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November 20, 2025

To: Town of Northhampton Planning Board

Re: Groundwater Safety for Battery Energy Storage Systems

This memorandum provides an overview of groundwater-protection considerations for the proposed 10 MWac Battery Energy Storage System (BESS). This memo was drafted in response to public comments received at the public hearing on 11/5/2025 regarding safety and drinking water contamination. Evidence below is provided to support that even in the rare event of a thermal-runaway incident or fire—impacts to groundwater are extremely unlikely. System-level design, incident-response protocols, and hydrologic conditions collectively ensure the protection of soil and water resources.

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1. Why BESS Incidents Do Not Impact Groundwater

Thermal-runaway events in lithium-ion battery systems are fire-driven, above-grade phenomena. Any byproducts are contained within the equipment enclosure, and—as documented in Appendix 1—the composition of runoff following a battery fire contains no substances more harmful than those typically found in standard structure-fire runoff.

Critically, these events do not create pathways into subsurface soils or groundwater aquifers.

For the Village of Northville, the Water Department has confirmed that municipal drinking water is sourced from protected subsurface aquifers, not from surface water. Therefore, even in a hypothetical worst-case scenario, surface-level runoff from a BESS incident would not interact with or affect the municipal groundwater supply. More details on how the water system is project can be found in Appendix 2, which is an excerpt form the Villages water department website.

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2. Evidence from Real-World Events (Moss Landing)

During the 2025 Moss Landing BESS incident, the U.S. Environmental Protection Agency (EPA) conducted supplemental air monitoring for hydrogen fluoride and particulate matter. EPA concluded that measured levels did not pose any public-health risk during the monitoring period.

Just as importantly, no groundwater or soil contamination impacts were documented. The incident confirmed that BESS events are overwhelmingly atmospheric and enclosure-level events, not events that affect subsurface environmental resources. Other incidents are referenced in Appendix 1.

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3. Local Site Controls for This Project

The proposed project includes the following protective measures:

- UL-9540–certified equipment and full UL-9540A thermal-propagation testing
- NFPA-855–compliant layout, spacing, and fire-safety systems
- Enclosures and equipment located entirely above grade
- No hazardous fluids stored below ground
- An emergency response plan developed in coordination with local fire officials

These features collectively eliminate credible pathways for an enclosure-level incident to affect groundwater.

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4. Conclusion

Based on engineering controls, industry standards, hydrologic conditions, and real-world incident data, the proposed BESS poses no credible risk to groundwater resources. Any potential above-grade incident byproducts are containable and manageable using established emergency-response procedures that are consistent with EPA and NFPA guidance.

References (Selected)

- U.S. EPA (Jan 20, 2025). *EPA Completes Air Monitoring Near Moss Landing Vistra Battery Fire.*
- U.S. EPA. *Moss Landing Air: What did you test for during the fire?*
- U.S. EPA. *Results of EPA air monitoring (Jan 17–20).*

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- U.S. EPA (Aug 21, 2025). *Battery Energy Storage Systems: Main Considerations for Safe Installation and Incident Response (EPA 530-F-25-013).*
- EPRI (2020). *Battery Firewater Composition and Risk Assessment.*
- DNV GL for Con Edison & NYSERDA (2017). *Considerations for ESS Fire Safety.*
- FDNY (2023). *B-28 Supervision of Stationary Energy Storage Systems.*
- UL Solutions (2025). *UL 9540A Test Method Updates and Interpretation.*
- U.S. EPA (June 25, 2025). *Pulmonary Toxicity of Combustion Byproducts from Li-ion Batteries.*

Graph from U.S. EPA (Aug 21, 2025). *Battery Energy Storage Systems: Main Considerations for Safe Installation and Incident Response (EPA 530-F-25-013).*