

Mr. Reginald Parker, P.E.
Regional Engineer
New York State Department of Environmental Conservation
615 Erie Blvd
Syracuse, NY 13204

Subject: SMCC Lithium Ion Battery (LIB) Incinerator - PFAS
DEC Permit No. 7-034-00218/00001

Sent Via Email

Dear Mr. Parker:

Our citizens' group known as No Burn Broome brought the lithium ion battery (LIB) PFAS issue to the attention of local officials, who subsequently raised the matter with the DEC. We understand that SMCC is now in the process of responding to a letter you sent to them dated May 20, 2020 in which the DEC calls for a permit modification to address the PFAS matter. In a recent statement that SMCC made to the local media, it appears that they are modifying their process temperature in an attempt to destroy PFAS compounds present in the batteries. It should be noted that a recent presentation by USEPA, attached hereto, calls into question a) the adequacy of incineration to destroy PFAS compounds, b) the lack of knowledge regarding the nature of breakdown products of PFAS during incineration, and c) the lack of fully developed lab methods to determine PFAS levels in air samples collected at emission stacks.

Moreover, this facility is being touted as a first of its kind LIB recycling plant in the US, yet the chemistry of burning LIBs has not been fully elucidated. Clearly, fluorinated compounds such as polyvinylidene fluoride in the binders of LIBs and lithium bis (trifluoromethyl sulfonyl) imide, lithium hexafluorophosphate, lithium hexafluoro arsenate monohydrate (LiAsF_6), lithium tetrafluoroborate (LiBF_4), and lithium triflate (LiCF_3SO_3) found in the electrolytes, could break down to form very highly reactive fluorinated moieties as well as liberating the PFAS. There is scant information in the literature on this topic and what is currently known is research based on LIB fires as shown in this article <https://www.nature.com/articles/s41598-017-09784-z>

With such little research having been done on LIB incineration chemistry, it seems incongruous that DEC would allow a Title V emission permit to be issued to a company, right next to a residential neighborhood, ballfields and public swimming pools without thoroughly investigating the esoteric chemical nature of this incineration process. After all, we are talking about potential emission of hydrofluoric acid and PFAS compounds here, just for

a start. Personally, we would say a bit more research would be needed before they should be allowed to begin LIB incineration in the USA. Their research and experimentation should be done in South Korea where they are located inside an 8000-acre industrial estate. In our view, Endicott, NY is not the place for their experiment.

If SMCC is intent on modifying its process to destroy PFAS compounds, we would suggest requiring them to do worst case air sampling as is done with indoor air quality testing to ensure protection of the public. Since it is unclear just how many LIBs actually contain PFAS or how many might be in the plant for processing at any given time, we suggest the following:

1. The test burn data should be based on the maximum number of PFAS-bearing LIBs present in the kiln; ideally all of them should be PFAS-bearing for the test burn. Running a test burn to determine PFAS without an appreciable sample population of PFAS-bearing LIBs would be inadequate.
2. The lab testing should be performed by a reputable ELAP certified laboratory with experience running PFAS stack samples and the ability to modify the test method to determine lithium bis(trifluoromethyl sulfonyl) imide and other non-target PFAS method compounds identified by SMCC or others.
3. Fortunately, the company that SungEel hired to analyze the results of the **4-hour** stack test for dioxins (Eurofin, a German based company) in South Korea was involved in monitoring a Netherlands incinerator in which 6-hour testing was compared with the 4-week sampling using the commercially available AMESA system. So, they are familiar with the system. This system can monitor both the PFAS and the dioxins so two birds can be killed with one stone.
[\(https://zerowasteurope.eu/library/hidden-emissions-a-story-from-the-netherlands/\)](https://zerowasteurope.eu/library/hidden-emissions-a-story-from-the-netherlands/).



Long-term sampling flue gas



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- For the **first time in the history** of the Netherlands a **long-term continuous sampling** of flue gas in the chimney of the incinerator
- Analysis of regulated dioxins and furans (PCDD/F) and also the non-regulated POPs like dioxin-like PCBs, brominated and fluorinated compounds (PBB, PBDE, PBDD, PBDF, PFOA, PFOS)
- All results publicly accessible
- www.harlingen.nl/reclonet



- The DEC should be present to observe selection of the batteries for incineration (see comment 1 above) and all sampling related to the process




Short- vs long-term measurements

Sampling	hours	ng TEQ/Nm3	Factor
Short-term, March 30, 2016	6	<0,00001	
Long-term March 26– April 26, 2016	256	0,01290	>1290
Short-term, 8 March 2017	6	0,00001	
Long-term March 7 – April 5, 2017	690	0,00460	460

Sampling for official monitoring purposes must be *representative*.
Short-term sampling underestimating emission dioxin levels.





5. The New York State Department of Health should be consulted in this matter and concur that the methodology for testing and data evaluation meets reasonable guidance regarding exposures to PFAS to ensure protection of human health proximate to the proposed facility.

We fully understand that PFAS are not currently regulated as Title V air pollutants; however, we do know that DEC is carefully evaluating all environmental media from drinking water to import soil for site remediations to perform at least a rough analysis of whether PFAS concentrations are problematic. We expect the same consideration and standard of care in this matter as well, with the understanding that this is an important emerging concern that is rapidly developing.

Thank you so much for your consideration in this matter. Please feel free to contact us at pconnett@gmail.com or jjruspantini@nptusa.org if you have any questions or comments.

Very kind regards,



John Ruspantini, CHMM, PMP



Paul Connett, PhD