.
- On June 1st, Covanta provided a revised Abatement Plan to the Regions and HDR. HDR reviewed this version of the Plan and prepared comments. This version of the Plan did include a detailed Pre-Startup Checklist that HDR commented on and requested further revisions and additions.
- On June 2nd, Covanta, the Regions and HDR participated in a conference call with MOECC to discuss HDR's comments, as well as discuss what needed to be included in the Plan and the steps that Covanta must take prior to restarting boiler #1.
- On June 2nd Covanta submitted a revised final Abatement plan to the regions, HDR and MOECC.
- On June 3rd, Covanta, the Regions and HDR participated in a conference call with MOECC to discuss the Abatement Plan. MOECC provided verbal comments to Covanta during the call, and later provided written comments to the Abatement Plan through an email to Covanta and the Regions (HDR was not copied on the original email).
- On the late afternoon of June 3rd, Covanta submitted a revised Abatement Plan to HDR.
- On June 6th, HDR provided comments to Covanta regarding their June 3rd submittal. HDR did make some additional comments within this revised Plan, but also stated that it appeared that our technical issues had been sufficiently addressed by Covanta. HDR also pointed out to Covanta that there was some information missing related to MOECC specific questions of June 3rd that still required attention in the Plan.
- On June 6th, Covanta submitted another revised Abatement Plan to the Regions, HDR, and the MOECC, which incorporated responses to the additional MOECC questions that had been missed previously and also addressed HDR's remaining comments. AT this point, the Plan still required the approval of the Regions and MOECC.
- On June 7th, HDR received the Regions of Durham's comments regarding the Plan, which we forwarded to Covanta along with some additional HDR comments. .
- On the evening of June 7th, Covanta provided a final Abatement Plan to the Regions and HDR, based on a conference call that took place between the Regions and Covanta. HDR reviewed the revised Plan and HDR identified only minor spelling and editorial errors.

In addition to reviewing the multiple versions of the Abatement Plan, HDR was on-site at the DYEC during the period of May 27th through May 29th, and June 6th through June 8th to observe the work and inspections performed by Covanta as part of their Pre-Startup Checklist that was included as Appendix C to the Plan. During this period, HDR had several meetings with Covanta's Plant Manager, Matt Neild, and other operations personnel to discuss their implementation of the Abatement Plan and the items that were identified during their inspections of boiler #1. HDR's conversations were focused on Covanta's attempt to ascertain the potential causes of the dioxin exceedance and what means they were implementing to mitigate a future exceedance after boiler #1 was restarted. HDR's review of the Final Pre-Startup Checklist and observations made by us and Covanta during the implementation of the Plan will be the subject of a separate technical memorandum.

Based on HDR's review of Covanta's Final Abatement Plan (received June 7th), it our opinion that the Plan in its current form identifies a number of possible causes of the dioxin/furan exceedance in boiler #1, and outlines a reasonable technical process to minimize the potential for an exceedance when boiler #1 is restarted and operating. HDR understands that the Final Abatement Plan has been approved by the Regions, and is still subject to MOECC final approval.