

# NEW YORK STATE DEPARTMENT OF ENVIRONMENTAL CONSERVATION

## Division of Air, Region 7

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August 1, 2020

Mr. John Ruspantini  
1013 Briarwood Drive  
Endicott, NY 13760

Dear Mr. Ruspantini:

Thank you for your email to Governor Cuomo. My name is Tom Elter, I am the Regional Air Pollution Control Engineer for Region 7 of the New York State Department of Environmental Conservation (DEC), which includes Broome County. The Governor asked that we respond to your concerns regarding the future operation of a lithium-ion battery recycling facility proposed for the Huron Campus in the Village of Endicott. The battery recycling facility is proposed by Sungeel MCC Americas LLC (SMCC).

I will address each of your concerns as they appear in your email. I will also take this time to discuss the remaining points in your white paper, co-authored with Dr. Paul Connett.

1. You suggest that Empire State Development cancel their public subsidy to Metallica Commodities Corp and SungEel.

Empire State Development offered incentives to encourage this company to set up its operations in Endicott, and not in Pennsylvania where the business was originally looking. Endicott and the greater Binghamton region included a growing cluster of lithium-ion and other battery businesses and the State economic development agency believed the battery recycling project was a good fit for the area and would bring needed investment and jobs to the community.

Currently, Empire State Development does not intend to rescind its incentive offer. However, it is important to note that the business will not receive any incentives if it does not meet its committed investment goals and create at least 86 full-time jobs in New York State.

2. The Title V permit issued to SMCC must be rescinded.

The facility was not issued a Title V permit. Title V permits are issued to facilities with the potential to emit pollutants at major source thresholds (10 tons per year of any federal hazardous air pollutant, 25 tons per year of all federal hazardous air pollutants, 50 tons per year of volatile organic compounds, and 100 tons per year of all other regulated pollutants), or are otherwise required to obtain a Title V permit (such as incineration facilities regulated by the federal Environmental Protection Agency, or EPA). The EPA has determined that this process is not regulated by their rules. Also, annual emissions are well below the Title V thresholds; for example, NOx emissions are estimated to be 0.6 tons per year; the Title V threshold is 100 tons per year. VOC emissions are projected to be 0.3 tons per year; the Title V threshold is 50 tons per year. Emissions of other contaminants were similarly much lower than the Title V thresholds. Given such low emissions, a Title V permit was not required. The facility was issued a State Facility Permit.

Regardless of the type of permit, you state that it should be rescinded. The facility is required to comply with our regulations, and has provided sufficient documentation that such compliance will be achieved. DEC does not see any justification for rescinding the permit. And, as discussed below, the facility cannot operate without first documenting whether the batteries contain PFAS.

3. The proposed SMCC facility poses a serious health risks to the Endicott community.

You have not provided any documentation that suggests that emissions from this facility will pose a serious health risk to the community. The presence of a contaminant in the exhaust is not dispositive that serious health risks will occur. The SMCC facility is subject to 6 NYCRR Part 212, which was designed to protect the health of the public, especially where toxic contaminants persist. The permit requires compliance with Part 212, and includes permit conditions for specific High Toxicity Air Contaminants that limit annual emissions to less than the mass emission thresholds in that regulation, and includes a generic, catch-all condition that limits emissions of all HTACs to below their respective mass emission thresholds. The emissions of HTACs from the facility are predicted to be well below the thresholds. DEC believes compliance with the rule will protect the environment.<sup>1</sup>

Regarding per- and poly- fluorinated alkyl compounds (PFAS): DEC has the authority to modify, suspend or revoke permits based on newly discovered information. As soon as DEC became aware of the potential presence of PFAS in the batteries, we directed SMCC to investigate the issue. We also advised SMCC that processing PFAS containing batteries would not be allowed under the current permit, and that a modification would be required if batteries containing PFAS were accepted. Furthermore, to process any batteries at all, SMCC would have to document, through vendor certifications, that those batteries did not contain PFAS. Finally, SMCC has committed to testing its plant in South Korea for certain contaminants, including PFAS, dioxins and hydrogen fluoride.

DEC has taken all necessary steps to insure emissions from the facility will protect public health.

4. Aqueous processes should be sought out and employed in preference over incineration or pyrolysis.

DEC does not generally prescribe to an applicant how to manufacture or process its raw materials; that is left to the applicant. Rather, we prescribe permit conditions that will insure compliance with our rules. Nonetheless, we have briefly discussed with SMCC lithium ion battery recycling processes that do not involve heating, and they described their reasons for selecting a heat-based treatment. DEC did not prescribe, nor has the authority to prescribe (without supporting regulations), the use of specific processes over others.

5. DEC did not adequately scrutinize a first-of-its-kind in the US incineration process.

The application, as are all air pollution control permit applications, was submitted by a licensed professional engineer. It is the obligation of the applicant's engineer (and the applicant) to make a complete submission, including estimation of all emissions. That application was reviewed by myself, also a licensed professional engineer; as a result, multiple correspondence between DEC and the applicant occurred. The permit, after issuance, was also evaluated by an independent environmental

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<sup>1</sup> If annual emissions did exceed the thresholds, a permit could still be issued; further review would be required.

consultant hired by the Village. In addition to imposing enforceable conditions on emissions that are very restrictive, DEC also included conditions for the applicant that require monitoring of emission control equipment, monitoring of contaminants in captured dust, an operation and maintenance plan, and a battery sorting plan with the intent to focus on fire prevention. DEC also required additional data on dioxin emissions. The permit process took over a year, with a Registration application submitted in December 2018, followed by a State Facility Permit application in May 2019, with a revised application in September 2019. The application received a great deal of scrutiny.

6. A full Environmental Impact Statement was never prepared.

Under the New York State Environmental Quality Review Act (SEQR), only projects determined to have a potential for a significant adverse environmental impact are required to be evaluated in an environmental impact statement. Nevertheless, based on the available information provided in the company's permit application, all relevant areas of environmental impact were identified, and none were found to have a potentially significant adverse environmental impact. Any new information that may become available and requires action on the issued permit will be thoroughly evaluated under SEQR to determine the potential environmental impacts.

7. The chemistry of the process is not fully understood.

We agree that the chemistry is not well understood, but emission tests can be specified to look at those contaminants that might be expected to be created (such as dioxin). We were presented with emissions data from both a pilot plant (uncontrolled emissions) and an existing facility in South Korea, of which the proposed Endicott facility will be patterned; DEC was told that the South Korean facility will essentially be replicated at the Huron campus. Emissions data from a similar device is, in the opinion of just about any air pollution professional, the desired source of data. Also, the control equipment that will be installed to meet these limits will effectively control a wide range of contaminants.

8. There is a potential to produce significant amounts of hydrogen fluoride.

Estimates of hydrogen fluoride (HF) provided by Dr. Connett conflict with the data provided by SMCC for both the pilot plant (uncontrolled) and the South Korean facility (again, with controls like what is proposed for Endicott). The HF emissions calculations provided by Dr. Connett were under a hypothetical battery fire; another reference included emissions from simulated battery fires.

The kiln process heats the batteries, the internals of which are isolated from free oxygen. The intent is to vaporize or volatilize the electrolyte carrier, as well as conditioning the batteries and removing residual charge. Comparing a controlled process to uncontrolled fires is not appropriate.

While the HF estimates provided by Dr. Connett, on paper, appear possible, if those emissions occurred in practice the concentrations that result (~3,000 ppm HF) would likely deteriorate the process equipment quickly, and present a dangerous, potentially deadly situation should leakage into the plant occur. Instead of all the fluorine being liberated as HF in the kiln, it is possible, if not likely, that fluoride salts (such as sodium and lithium) remain behind as the solvent is vaporized; both of those salts boil at 3,000 degrees F. This will reduce the amount of HF that is emitted. We cannot conclusively say that HF will not be emitted. Instead, we rely on actual test data. The calculations provided by SMCC result in actual emissions of HF that are very low. Reliance on test data is standard protocol. While the opponents of this facility debate the robustness of the testing, and clearly doubt the results, such testing

was conducted by SMCC with the knowledge that it would support an application (and the legal authority that carries). The Department has no reason to doubt the results, but nonetheless, have asked SMCC to test HF emissions as the South Korean facility.

DEC may consider a condition limiting HF emissions to no more than 100 pounds per year, pending more testing on the South Korean facility. The current application presented an actual annual emission rate of just 5.4 pounds per year.

9. DEC is looking into the presence of PFAS in batteries after issuance of the Title V permit.

Correct, though, as noted above, the Department issued an Air State Facility permit, not a Title V permit. We became aware of the possible presence of PFAS shortly after the permit was issued from scientists at the New York State Attorney General's office, upon which we acted immediately to inform SMCC's consultant, and followed that up with a letter to SMCC that stated we would not allow processing of batteries without certification from the vendor of the absence of PFAS containing- materials. If PFAS is found to be in the batteries that SMCC will process, a permit modification will be required. SMCC has agreed to conduct testing of PFAS at its South Korean facility.

In your co-authored paper on the concerns about the SMCC project, you identified lithium bis(tri-fluoromethanesulfonyl) amide, two carbon atoms bonded with the fluorine atoms separated by a sulfonyl amide functional group. At the temperatures we expect, this PFAS will break into two carbon groups, and possibly trifluoro methane or carbon tetrafluoride will result. DEC has an ambient concentration established for carbon tetrafluoride; emissions of this compound will be less than 100 pounds per year. We would expect longer-chain (C8) fluorocarbons, if present, to break down in the proposed oxidizer.

10. Dioxin emissions were based on a single short-term test when the pollutants can vary by over 1000-fold.

Correct; dioxin testing was conducted for a short duration. The testing was not coordinated with DEC. Nonetheless, SMCC will be held to its permitted emission limit, the mass emission limit of 6 NYCRR 212-2. DEC expects the emission rate to be low, because the concentration of hydrogen chloride is low. Typical HCl emissions at municipal solid waste combustors is much higher; the emission limit, for example, of the MWC in DeWitt, NY is 25 ppm, much higher than what is allowed from this facility.

Dr. Connett has advocated for the use of a continuous dioxin analyzer, and has claimed that some municipal incinerators equipped with such analyzers have shown emissions can be 1000 times higher than that recorded during a traditional stack test. However, that does not necessarily transfer to SMCC. The process feed of a municipal waste conductor is variable, while the process feed at SMCC will be a steady stream of known quality. The high dioxin data to which he referred was a result of *by-passing the emissions control equipment*; no by-pass is provided at SMCC's facility. It is not valid to conclude that because by-pass emissions from an MWC greatly exceeded controlled emissions, that emissions from SMCC could also exhibit such variability. Also, there will be a startup/shutdown plan at SMCC, which will help to avoid variable operating conditions. Finally, the high concentration Dr. Connett reported may have been the result of contamination.

The continuous AMESA analyzer (<http://www.environnement-sa.com/products-page/en/emission-monitoring-en/amesa-2/>) is not a method that is promulgated by the Environmental Protection Agency.

There are aspects of that sampling device that may be problematic. For example, the method does not do a probe rinse. In fact, there is more than just a probe; a sample line will run from the stack sample location to a monitoring shelter. The sample may be heated or diluted to prevent condensation; a dilution probe adds a level of systemic error.

DEC believes that the promulgated dioxin reference method will produce accurate values and should be used to determine compliance at this facility. If warranted, startup emissions could be part of the measurement process. Most importantly, the emissions control system cannot be by-passed.

11. Nanoparticles were never assessed.

Correct.

The nanoparticles to which you refer, that is, those from combustion, are ubiquitous. We combust home heating fuel, use natural gas for cooking, combust fuel for power generation, rely on fossil-fueled transportation sectors, our industries have boilers (such as those on the Huron campus), and many of us enjoy a simple camp fire. I cannot think of a civilization without combustion and exposure to the resultant "nanoparticles." We have been exposed to nanoparticles long before the word was coined.

Nanoparticles are not currently a regulated pollutant; there is no test method; and there are no health standards upon which to base an emission limit. Current test methods and technology is geared toward PM<sub>2.5</sub>, particulate matter with an aerodynamic diameter equal to and less than 2.5 micrometers. The emission control proposed will capture PM<sub>2.5</sub> as defined by the test method. Until we study nanoparticles further, DEC is not able to establish emissions limits or ambient standards.

We may find that the installation of a lithium ion battery recycling plant will reduce our reliance on internal combustion engines, and thus reduce nanoparticles, overall.

12. HF compliance will be based on a single stack test and not continuous monitoring.

Initial testing will occur, and, depending on the measured emission rate and operational characteristics of the process and control equipment, additional testing can be required at any time, at the request of DEC. Continuous monitoring is not required in the permit. Continuous monitoring of control equipment parameters will be required.

13. The risk of a chain reaction fire is a real risk.

DEC agrees that there is a real risk of fires. DEC does not regulate this, nor does DEC have the expertise. Fire prevention is the purview of local authorities. Nonetheless, DEC included a condition that will cause SMCC to focus on fire prevention. The condition may be unnecessary; we are aware that SMCC has considered fire prevention independent of DEC.

14. Residences, ball fields, swimming pools, and schools are nearby.

There are aspects of this project over which DEC does not have authority; one is location. DEC does not regulate local land use; local communities address this through zoning decisions. Our responsibility is to make certain that facility operations are compliant with our regulations, and we feel we have accomplished that through the permit review process. DEC's regulatory standards ensure the protection of human health and the environment at and beyond the property lines of permitted

facilities. These standards consider whether sensitive receptors are located nearby when assigning Environmental Ratings under Part 212; all the HTACs are assigned the most sensitive rating, A.

The following points address items from your White Paper that are not addressed above.

15. Your paper references EPA's Maximum Contaminant Level for fluoride in drinking water, and state that the scrubber water will exceed this level by a "very large amount."

DEC agrees, and recommends that the scrubber wastewater not be used as a potable supply. The water will be either discharged to a treatment facility or shipped off-site for treatment.

16. You say that SMCC should have tested for brominated and fluorinated dioxins.

DEC does not expect fluorinated dioxins to be formed because of the low presence of HF in the gas stream. In addition, a high temperature oxidizer will treat and dioxin that may be present in the gas stream. Thermal oxidation is being used elsewhere to control other PFAS emissions.

DEC is unaware that the batteries contain brominated fire retardants. We would greatly appreciate if you could share that information with us.

17. You want the ambient air to be monitored in Endicott.

DEC's air permitting regulations ensure the protection of ambient air by limiting emissions from facilities to levels that will not exceed the Department's ambient air standards and guideline concentrations. There are limitations to conducting ambient monitoring to determine impacts from individual sources. Meteorology and background sources present challenges to discerning facility impacts, and long term monitoring is needed to make statistical comparisons to chronic exposure standards and guidance values.

Finally, you ask the Governor to intervene to stop the project. DEC is sensitive to the concerns of the people of Endicott. Given the location, the prior history in Endicott, and the nature of the facility proposed by SMCC, DEC used its discretion to increase the regulatory review from a registration to an Air State Facility Permit. This allowed the DEC to impose added conditions on the facility and allow for public comment. We abided by the requirements for public involvement and even extended the comment period when so requested, making available the information that we have. Even though the comment period has ended and the DEC has issued a permit to SMCC, we are still listening, as evidenced by this letter and my numerous discussions with Dr. Connett.

DEC has regulations to minimize the release of contaminants to the environment, and SMCC's process is required to be compliant with these regulations. The permit requires extensive emissions testing and monitoring of control equipment parameters to ensure emissions are controlled long after initial testing is completed. DEC's permit was reviewed by an independent consultant hired by the Village, and their review found that the permit includes the appropriate monitoring, recordkeeping and reporting requirements necessary to protect human health and the environment. Please note that DEC will continue to review any new information brought to our attention on this matter, and that DEC has the authority to modify, suspend or revoke any permit if newly discovered material or information changes the basis upon which the permit was granted.

We appreciate you taking the time to write and share your concerns. If you have further questions, I encourage you to contact me. I can be reached at [thomas.elter@dec.ny.gov](mailto:thomas.elter@dec.ny.gov).

Sincerely,

A handwritten signature in black ink that reads "T A Elter". The signature is written in a cursive, flowing style.

Thomas A. Elter, PE  
Regional Air Pollution Control Engineer

CC: Matthew Marko, Director, DEC Region 7  
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