

**BEFORE THE
MASSACHUSETTS ENERGY FACILITIES SITING BOARD**

In the Matter of:

Hillman Energy Center, LLC

Application for Approval to Construct a Battery Energy Storage
System Facility in Tewksbury, Massachusetts

EFSB 25-08

**POST-HEARING BRIEF OF INTERVENOR
TEWKSBURY BOARD OF HEALTH**

TEWKSBURY BOARD OF HEALTH

Appearing on its own behalf as Intervenor, Pro Se

c/o Tewksbury Health Department

1009 Main Street, Tewksbury, Massachusetts 01876

Dated: March 19, 2026

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I. INTRODUCTION

This case presents a structural question of Massachusetts public law: whether the statutory guardian of local public health may disregard a record demonstrating toxic gas generation, rapid plume transport into dense residential receptors, untreated dissolved contaminant infiltration, incomplete subsurface characterization, and unfinished emergency planning.

The Tewksbury Board of Health cannot.

The evidentiary record establishes that lithium-ion battery thermal runaway may generate hydrogen fluoride gas (Tr. 1273:4–1274:2 (Morris)). It establishes that commonly used four- and five-gas meters do not detect hydrogen fluoride (Tr. 1279:20–1280:6 (Morris)). It establishes that hydrogen fluoride is reactive and difficult to detect (Tr. 1276:8–14 (Morris)). It establishes that the modeled AEGL-2² downwind distance was approximately 1,100 feet and that, at five meters per second wind speed, the plume would reach that distance in approximately sixty-seven seconds (Tr. 575:10–15 (Melham)).

Hydrogen Fluoride and Lithium-Ion Battery Fire Smoke Present Acute, Fast-Moving, and Secondary Exposure Pathways That Are Incompatible With Board-of-Health Public Health Protection Duties

The record establishes a public health hazard that is both chemically unforgiving and operationally unrealistic to manage through ordinary municipal “oversight” narratives. Hydrogen fluoride is not merely another gas among combustion byproducts. It is a uniquely dangerous inhalation toxicant capable of causing pulmonary edema, respiratory failure, and life-threatening systemic toxicity, including hypocalcemia and cardiac arrhythmias arising from fluoride ion binding of calcium and magnesium. The clinical basis for these concerns is documented in federal emergency response guidance and occupational exposure standards for hydrogen fluoride.

What makes hydrogen fluoride particularly relevant to the Board of Health’s nuisance and causes-of-sickness jurisdiction is that HF does not need to linger for hours to matter. The testimony in Volume 5 exposes the practical absurdity of treating AEGL-based toxicity distances as if they imply leisurely response times for people living near the site. When questioned about whether someone within the modeled plume would have four hours to leave in order to avoid the cited four-hour AEGL-2 dosage, Mr. Melham rejected the premise and performed the wind-transport calculation on the record, concluding that at a wind speed of five meters per second, the cloud would reach a person at approximately 1,100 feet in 67 seconds (Tr. 575:10–16 (Melham)). That is not a theoretical quibble. It is an admission that, under the modeling assumptions presented, the time scale for first contact is on the order of a minute, not hours.

That admission has direct local consequence because the record separately establishes that high-density residential development sits immediately adjacent to the site’s southeast and northeast boundaries and that, within 1,000 feet of Candidate Site 1, there are approximately 125 single-family residences, approximately 470 multi-family residences, and, critically, an assisted living facility at Bayberry at Emerald Court and a day care facility (Tr. 283:1–12). The record identifies precisely the populations Mr. Melham himself invoked when pressed, elderly residents, infants,

children, and mobility-limited persons, as present in the immediate exposure radius that his own plume-transport estimate places within roughly a minute of first contact (Tr. 574:8–16; 575:10–16 (Melham); Tr. 283:1–12). From a Board-of-Health perspective, this is the fulcrum point: a public health protection framework cannot be built around an implicit assumption that residents will identify HF exposure instantly, correctly interpret what they are experiencing, and self-evacuate in time, even as vulnerable populations are literally documented as being among those within 1,000 feet (Tr. 574:8–16; 575:10–16; 283:1–12).

The acute inhalation hazard is compounded by hydrogen fluoride’s chemistry. HF avidly partitions into water. In humid air and in contact with mucous membranes, HF behaves as a highly irritating, corrosive acid gas; in contact with water it forms hydrofluoric acid solution, and fluoride ions can penetrate tissue and contribute to systemic toxicity. That water affinity matters for a community-exposure scenario because it means the plume is not just an inhalation problem; it is also a deposition problem. HF can be taken up into moisture and surfaces and then re-entrained or transported by ordinary pathways, condensation, wet deposition, and stormwater runoff. A plume event in a neighborhood is not cleanly separable into “air only” for a neat time window. It can create follow-on contact and contamination issues that implicate the Board’s responsibility for causes of sickness and nuisance conditions, including through the stormwater infiltration architecture addressed in Section VII.

The risk profile becomes even more concerning when HF is understood as part of lithium-ion battery fire smoke rather than as an isolated constituent. Peer-reviewed literature on lithium-ion battery fires documents that these events can generate hazardous gas mixtures including hydrogen fluoride and other toxic products. One widely cited study, “Toxic Fluoride Gas Emissions from Lithium-Ion Battery Fires,” reports that HF is among the dominant and most concerning gaseous products under relevant fire conditions. A more recent technical review synthesizing thermal runaway vent gas characteristics likewise emphasizes that HF is a key hazard species. These are not engineering abstractions. They are causes of sickness and conditions injurious to health that require prevention, not post-hoc assurances.

This record also reveals a second problem that is distinctly public health in character: the risk communication embedded in the Applicant’s modeling language can mislead decision-makers and the public into underestimating the immediacy of exposure. The Board of Health is not permitted to accept that kind of ambiguity where vulnerable populations are nearby and where plume travel time is measured in seconds (Tr. 573:7–24; 574:1–24; 575:10–16; 283:1–12). That is precisely why boards of health exist as separate municipal institutions: to apply conservative, health-protective judgment to hazards that are intolerant of optimistic assumptions.

The stormwater system removes total suspended solids and oils but does not treat dissolved pollutants (Tr. 1342:10–1343:2 (Holmes)). Dissolved pollutants would pass into groundwater (Tr. 1421:15–1422:4 (Horsley)). The infiltration design is open-bottom and directs water into the subsurface (Tr. 1394:16–1395:8 (Holmes)). No shutoff valve exists. (Tr. 1351:9–18). Seven required test pits remain unexcavated (Tr. 1325:3–12 (Holmes)). The Siting Board may render its decision before revised subsurface data are submitted (Tr. 1328:4–12 (Holmes)).

The project remains approximately thirty percent designed (Tr. 1290:3–12). Vent configurations are not finalized. (Tr. 1295:14–1297:2). The Emergency Response Plan and Hazard Mitigation Analysis were described as “living documents.” (Tr. 1298:6–14). Noise was acknowledged by the

Town Manager as “one of the bigger issues in this whole project presentation.” (Tr. 1216:16–22 (Curran)).

Under Massachusetts law, these findings are not administrative footnotes. They are statutory triggers.

II. BACKGROUND

Hillman Energy Center, LLC (“Applicant”) seeks approval to construct a utility-scale battery energy storage facility at 73–75 Hillman Street in Tewksbury, Massachusetts. The proposed site is bordered by high-density residential development immediately adjacent to its property line. (Tr. 283:1–4). Within 1,000 feet lie approximately 125 single-family residences, 470 multi-family residences, Bayberry at Emerald Court (an assisted living facility), and a day care facility. (Tr. 283:8–12). The Applicant’s own Hazard Dynamics dispersion modeling report identifies a residential structure approximately 80 feet from the facility site. (RR-DS-6(1)). The Siting Board itself required the Applicant to resubmit winter leaf-off visual renderings depicting the residential structures at 125 Washington Street, 35 Hillman Street, and 123 Clinton Street, its own acknowledgment of the project’s immediate residential context. (RR-EFSB-3).

The Tewksbury Board of Health intervened by unanimous vote on October 29, 2025, following an earlier unanimous vote on October 16, 2025, to commence a site assignment proceeding under G.L. c. 111 § 150A. On October 24, 2025, the Chair of the Board participated in discussions with special project counsel, town counsel, and others regarding the strategic decision to withdraw the site assignment proceeding in exchange for the opportunity to intervene and present the Board’s public health concerns in this forum. The withdrawal was strategic and without prejudice. It was not a surrender of statutory authority and was not a concession that the public health concerns had been resolved. The Board’s full authority under G.L. c. 111 § 150A remains intact.

Eight days of evidentiary hearings were conducted from February 9 through February 27, 2026. Expert witnesses included Dr. Georges Melham of ioMosaic Corporation (chemical engineering and dispersion modeling); Professor Milosh Puchovsky of Worcester Polytechnic Institute, a former NFPA specialist (fire protection engineering); Michael Nicholas of Hiller Companies, a 26-year fire department veteran (emergency response and battery storage permitting); fire protection engineer Andrew Casper of Hiller Companies; and acoustic consultant Ryan Callahan. The Applicant’s fire safety consultant, Mr. Morris, acknowledged under cross-examination that thermal runaway may generate hydrogen fluoride, that standard four- and five-gas meters do not detect HF, and that HF is reactive and difficult to detect. (Tr. 1273:4–1274:2; Tr. 1279:20–1280:6; Tr. 1276:8–14). The Applicant’s own Hazard Dynamics modeling report (RR-DS-6(1)) established that CO concentrations exceeding AEGL-2 levels extend up to approximately 118 feet from the burning enclosure in a large fire scenario and identifies a residential structure approximately 80 feet away.

III. STANDARD OF REVIEW

This proceeding arises under G.L. c. 40A § 3, pursuant to which the EFSB reviews petitions for zoning exemptions and may grant them only upon finding that the proposed use is “reasonably necessary for the convenience or welfare of the public.” The Applicant also seeks a Certificate of Environmental Impact and Public Interest. Under G.L. c. 164 § 69O, the Board must make written findings on compatibility with environmental protection, public health, and public safety before issuing that certificate.

A zoning exemption that exposes an immediately adjacent residential population to uncharacterized toxic gas risks, incomplete emergency planning, and untreated dissolved contaminant infiltration is not reasonably necessary for the welfare of the public. Nor can the Board make the public-health-compatibility finding required by G.L. c. 164 § 69O where the record demonstrates the unresolved hazards documented in this brief. A certificate issued under G.L. c. 164 § 69O does not preempt G.L. c. 111 nuisance jurisdiction. The two frameworks coexist. The Board of Health’s statutory duty does not dissolve in the presence of an EFSB certificate.

IV. THE BOARD OF HEALTH IS AN AUTONOMOUS HOLDER OF POLICE POWER

Massachusetts boards of health are not advisory departments within executive municipal structure. They are independent statutory bodies entrusted with the Commonwealth’s police power in matters of nuisance, disease prevention, and causes of sickness.

General Laws c. 111 § 31 authorizes boards of health to make reasonable health regulations. Section 122 directs boards to examine “all nuisances, sources of filth and causes of sickness” and to order their removal. ¹ Section 123 provides enforcement authority. Section 134 addresses noisome trades.

The Supreme Judicial Court has repeatedly affirmed the scope and autonomy of that authority. In *Druzik v. Board of Health of Haverhill*, 324 Mass. 129, 138 (1949), the Court recognized that the protection of public health lies within municipal police power. In *Tri-Nel Management, Inc. v. Board of Health of Barnstable*, 433 Mass. 217 (2001), the Court emphasized that chapter 111 delegates authority to boards of health to make reasonable health regulations. In *Arthur D. Little, Inc. v. Commissioner of Health for Cambridge*, 395 Mass. 535 (1985), the Court held that a board’s regulation stands unless the challenger proves the absence of any conceivable ground upon which it may be upheld. In *P.J. Keating Co. v. Town of Acushnet*, 104 Mass. App. Ct. 65 (2024), the Appeals Court reiterated that courts may not substitute their judgment for that of a board of health acting within its statutory authority.

Police power is sovereign regulatory authority. It cannot be contracted away. It cannot be internally reassigned. It cannot be diluted by executive preference.

When the Town Manager testified that oversight of noise would “come out of [his] office” (Tr. 1216:9–18), he described contract administration. That is not nuisance jurisdiction under G.L. c.

111 § 122. The Legislature did not assign nuisance authority to the Town Manager. It assigned it to the Board of Health.

The Siting Board must recognize this structural fact. Approval of a certificate does not extinguish chapter 111 authority. It does not dissolve nuisance jurisdiction. It does not subordinate police power to host agreements.

The autonomy of the Board of Health is not a political position. It is a legal reality.

V. KEY ADMISSIONS FROM THE HEARING RECORD

The record contains critical admissions made by the Applicant's own witnesses under cross-examination. These are not the characterizations of opponents. They are sworn testimony offered by persons the Applicant itself designated to support its case. They establish that the public health concerns raised by the Board of Health are grounded in the Applicant's own record.

A. The Applicant's Fire Safety Consultant Acknowledged Hydrogen Fluoride Generation

The Applicant's fire safety consultant, Mr. Morris, acknowledged under cross-examination that lithium-ion battery thermal runaway may generate hydrogen fluoride gas (Tr. 1273:4–1274:2). This is not a contested point. It is the Applicant's own designated expert conceding the foundational public health concern that animates this brief.

B. Standard Emergency Response Detection Equipment Does Not Detect Hydrogen Fluoride

The same witness acknowledged that commonly used four- and five-gas detection meters, the standard instruments deployed by first responders, do not detect hydrogen fluoride (Tr. 1279:20–1280:6). He further testified that HF is reactive and difficult to detect in field conditions (Tr. 1276:8–14). The Applicant's consultant confirmed both that HF can be generated and that the standard tools used to identify hazardous gases in emergency response will not detect it. The record contains no evidence that HF-specific monitoring equipment will be deployed at the facility or provided to the Tewksbury Fire Department.

C. The Applicant's Own Plume Modeling Establishes a Sixty-Seven-Second Arrival Time

The Applicant's plume modeling witness, Mr. Melham, testified that the AEGL-2 downwind distance was approximately 1,100 feet. When pressed on whether residents would have four hours to evacuate before reaching AEGL-2 dosage, Mr. Melham rejected the premise and calculated on the record that at five meters per second wind speed, the plume would reach that distance in

approximately sixty-seven seconds (Tr. 573:7–24; 574:1–24; 575:10–16). That clarification is decisive. The exposure envelope reaches residential receptors in about a minute. The record identifies within that envelope an assisted living facility and a day care (Tr. 283:8–12). A Board of Health cannot assume that vulnerable populations will detect, interpret, and evacuate within that time frame, particularly where commonly used gas meters do not detect hydrogen fluoride.

D. The Applicant’s Own Modeling Report Places a Residential Structure in Its Hazard Zone

The Applicant’s Hazard Dynamics dispersion modeling report (RR-DS-6(1)) established that carbon monoxide concentrations exceeding AEGL-2 levels extend up to approximately 118 feet from the burning enclosure in a large fire scenario with high winds. The same report identifies a residential structure approximately 80 feet from the facility. On the Applicant’s own modeling, that residence falls within the projected AEGL-2 hazard zone.

E. Critical Safety Data Was Withheld as Proprietary

Applicant witnesses acknowledged under cross-examination that they did not independently obtain the raw UL 9540A calorimetry data underlying combustion modeling and did not independently obtain electrolyte composition data (Tr. 1284:12–1287:4; 1288:9–1289:3). The Applicant’s response to RR-D/S-7 confirmed that these materials were withheld as proprietary and that detailed safety review will occur at a later permitting stage.³ The modeling relied upon to assess toxic risk in this proceeding was built on inputs that were not independently acquired, not disclosed to the hearing record, and not subject to independent verification.

F. The Root Cause of a Real-World Battery Incident Remains Undetermined

The Applicant’s response to record request RR-D/S-10 confirmed that the root cause of the Warwick, New York BESS fire remains undetermined and that “it is too early to identify a definitive initiating failure mechanism.”⁴ Battery incidents can occur, causes may remain unknown after investigation, and engineering design assumptions do not fully bound the risk profile of these systems.

G. The Project Remains at Thirty Percent Design with Unfinished Emergency Documents

The Applicant’s witnesses confirmed that the project remains at approximately thirty percent design (Tr. 1290:3–12), that vent configurations are not finalized (Tr. 1295:14–1297:2), and that the Emergency Response Plan and Hazard Mitigation Analysis were described as “living documents” that had not materially progressed (Tr. 1298:6–14). A “living” document that has not materially evolved is not evidence of readiness. It is evidence of incompleteness.

Taken together, these admissions establish that the safety framework for this specific project has not been fully characterized, that key modeling inputs were withheld, that real-world battery incidents can have undetermined causes, and that emergency planning remains incomplete. They come from the Applicant's own record. They cannot be dismissed as speculation.

VI. HYDROGEN FLUORIDE: TOXICOLOGY, PLUME DYNAMICS, AND PROXIMITY

The significance of hydrogen fluoride in this record cannot be minimized as a mere byproduct of combustion modeling. HF is a uniquely dangerous inhalation toxicant. Upon inhalation, HF penetrates tissue rapidly and can cause severe irritation of the respiratory tract even at relatively low concentrations. At higher concentrations, hydrogen fluoride exposure is associated with pulmonary edema, chemical pneumonitis, and potentially life-threatening systemic toxicity. The systemic danger arises because fluoride ions bind physiologic calcium and magnesium; significant exposure can produce hypocalcemia and cardiac dysrhythmia. These effects are not speculative. They form the basis for federal emergency response guidance and occupational exposure standards for HF. The Applicant's own submission HEC-SD-S-1.11 specifically addresses HF production during battery combustion and acknowledges these hazards.

The sixty-seven-second plume arrival time, established by the Applicant's own modeling witness on the record, is not an academic data point. It defines the operational window within which every receptor within 1,100 feet must be identified, alerted, and moved to safety. The record identifies four categories of receptor that cannot plausibly meet that standard. Elderly residents of Bayberry at Emerald Court, an assisted living facility within 1,000 feet, include individuals with limited mobility, supplemental oxygen dependence, and cognitive impairment. They cannot self-evacuate in under a minute under any realistic emergency protocol. Infants and toddlers at the day care facility within 1,000 feet require adult assistance for evacuation and cannot respond independently to an unannounced toxic plume. Mobility-limited residents in the approximately 470 multi-family residences within 1,000 feet face structural barriers to rapid egress. And all of these populations face the compounding factor that the standard gas meters carried by first responders will not detect HF at all, meaning the hazard may not be identified until symptoms present.

Even on the AEGL framing itself, the public health concern does not diminish; it intensifies. Federal AEGL guidance for hydrogen fluoride provides time-varying values, reflecting the basic toxicology principle that short, high exposures can be hazardous even if a longer-duration criterion is framed differently. AEGL-2 values for HF become more restrictive as exposure duration decreases, meaning a sixty-seven-second exposure is governed by a shorter-duration, more stringent threshold than the four-hour value the Applicant's modeling cited. The record exchange shows disagreement and uncertainty about how those criteria map onto vulnerable populations and real-world exposure (Tr. 575:19–576:4 (Melham)). That uncertainty is not an excuse to relax. It is a reason to demand conservative assumptions and enforceable conditions, because nuisance and causes-of-sickness authority is preventive and is triggered when the record shows plausible pathways to injury, not only when injury has already occurred.

The public health concern is intensified further by hydrogen fluoride's chemistry. HF is highly soluble in water (Tr. 1343:3–8 (Holmes)). When hydrogen fluoride contacts atmospheric moisture, respiratory mucosa, suppression water, or surface films, it dissolves to form aqueous hydrofluoric acid. Dissolution does not neutralize the hazard; it changes its phase. The inhalation pathway is therefore only the first stage of potential exposure. The gas can deposit onto surfaces, dissolve in water used for fire suppression, and enter stormwater pathways. That chemical reality intersects directly with the project's infiltration design, creating a second, independent exposure pathway addressed in Section VII.

Peer-reviewed literature examining lithium-ion battery fires confirms that hydrogen fluoride is among the dominant and most hazardous gaseous emissions generated during thermal runaway events. Toxic fluoride gas emissions have been quantified in controlled fire testing of commercial lithium-ion battery cells, and investigators have emphasized that toxic gas hazards may rival or exceed thermal hazards in certain scenarios. That body of literature aligns precisely with the record evidence in this proceeding: hydrogen fluoride generation is foreseeable, plume transport is rapid, and residential receptors are proximate.

The Board of Health's obligation under chapter 111 is not to accept optimistic interpretations of modeling assumptions. It is to apply conservative, health-protective judgment where plausible causes of sickness are established. The Commonwealth's police power doctrine does not permit a board of health to subordinate that duty to contractual oversight mechanisms or to assurances that emergency documents will mature after approval. The Legislature has made boards of health autonomous precisely because rapid-onset, chemically unforgiving hazards require independent, preventive judgment.

From a public health standpoint, the dual exposure vector is critical. The Board of Health is charged under G.L. c. 111 § 122 with examining "all nuisances, sources of filth and causes of sickness" and ordering their removal. The statute is preventive. It does not require the Board to wait for harm to occur before acting. Where the record demonstrates (1) generation of HF during thermal runaway (Tr. 1273:4–1274:2), (2) modeling showing plume travel of approximately 1,100 feet in approximately 67 seconds (Tr. 575:10–15), (3) the presence of hundreds of residences, an assisted living facility, and a day care facility within 1,000 feet (Tr. 283:1–12), and (4) an infiltration system that transmits untreated dissolved pollutants (Tr. 1342:10–1343:2; 1394:16–1395:8; 1421:15–1422:4), the statutory threshold for preventive concern is met.

When the transcript is read as a public health record rather than as an engineering debate, it becomes clear that the central question is not whether a model can be made to look reasonable on paper. The question is whether the Applicant has carried a burden consistent with Massachusetts public health law: demonstrating that the project will not create an injurious condition, airborne or depositional, within a densely populated, immediately adjacent neighborhood that includes assisted living and childcare receptors (Tr. 283:1–12). A plume that can reach residents within roughly one minute (Tr. 575:10–16), combined with the known clinical severity of HF exposure and the well-documented presence of HF in lithium-ion battery fire emissions, is exactly the sort of "cause of sickness" the Legislature intended boards of health to prevent, not rationalize after the fact.

Approval of a project that can generate hydrogen fluoride within a dense residential envelope, where the plume arrival time is measured in seconds and where aqueous transport pathways remain incompletely characterized, would not eliminate the Board's statutory duty. It would activate it.

VII. GROUNDWATER CHEMISTRY AND SECONDARY EXPOSURE

As established in Section VI, hydrogen fluoride is highly soluble in water (Tr. 1343:3–8). Upon dissolution it forms hydrofluoric acid. Fluoride ions may remain mobile in aqueous solution depending on pH and soil composition. In neutral to slightly acidic conditions, fluoride mobility can persist. In soils with limited calcium availability, sorption may be limited. Wet deposition and suppression water can carry dissolved fluoride into stormwater pathways, creating a second, independent pathway from a battery fire event to potential human exposure through the subsurface.

The stormwater system here does not treat dissolved pollutants (Tr. 1342:10–1343:2). Dissolved contaminants pass through (Tr. 1421:15–1422:4). The system infiltrates directly into the subsurface through an open-bottom design (Tr. 1394:16–1395:8). No shutoff valve exists (Tr. 1351:9–18). Required test pits remain incomplete (Tr. 1325:3–12). The Siting Board may render its decision before revised subsurface data are submitted (Tr. 1328:4–12). Thus, the same compound that poses acute inhalation risk also possesses a secondary aqueous transport pathway in the very hydrologic architecture proposed at this site.

The structural regulatory dimension compounds the concern. The Town's response to RR-D/S-8 disclosed that local Title 19 stormwater management requirements may not apply if the EFSB grants a zoning exemption, meaning the Siting Board's own decision could eliminate the local protective permitting layer that would otherwise evaluate this infiltration design.

Groundwater contamination is not easily reversible. Public health law is preventive precisely because remediation after contamination is often difficult or impossible.

The Board of Health cannot declare nuisance risk extinguished when the infiltration architecture is fixed and subsurface characterization remains incomplete.

VIII. MODELING UNCERTAINTY AND WITHHELD SAFETY DATA

Dr. Georges Melham, President and CEO of ioMosaic Corporation and holder of a Ph.D. in Chemical Engineering from Northeastern University, testified on behalf of the DiPalma/Sheehan intervenors regarding the adequacy of the Applicant's dispersion modeling. Dr. Melham's testimony established that dispersion models are extremely sensitive to input assumptions. Small changes in release rate, atmospheric conditions, event duration, or chemical composition can dramatically change predicted hazard distances. He raised specific concerns about the HF generation parameters, gas release flow rates, and release duration assumptions used in the Applicant's modeling, and testified that uncertainty must be addressed explicitly, not resolved in the direction most favorable to approval.

The Applicant withheld certain UL 9540A calorimetry data and electrolyte composition data as proprietary (Tr. 1284:12–1287:4; 1288:9–1289:3). If the inputs underlying the model underestimate HF generation or release rate, the model will underpredict public exposure risk,

potentially by a substantial margin. The proprietary data problem and the modeling sensitivity problem are, on this record, the same problem: the data that would allow independent verification of the model's central assumptions is the very data that was withheld. The Board of Health cannot defer its preventive judgment to a post-approval permitting phase when the foundational data remain undisclosed in this proceeding.

IX. LITHIUM-ION BATTERY FIRES PRESENT UNIQUE HAZARDS

Professor Milosh Puchovsky, Professor of Practice in Fire Protection Engineering at Worcester Polytechnic Institute and a former National Fire Protection Association specialist, testified on Day 7 that thermal runaway propagation allows heat and combustion to spread rapidly through battery modules, producing extremely high temperatures and the release of flammable and toxic gases including hydrogen fluoride and carbon monoxide; that battery fires are difficult to suppress because cells can continue reacting internally and extinguishment does not always stop chemical reactions; that re-ignition can occur after apparent suppression; and that first responders must receive specialized training to respond safely. Professor Puchovsky's testimony is directly corroborated by the Applicant's own submissions. HEC-SD-S-1.11 addresses HF production during battery combustion, HEC-SD-S-1.1 documents the full range of toxic emissions, and HEC-SD-FP-3.3 documents thermal runaway propagation.

Michael Nicholas, a 26-year veteran of the Kern County Fire Department and former Assistant Fire Marshal who has developed battery storage permitting guidelines for fire departments nationwide, testified on Day 8 that battery storage facilities require specialized firefighter training before operations begin, covering thermal runaway risks, toxic gas hazards, emergency response procedures, and battery system design. Without such preparation, first responders face significant safety risks during incidents. The record does not establish that the Tewksbury Fire Department has completed such training.

The real-world incident record reinforces this expert testimony. The Warwick, New York BESS fire had no determined initiating cause at the time of this proceeding (RR-D/S-10). The Moss Landing facility in California, referenced in HEC-SD-S-1.14, experienced significant operational failures despite sophisticated engineering. Scientific literature submitted by the Applicant confirms that thermal runaway propagation and fire behavior remain active areas of research. Engineering controls reduce risk. They do not eliminate it.

X. INCOMPLETE DESIGN AND EMERGENCY PREPAREDNESS

As the admissions in Section V establish, the project remains at approximately thirty percent design, vent configurations are unsettled, and the Emergency Response Plan and Hazard Mitigation Analysis were described as "living documents" that had not materially progressed. The record does not demonstrate meaningful progression in those documents. A "living" document that has not materially evolved is not evidence of readiness. It is evidence of incompleteness.

The public health significance of that incompleteness is concrete, not abstract. Vent configurations determine the direction, containment, and management of toxic gas releases during a thermal runaway event. Until they are finalized, it is not possible to evaluate whether gases would be directed away from or toward adjacent residential structures. The Emergency Response Plan governs how the facility would communicate with the Tewksbury Fire Department, what detection equipment would trigger a response, and what evacuation protocols would be activated. Until it is complete and coordinated with the Fire Department, those mechanisms do not exist.

The Board of Health cannot responsibly rely on unfinished emergency planning when toxic gas generation near dense residential receptors is established in the record. The record does not establish that HF-specific evacuation protocols have been developed for Bayberry at Emerald Court or the day care facility within 1,000 feet. It does not establish that the Emergency Response Plan has been coordinated with the Tewksbury Fire Department in the manner described as essential by Michael Nicholas.

XI. COMPLIANCE WITH INDUSTRY STANDARDS DOES NOT ELIMINATE RISK

The Applicant's safety case rests primarily on compliance with industry standards, NFPA requirements, battery management system design, and engineering controls, rather than on site-specific risk analysis tailored to the immediate residential context of this location. The DS-G series filings (DS-G-12 through DS-G-22) reflect this pattern consistently. As the NFPA itself acknowledges, its standards represent minimum requirements for mitigating hazards, not the outer limit of what a regulatory body may require.

Professor Puchovsky's testimony spoke directly to this gap: battery fires may involve thermal runaway propagation, re-ignition risks, and prolonged burn duration, characteristics that make industry-standard compliance necessary but not sufficient. Michael Nicholas reinforced this from the emergency response perspective: jurisdictions hosting battery storage facilities must ensure that fire departments have appropriate training and equipment before operations begin. That preparation requires coordination and planning that goes well beyond engineering compliance with a code document.

The record evidence reviewed in Sections V, IX, and X demonstrates that regulatory compliance alone does not eliminate risk. The residual uncharacterized risk, assessed against the specific residential, elderly-care, and child-care population immediately adjacent to this site, is precisely the kind of preventable hazard the Board's statutory authority was designed to address.

XII. NOISE IMPACTS

The Town Manager's own testimony that noise is "one of the bigger issues in this whole project presentation" (Tr. 1216:16–22 (Curran)) is an acknowledgment of public health significance. Chronic industrial noise exposure is a well-established cause of adverse health outcomes: sleep disruption, elevated cardiovascular risk, and impaired cognitive development in children. The

record does not establish that enforceable, health-protective noise limits, independently monitored and enforceable by the Board of Health, have been established as a condition of any approval.

As noted in Section IV, nuisance prevention belongs to the Board of Health under G.L. c. 111 §§ 31 and 122, not to the executive branch of municipal government. The Town Manager's assertion that oversight will "come out of [his] office" (Tr. 1216:9–18) is a description of host agreement administration, not statutory nuisance enforcement. Those are not the same thing.

XIII. THE STRUCTURAL PURPOSE OF BOARD OF HEALTH AUTONOMY

The autonomy of boards of health exists precisely for cases like this. Industrial hazards, toxic releases, groundwater contamination, and nuisance impacts require independent, health-protective judgment insulated from political or contractual pressures.

If police power could be reassigned by executive preference, the statutory scheme of chapter 111 would be meaningless. The Legislature deliberately separated boards of health from executive control to ensure that health determinations are made independently.

The Siting Board must understand that approval of this certificate does not absorb or neutralize that autonomy. It coexists with it.

XIV. SITE ASSIGNMENT AND STRUCTURAL CONSEQUENCE

On October 16, 2025, the Board of Health unanimously voted to commence a site assignment proceeding. On October 24, 2025, the Chair met with special project counsel, town counsel, and others to discuss withdrawal in exchange for support for intervention. On October 29, 2025, the Board voted unanimously to intervene and withdraw the site assignment proceeding. The withdrawal was strategic. It was not a surrender of authority.

The Board of Health participated in these proceedings as an intervenor without independent legal counsel. While the Board was granted party status and afforded the procedural rights associated with that status, the manner of its participation was subject to practical constraints.

The Board's Director of Public Health, who is employed within the Town's administrative structure, was present during the hearings. In that capacity, the Board was reliant on a municipal employee who operates within the same reporting framework as other Town officials who were participants in the proceeding. This created an inherent institutional tension with respect to the scope and manner of cross-examination.

As reflected in arguments presented during the hearings, concerns were raised that the Board of Health's perspective was not developed in the same manner as parties represented by independent counsel. The Board offers this as contextual information regarding the record. It

does not alter the procedural posture of the case, but it is relevant to understanding the extent to which the Board's public health concerns were explored during live testimony.

Administrative oversight under a host agreement is not equivalent to nuisance jurisdiction under chapter 111, as established in Section IV. If this Board approves the project despite the unresolved risks identified in the record, the Board of Health will be obligated to consider exercising its site assignment authority. That authority has not been preempted. It cannot be extinguished by certificate absent explicit statutory language. There is no express provision in G.L. c. 164 extinguishing site assignment authority under G.L. c. 111 § 150A.

Approval will not harmonize municipal authority. It will create parallel statutory proceedings.

XV. CONDITIONS REQUIRED IF APPROVAL IS GRANTED

Should the Siting Board be inclined to approve the project, the Board of Health urges the imposition of the following conditions, each to be completed prior to energization:

First. Independent acquisition and verification of all raw UL 9540A calorimetry and electrolyte composition data underlying combustion modeling, followed by independent re-modeling of toxic gas generation and plume dynamics, including worst-case HF and CO dispersion at residential receptor distances, by a qualified expert retained independent of the Applicant, subject to review and approval by the Board of Health.

Second. Completion of all required subsurface test pits and submission of updated mounding analysis, dissolved-phase contaminant transport assessment, and groundwater impact analysis, reviewed and approved by the Board of Health and the Town engineer, prior to any construction involving the infiltration system.

Third. Redesign of the stormwater infiltration architecture to include activated shutoff capability and dissolved pollutant treatment adequate to prevent fluoride ion and other dissolved contaminant migration to groundwater, independent of any EFSB zoning exemption ruling. Compliance with local Title 19 stormwater requirements shall not be waived.

Fourth. Finalization and submission of the Emergency Response Plan and Hazard Mitigation Analysis, incorporating site-specific detection and evacuation protocols for a sixty-seven-second HF plume arrival scenario, directly addressing Bayberry at Emerald Court and the day care facility within 1,000 feet, developed in coordination with the Tewksbury Fire Department and the Board of Health, prior to energization. The ERP and HMA shall be prepared under the assumption that a large-scale thermal runaway event can and may occur.

Fifth. Documentation of completion by the Tewksbury Fire Department of specialized lithium-ion battery incident training covering thermal runaway risks, toxic gas hazards, and emergency response procedures, with training plan reviewed and approved by the Board of Health and the Fire Chief prior to energization.

Sixth. Establishment of enforceable, health-protective noise limits at the property boundary and at the nearest identified residential receptors, with monitoring obligations and enforcement authority expressly vested in the Board of Health, separately from and in addition to any host agreement obligations.

Seventh. Installation of groundwater monitoring wells as determined by an independent third-party hydrologist, to establish baseline water quality prior to construction and provide ongoing monitoring for the operational life of the facility, with results reported annually to the Board of Health.

Eighth. Explicit recognition in the certificate that the Tewksbury Board of Health retains its full and independent statutory authority under G.L. c. 111 §§ 31, 122, 123, 134, and 150A; that no provision of the certificate, conditions, or Host Community Agreement shall be construed to limit or displace that authority; and that the Board's site assignment authority under § 150A remains unimpaired.

XVI. CONCLUSION

The record establishes toxic gas generation, rapid plume arrival within residential distances, vulnerable receptors including assisted living and day care within 1,000 feet, untreated dissolved contaminant infiltration pathways, incomplete subsurface characterization, incomplete emergency planning, and significant nuisance concerns.

The Applicant's own modeling places a residential structure within its AEGL-2 hazard zone. Its own witnesses acknowledged that hydrogen fluoride, undetectable by standard field instruments, can reach vulnerable residential receptors in sixty-seven seconds. An independent chemical engineering expert testified that the modeling assumptions are sensitive to inputs withheld as proprietary and never independently verified. A nationally recognized fire protection engineer testified that battery fires produce toxic gases, resist suppression, and can re-ignite. A 26-year fire safety veteran testified that specialized firefighter training must be completed before operations begin, training this record does not confirm has occurred.

Under Massachusetts law, the Tewksbury Board of Health is obligated to prevent nuisances and causes of sickness. For these reasons, the Board respectfully urges denial of this application. In the alternative, it urges the imposition of enforceable, health-protective conditions that preserve its independent statutory authority and require full resolution of toxic modeling, groundwater protection, emergency planning, and nuisance controls before operation.

**Public health authority is not a contractual term.
It is a constitutional police power delegated by statute.
And it does not yield to expediency.**

This Post-Hearing Brief is submitted by the Director of Public Health in an administrative capacity on behalf of the Tewksbury Board of Health, which appears as an Intervenor in this proceeding. The positions set forth herein reflect the official vote and direction of the Board of Health and are submitted to represent the Board's public health concerns in this matter.

Respectfully submitted,



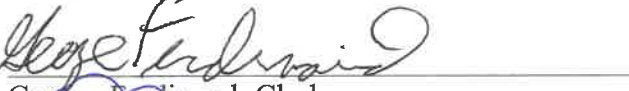
Tewksbury Board of Health Agent
Intervenor, EFSB 25-08



Melissa Braga, Chair




Susan Amato, Vice Chair



George Ferdinand, Clerk



Christine Janeczak, Member



Pamela LeFave, Member

Dated: March 19, 2026

¹ G.L. c. 111, § 122: "The board of health shall examine into all nuisances, sources of filth and causes of sickness within its town ... which may, in its opinion, be injurious to the public health, shall destroy, remove or prevent the same as the case may require"

² AEGL-2 (Acute Exposure Guideline Level-2): concentrations at which serious or irreversible health effects may occur, or at which an individual's ability to escape may be impaired, upon exposure for the specified duration. Federal AEGL guidance for hydrogen fluoride provides time-varying values reflecting the principle that short, high exposures can be hazardous independently of longer-duration criteria.

³ RR-D/S-7: "The PE will be responsible for code compliance and to prove duty of care to the public" and "the 9540A report and the engineer's evaluation ... will be required to be made available to the Authority Having Jurisdiction."

⁴ RR-D/S-10: "The initiating cause of the fire has not yet been determined" and "it is too early to identify a definitive initiating failure mechanism."

