

**No Burn Broome
Science Team**

September 17, 2020

Elizabeth Tracy, Regional Permit Administrator
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Subject: SMCC (SungEel) LIB Recycling State Air Permit 7-0346-00218/00001

Dear Ms. Tracy:

I am requesting, pursuant to 6 NYCRR 621.13, paragraph (b) that the Department of Environmental Conservation consider the modification, suspension or revocation of the following permit:

Permit Type: Air State Facility
Permit ID: 7-0346-00218/00001
Effective Date: 03/30/2020 Expiration Date: 03/29/2030

Permit Issued To: Sungeel MCC Americas LLC
222 Bloomingdale Rd
White Plains, NY 10603

Facility: SMCC LIB Recycling Facility
801 Clark St
Endicott, NY 13760

Subpart 621.13 (b), allows the department to consider requests from any interested party for modification, suspension or revocation of permits based on reasons specified in the regulations. These reasons include the following:

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“materially false or inaccurate statements in the permit application or supporting papers” and,

“newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit.

Further, the department:

“must decide whether the request is justified and the action to be taken in response to the request. A brief response giving the reason(s) for the department's decision must be sent to the party making the request.”

This request is based on all application materials, the amended Negative Declarations for this project and additional correspondence to and from DEC Region 7, including the letter from Thomas Elter: <http://fluoridealert.org/wp-content/uploads/indicott.dec-letter-to-ruspantini.8-1-20.pdf> and from Reggie Parker [http://fluoridealert.org/wp-content/uploads/indicott-legal.dec-letter-to-sungeel.5-20-20.ocr .pdf](http://fluoridealert.org/wp-content/uploads/indicott-legal.dec-letter-to-sungeel.5-20-20.ocr.pdf). These letters will be referred to as Elter or Parker.

MATERIALLY FALSE OR INACCURATE STATEMENTS IN THE PERMIT APPLICATION OR SUPPORTING PAPERS

According to the DEC (Elter), the “chemistry of the process is not well understood.” If the process is not well understood, then the hazards associated with the process are not well understood. DEC should have required a more rigorous process to adequately protect human health and the environment from hazards associated with the SungEel process, rather than incomplete and questionable data.

Testing results from South Korea:

Despite the process not being well understood, DEC accepted the limited testing from South Korea, with little question and predicted compliance based on these data.

In the Negative Declaration, DEC stated,

“Emissions of federally regulated pollutants are predicted to be less than 50 percent of major source thresholds, and emissions of “high toxicity air contaminants” are predicted to be below the thresholds in 6 NYCRR 201-9, Table 1.” [http://fluoridealert.org/wp-content/uploads/indicott.seqr .amended-negative-declaration.3-27-20.pdf](http://fluoridealert.org/wp-content/uploads/indicott.seqr_amended-negative-declaration.3-27-20.pdf)

Despite being in operation in South Korea for 11 years, SungEel only provided single tests for each pollutant (single tests for kiln emissions; a single test for dioxin and a single test for stack emissions for each pollutant for each battery type). “Statistical analysis” was done on single

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data point, instead of the minimum three data points for each test so you can report a low value, a high value, a geometric mean, a standard deviation and a 95% upper confidence interval. Without this statistical treatment you cannot predict annual emissions, much less accept them.

This does not represent a solid basis for any judgment about safety. Even Barton and Loguidice, the Village of Endicott's consultant, raised issues about the results:

The stack test results presented in the Air Permit Application indicate that the results are based from a single sampling run for each test. The facility operational data and laboratory reports are not included with this data. Typically, this information is required to be included to review how the facility was operating during the testing. For example, NYSDEC mandated testing requires a facility to operate within 90% of a source design capacity for regulatory tests. For the dioxin test, the battery cell throughput rate was provided (2,070 lb/hr), which is within 90% of the proposed facility design capacity (2,200 lb/hr). Operational parameters were not provided for the other tests. Additionally, triplicate test runs are typically required for stack testing to evaluate variability in operations and testing methods. <http://fluoridealert.org/wp-content/uploads/endicott.barton-loguidice.april20.2020.pdf>

Monitoring for Dioxin

DEC accepted Sungeel's estimate of dioxin emissions based on a single measurement made on a single day. Dioxin measurements from incinerators can vary by a factor of 1000 within a single day – especially during start up and shut down. This plant will operate for 12 hours a day and thus there will be at least one start-up and one shut-down each day! The DEC should have insisted on a range of emissions based on an extended time frame which included start-up, shutdown and upset conditions.

Zoning and Comprehensive Plan

In the DEC's amended Negative Declaration of March 27, 2020:

"There is no identified material conflict with local land use plans or community character. The proposed facility is to be located within existing buildings on the Huron Campus, which is zoned for industrial use and previously used for industrial activity. The facility will need to comply with all local requirements, including any applicable zoning and or special permits requirements." http://fluoridealert.org/wp-content/uploads/endicott.seqr_amended-negative-declaration.3-27-20.pdf

However, neither recycling nor incineration are permitted uses under the Village of Endicott Zoning Codes <https://ecode360.com/26797847>. And the Town of Union Comprehensive Plan

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<http://fluoridealert.org/wp-content/uploads/indicott.town-of-union-comp-plan.chapter-18.econ-dev.pdf> calls for “buffers between industrial uses and adjacent residential uses.” No buffer zone exists for this facility at its location, there are people literally living less than 100 feet from the proposed facility. In addition, the Plan stresses a preference for “light industrial” over “heavy industrial” uses, saying. “Very little land in the Town of Union is suitable for heavy industrial uses and this use is being phased out.” Village of Endicott Zoning Codes, DEC’s statements about the zoning are “materially false or inaccurate statements.” The SungEel facility with its high temperature processes and smokestacks is not a “light industrial use.” <http://fluoridealert.org/wp-content/uploads/indicott.town-of-union-comp-plan.chapter-10.land-use-zoning.pdf>

NEWLY DISCOVERED MATERIAL INFORMATION OR A MATERIAL CHANGE IN ENVIRONMENTAL CONDITIONS, RELEVANT TECHNOLOGY OR APPLICABLE LAW OR REGULATIONS SINCE THE ISSUANCE OF THE EXISTING PERMIT.

No Burn Broome (NBB) provided scientific information on the dangers of Lithium Ion Battery incineration and storage to DEC and the public for the first time and to the public on April 26, 2020: <https://noburnbroome.files.wordpress.com/2020/04/indicott.position-paper.updated.4-26-20.pdf>

PFAS

On May 20, 2020, DEC notified the applicant as follows:

“As you are aware, NYSDEC recently became aware that some lithium ion batteries contain some amount of per and/or poly fluoroalkyl substances (PFAS). In addition, there is evidence that any PFAS compounds present in the batteries could result in PFAS emissions at the temperature that the Rotary Kiln Dryer operates. . . Based on this new information, DEC has concluded that a modification to SMCC's ASF permit is required to process any lithium ion batteries containing PFAS compounds at the facility since this was not part of the original permit application prepared by SMCC. The application for modification of SMCC's ASF permit must include an estimation of PFAS emissions both prior to and after air pollution control.” (Parker, <http://fluoridealert.org/wp-content/uploads/indicott.barton-loguidice.4-20-20.ocr.pdf>).

More than a modification for PFAS is needed. The permit needs to be revoked to address the unknown risks of PFAS.

Incineration of PFAS Generally

After public discovery that firefighting foam (AFFF or aqueous film-forming foam) containing PFAS was being burned at Norlite in Cohoes, near Albany, DEC promised a “rigorous review” of

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the environment. If burning PFAS, used as a fire suppressant, requires rigorous review, then allowing incineration of PFAS in battery recycling seems contradictory. EPA also has been investigating the incineration of PFAS, including in municipal waste incinerators.

Recently, EPA, after being discovered running a test, in conjunction with New Jersey DEP and Covanta, on the burning of PFAS in municipal incinerators, complained:

“The research that EPA planned to conduct was done so at the request of many states, expressed through interactions with the Environmental Council of State, Congress, environmental non-governmental organizations, and the public. The Municipal Waste Combustor PFAS Emissions Characterization Study would have benefitted states and communities across the nation by deepening our understanding of PFAS compounds and how well they are destroyed through incineration. EPA was coordinating with the New Jersey Department of Environmental Protection and local government in Rahway, New Jersey.” <https://www.epa.gov/newsreleases/administrator-wheeler-statement-cancellation-bipartisan-pfas-destruction-research>

So, despite almost complete lack of information on the effectiveness and safety of incineration of PFAS, in Endicott, DEC is only requiring assurances that the batteries to be burned or heated do not contain PFAS or submission of estimation of PFAS emissions both prior to and after air pollution control.

Instead, DEC claims that “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.” (Elter, <http://fluoridealert.org/wp-content/uploads/indicott.dec-letter-to-ruspantini.8-1-20.pdf>). This seriously underestimates the PFAS problem.

Research by NBB indicates that it is not just an issue of the PFAS actually used in some of the batteries but that a number of fluorinated materials in the batteries (e.g. PVDF) will generate a number of PFAS when they are heated in the rotary kiln and the resultant gases burned in the afterburner. NEARLY ALL Lithium Batteries contain PFAS. These PFAS products of incomplete combustion or PICs must be identified and stack test methods developed to accurately determine community exposure to these toxins that persist in human tissue and the environment.

In fact chemical companies brag about all their PFAS and fluoride containing products that can be used in Lithium-ion batteries: <https://www.solvay.com/en/search?s=Lithium> and

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<https://multimedia.3m.com/mws/media/14468700/alternative-energy-storage-and-conversion-brochure.pdf>

Nanoparticles

“Air pollution (consisting of incidental nanoparticles) epidemiology has demonstrated that ultrafine particles can affect the lung, cardiovascular, and other organ systems; and are responsible for excess respiratory and cardiovascular mortality. Recent air pollution and animal studies have shown various ultrafine and nanoscale particles are linked to adverse neurological changes.” <https://www.cdc.gov/niosh/programs/nano/burden.html>

However, because nanoparticles are not monitored or regulated by either EPA or DEC, DEC assumes that small quantities of persistent and exquisitely toxic materials are tolerable, and as harmless as a family campfire.

DEC’s optimistic assumptions are inadequate to address the dangers and hazards posed by a “first of its kind” operation in the U.S. and certainly inadequate to assess the special threat to the health-compromised community of Endicott NY.

The nanoparticles created by this process are far more dangerous than most of those mentioned by Elter. They will contain carcinogenic metals like chromium VI; they will contain a number of chlorinated and fluorinated dioxins and furans (the batteries contain copper which is a well-known catalyst for dioxin formation) and other fluorinated by-products, possibly including PFAS. DEC must evaluate the risk of nanoparticles.

Because of the difficulties of measuring the nanoparticles in the stacks of incinerators, DEC should adopt a simpler approach. For any future project involving incineration, the DEC should require SungEel to conduct measurement of the nanoparticles in the ambient air as in the study by Weichenthal et al. 2020,

https://journals.lww.com/epidem/Fulltext/2020/03000/Within_city_Spatial_Variations_in_Ambient_Air_Pollution_in_Singapore.4.aspx before and regularly after the facility goes into operation.

Safer Alternatives

DEC did not adequately consider alternative processes that would be safer to the environment, public health and safety. An EIS would have evaluated viable alternatives.

In a letter to the Editor in the Press and Sun Bulletin on September 6, 2020,

[https://pressandsunbulletin-](https://pressandsunbulletin-ny.newsmemory.com/?publink=1763bb48a_13437ee&fbclid=IwAR3p0IiTQowH-SunExPgajY4RwtIrUQk9gbA4u1hEGzEL5FfGS0qjSIR4E)

[ny.newsmemory.com/?publink=1763bb48a_13437ee&fbclid=IwAR3p0IiTQowH-](https://pressandsunbulletin-ny.newsmemory.com/?publink=1763bb48a_13437ee&fbclid=IwAR3p0IiTQowH-SunExPgajY4RwtIrUQk9gbA4u1hEGzEL5FfGS0qjSIR4E)

[SunExPgajY4RwtIrUQk9gbA4u1hEGzEL5FfGS0qjSIR4E](https://pressandsunbulletin-ny.newsmemory.com/?publink=1763bb48a_13437ee&fbclid=IwAR3p0IiTQowH-SunExPgajY4RwtIrUQk9gbA4u1hEGzEL5FfGS0qjSIR4E) , Ellen and Paul Connett shared the results of a study in Singapore to recycle lithium ion batteries safely as follows:

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Instead of using a high-temperature process, which will inevitably result in the release of very toxic gases into the environment, this process dissolves the valuable metals out of the batteries using a combination of dried orange peel powder and citric acid. Both of these are obtained from food waste. This is a win-win solution for the environment because one waste stream can be used to recover valuable materials from another.

This process is not only safer than the process proposed by SungEel but it is also safer than other hydro processes (used to recycle lithium-ion batteries) that use mineral acids and hydrogen peroxide as dissolving agents.

The whole process involves the following steps: 1) discharging the batteries by placing them in a salt solution overnight; 2) a series of mechanical treatment steps (shredding, crushing and sieving) to produce a fine black powder; 3) dissolving this powder in the orange peel powder and citric acid solution and finally 4) precipitating out the valuable metal compounds using mild reagents like sodium hydroxide. In this way, the valuable metals cobalt, nickel, manganese and lithium can be recovered.

The researchers (from Nanyang University in Singapore and ICSM in France) did all this and more. They took the recovered metals and produced new batteries from them with the same quality as the batteries they started with! They also showed that none of the waste products damaged **three** human cell lines.

This study by Wu, Soh, Chan, et al., was recently published in the journal *Environmental Science and Technology* titled Repurposing of Fruit Peel Waste as a Green Reductant for Recycling of Spent Lithium-Ion Batteries at <https://pubs.acs.org/doi/abs/10.1021/acs.est.0c02873>

Fire Hazard

DEC agrees that there is a real risk of fires. However, in the Negative Declaration, DEC segmented the battery receiving and storage area, from the recycling facility:

“A separate handling facility on the Huron Campus will be used to receive and store batteries for processing at the recycling facility. The handling facility is proposed to occupy an existing separate building on the Huron Campus located along E Franklin street, just south of the intersection with Clark Street and the recycling facility.” (March 27, 2020, http://fluoridealert.org/wp-content/uploads/indicott.seqr_amended-negative-declaration.3-27-20.pdf)

The plant cannot operate without the storage area. It should have been included in the review. Partly because of the segmentation of the storage area a Full EIS was NOT required. A Full EIS would have considered the fire risks and probably required a full fire/accident analysis and a written emergency response plan.

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For all of the reasons, stated above, we believe that the DEC should follow Subpart 621.13, and revoke the permits based on materially false or inaccurate statements in the permit application or supporting papers and newly discovered material information or a material change in environmental conditions, relevant technology or applicable law or regulations since the issuance of the existing permit. Human health and the environment must be protected.

Please feel free to contact me at jjruspantini@nptusa.org should you have a response or require additional information.

Very kind regards,

A handwritten signature in black ink, reading "John J. Ruspantini". The signature is written in a cursive style with a large initial "J".

John J. Ruspantini, CHMM, PMP
Technical Advisor
NBB Science Team