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TOWNSHIP OF ARMOUR

Third-Party Review Report

Battery Energy Storage System
Armour Township

Prepared for: Armour Township
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https://plcfiresafety.sharepoint.com/sites/Projects/Shared Documents/ACTIVE PROJECTS/P2738-HA-Armour Township-FHA-ON/-001 TPR Hazard Mitigation/Deliverables/Rev C/PLC-ARMOUR-P2738-001-TPR-C.docx

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REVISION HISTORY

REVISION NO.	ISSUE DATE	DESCRIPTION OF REVISION
0	2025-XX-XX	Initial Issue

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ABBREVIATIONS

ABBREVIATION	DESCRIPTION
AHJ	Authority Having Jurisdiction
BESS	Battery Energy Storage System
BMS	Battery Management System
CFD	Computaional Fluid Dynamics
EMS	Energy Management System
FACP	Fire Alarm Control Panel
FMEA	Failure Modes and Effects Analysis
FRA	Fire & Risk Alliance
HMA	Hazard Mitigation Analysis
HVAC	Heating, Ventilation, and Air Conditioning
ITM	Inspection, Testing and Maintenance
LFL	Lower Flammable Limit
LIFEPO4	Lithium Iron Phosphate
NEMA	National Electrical Manufacturers Association
NFPA	National Fire Protection Association
NWI	Non-Walk-In
OBC	Ontario Building Code
OFC	Ontario Fire Code
PLC	PLC Fire Safety Engineering
SOC	State of Charge
TMS	Thermal Management System
UL	Underwriters Laboratories

1. INTRODUCTION

Armour Township is proposing the installation of a utility-scale Battery Energy Storage System (BESS), identified as the Project 903 BESS, located within the Township of Armour, Ontario. The proposed system consists of nine (9) EVLOFLEX lithium-ion battery enclosures with a total energy capacity of approximately 4.99 MWh.

Armour Township has retained PLC Fire Safety Engineering (PLC) to conduct a third-party review of the Hazard Mitigation Analysis (HMA) submitted in support of the project.

The third-party review was completed by PLC and is summarized in this report.

2. SCOPE AND OBJECTIVE

At the request of Armour Township, the Hazard Mitigation Analysis (HMA) Report prepared by Fire & Risk Alliance (FRA), for the Project 903 Battery Energy Storage System (BESS) installation located in Armour Township, Ontario was reviewed. The basis for this report's was to evaluate compliance with NFPA 855 "Standard for the Installation of Stationary Energy Storage Systems", which establishes the minimum requirements for the design, installation, and operation of energy storage systems, including lithium-ion battery systems. As Project 903 BESS installation includes lithium-ion type batteries with an aggregate capacity greater than 20 kWh, NFPA 855 requirements were considered applicable [NFPA 855 Section 1.3]. The documentation provided for review is listed in APPENDIX B of this report.

The objective of this third-party review was to determine if the HMA report satisfies the requirements of the Ontario Fire Code (O. Reg. 213/07), Ontario Electrical Safety Code C22.1, and NFPA 855, *"Standard for the Installation of Stationary Energy Storage Systems"*, 2023 Edition, and whether it adequately addresses the fire and explosion risks associated with the proposed BESS installations.

3. METHODOLOGY

The methodology implemented for this review was as follows:

1. An introductory meeting was held with Armour Township to confirm the scope of work and other pertinent background information for the project. No site inspections were performed.

2. The HMA, and the relevant associated documentation, were reviewed against the applicable codes and standards listed in Section 2 of this report. A list of the documentation reviewed is included in APPENDIX B.

3. Any deviations from the requirements of the referenced codes and standards, were identified as findings, and in addition to items for clarification were documented in Appendix A.

   To satisfy the design objectives of the codes and standards, all findings and items for clarification were required to be resolved by Armour Township and/or designer of the system.

4. Conclusions regarding this third-party review were documented in Section 7.

4. PLC PROJECT TEAM

4.1. TECHNICAL LEAD & PROJECT MANAGER

Gary Chan, P.Eng., functioned as the Project Manager and single point of contact for this project. Mr. Chan also performed the role of the Technical Lead and completed the evaluations, documented the findings, and authored the report. Mr. Chan is based out of the Vancouver office of PLC Fire Safety Engineering – 838 Hastings Street West, Suite 700 Vancouver, BC, V6C 0A64, Ph: 905 949 2755 x236, E: gchan@plcfire.com.

Mr. Chan is a Mechanical Engineering graduate and has worked in the Fire Protection Industry for over 7 years. Mr. Chan has fire protection experience in the nuclear, industrial, transit, commercial, and residential industries. His recent work has focused on code consultation, code compliance reviews, and fire hazard analysis.

4.2. INTERNAL REVIEWER

Mohamed Mushantat, P. Eng., served as the Internal Reviewer for this project and was responsible for verifying the third-party review evaluations and report. Mr. Mushantat is based out of the Mississauga office of PLC Fire Safety Engineering – 4 Robert Speck Parkway, Suite 1500, Mississauga, Ontario, L4Z 1S1, Ph: 905 949 2755 x208, E: mmushantat@plcfire.com.

Mr. Mushantat is a Senior Fire Protection Engineer at PLC, with over two decades of experience in fire protection engineering, including 10 years in the nuclear sector. He is a registered professional engineer in Ontario, British Columbia, Saskatchewan, Alberta, Northwest Territories, and Nunavut. In the past years of his experience in fire and life safety engineering consulting, he has completed several third-party reviews of building and fire safety system designs. He contributes significantly to industry standards including his involvement as a principal member on various National Fire Protection Association (NFPA) technical Committees. Additionally, he serves on the Underwriters Laboratories of Canada (ULC) technical committee focusing on fire alarm and life safety equipment and systems.

5. PROJECT OVERVIEW

5.1. GENERAL DESCRIPTION

Project 903 BESS is a utility-scale installation located in the Township of Armour, Ontario. The installation consists of nine (9) EVLOFLEX enclosures, each housing lithium iron phosphate ($LiFePO_4$) battery modules, power electronics, and safety systems. The system is designed to provide grid-scale energy storage and has a total energy storage capacity of approximately 5 MWh.

Each EVLOFLEX unit is designed as a non-walk-in (NWI) cabinet and is constructed from a standard ISO 20-foot container with external dimensions of 6.1 m (length) × 2.44 m (width) × 2.6 m (height). Each unit is capable of housing six (6) battery strings, each string containing fifty-one (51) modules, with each module consisting of thirty-two (32) pouch-type lithium-ion cells.

The EVLOFLEX units are installed outdoors in a rural setting, with spatial separations of at least 3 m (10 ft) side-to-side between adjacent units and 1.22 m (4 ft) end-to-end. Access to the site is controlled by perimeter fencing and a vehicular access gate, with asphalt access roads allowing emergency vehicles within 1.5 m (5 ft) of the units. A rendered image of an EVLOFLEX unit is shown in the following Figure 1.

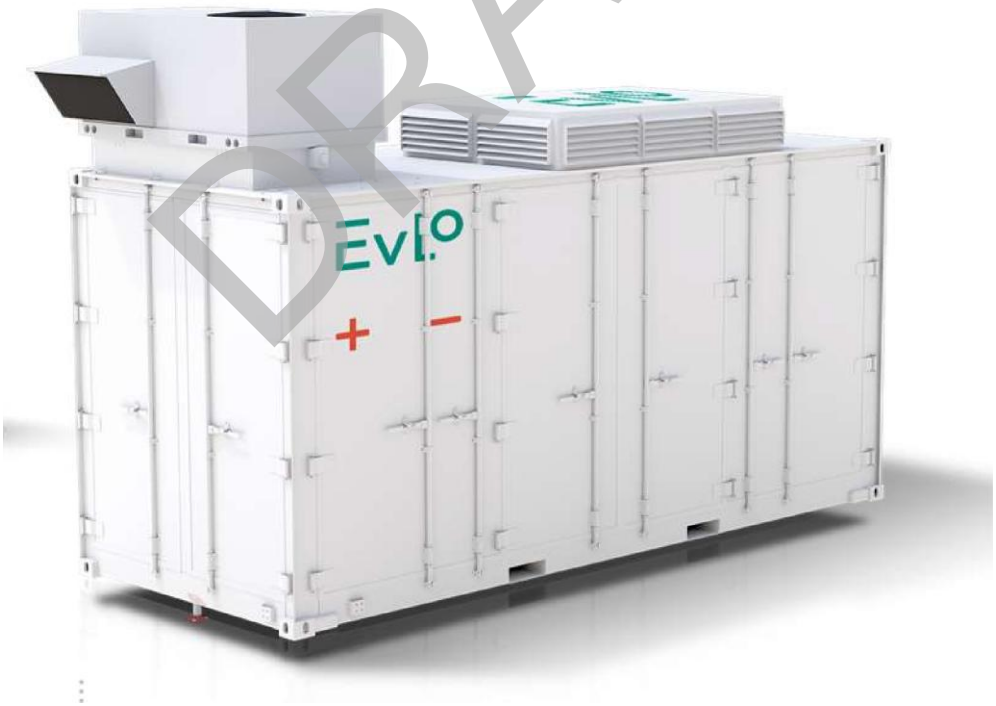

Figure 1: EVLOFLEX BESS Unit 3D Image

5.2. BATTERY ENERGY STORAGE SYSTEM FEATURES

Each EVLOFLEX Battery Energy Storage System unit is constructed using a NEMA 3R-rated steel enclosure designed for outdoor, NWI applications. The system includes integrated communication and control through an Energy Management System (EMS) and Battery Management System (BMS). A Thermal Management System (TMS) is installed to maintain operational temperatures, optimal battery performance and safety.

Key features of the EVLOFLEX BESS enclosures include:

- The EMS is a dedicated electrical and communications cabinet which serves as the controller for all BESS operations. It supports remote monitoring, logging, and supervisory control.
- The BMS is an electronic control board installed in each battery string, physically integrated into the enclosure. It monitors voltage, current, temperature, and state of charge (SOC) for each cell/module. The BMS ensures safe operation through cell balancing, real-time fault detection, and automatic isolation of faulted modules or strings to prevent thermal runaway.
- The TMS is a forced-air Heating Ventilation and Air Conditioning (HVAC) system built into the EVLOFLEX enclosure. It manages battery temperatures by circulating air to prevent localized heating and maintaining consistent thermal conditions. In emergencies, it also supports gas evacuation through airflow channels and roof-mounted vents.

6. EVALUATION

NFPA 855 Chapter 4 outlines the general safety requirements that apply to all ESS installations that are of the type and capacity listed in NFPA 855 Section 1.3. NFPA 855 Chapter 9 addresses electrochemical ESS installations. As Project 903 BESS consists of a lithium-ion type system, its requirements are also applicable. The fire and life safety requirements discussed in this report are applicable specifically to a remote, outdoor, Non-Walk-In ESS installations. A list of the relevant compliance aspects of Project 903 BESS are described in **Table *1*** below. This section provides an overview of the evaluations performed and a summary of the findings identified as a result of the review.

The design package was reviewed against the codes and standards listed in Section 2 of this report. **Table 1** summarizes the evaluation findings that are discussed in Sections 6.1 through 6.11 of the report for the BESS installation.

Table 1 - State of Compliance for Project 903 BESS

Review Item	State of Compliance
Construction Documents	One (1) Item for Clarification
Emergency Planning and Training	Out of Scope
Hazard Mitigation Analysis	Compliant
Combustible Storage	Compliant
Equipment	Compliant
Installation	One (1) Item for Clarification
Smoke and Fire Detection	One (1) Item for Clarification
Fire Control and Suppression	Two (2) Items for Clarification
Location Classification and Applications	Compliant
Protection Remediation	Two (2) Items for Clarification
Ontario Building and Fire Code	One (1) Item for Clarification
Ontario Electrical Safety Code	One (1) Item for Clarification

6.1. CONSTRUCTION DOCUMENTS

NFPA 855 Section 4.2 outlines the documentation and information requirements for the installation of the ESS. Plans and specifications must be submitted to the AHJ and include site layouts, fire protection features, system details, and safety considerations.

Additional supporting documentation such as fire and explosion testing data, HMA, and calculations are to be provided where required.

Prior to system operation, construction documents must be provided to the building owner, and a detailed operations and maintenance (O&M) manual must be delivered to both the ESS owner and system operator. The O&M manual must outline system specifications, maintenance procedures,

contact information, operational narratives, and service logs. It must be finalized before approval and remain accessible to AHJs and emergency responders.

An item for clarification was documented to confirm that project documentation will be provided to the AHJ as needed and will meet all the requirements of the applicable codes including NFPA 855 and documented in Appendix A.

6.2. EMERGENCY PLANNING AND TRAINING

Section 4.3 requires an Emergency Operations Plan (EOP) and training program for facility staff and responders for systems exceeding energy thresholds. The EOP must include emergency shutdown steps, alarm responses, fire/explosion procedures, and periodic drills, with training conducted at least annually.

This requirement is outside the scope of this review and will be addressed in a separate report.

6.3. HAZARD MITIGATION ANALYSIS

A hazard mitigation analysis evaluates specific failure modes. The analysis must demonstrate that hazards are controlled, and emergency conditions do not threaten occupants or responders.

A Hazard Mitigation Analysis (HMA) is defined as *"an evaluation of potential energy storage system failure modes and the safety-related consequences attributed to the failures"* [NFPA 855 Subsection 3.3.14].

NFPA 855 Subsection 4.4.1 and Paragraph 9.5.2.1 outline the installation conditions where an HMA is required to be carried out. As Project 903 BESS is an outdoor ESS installation with a capacity greater than 600 kWh, an HMA is required [NFPA 855 Paragraph 9.5.2.1].

NFPA 855 Subsection 4.4.2 outlines the failure modes that are to be evaluated in the HMA. NFPA 855 Subsection 4.4.3 details the criteria that is to be demonstrated when assessing these failure modes, which can be summarized as: fire containment, occupant evacuation not impaired, and deflagration hazards addressed. Table 2 below outlines how each failure mode was addressed in the HMA.

Table 2 - Project 903 BESS System NFPA 855 HMA Summary

Failure Mode	Evaluation
A thermal runaway or mechanical failure condition in a single ESS unit.	UL 9540A, "Standard Method for Evaluating Thermal Runaway Fire Propagation in Battery Energy Storage Systems", is used to assess whether a thermal runaway event in a battery system leads to: • Fire propagation between cells or modules, • Flammable or toxic gas release, • Explosion or deflagration risk, and • External flaming or projectiles.

Failure Mode	Evaluation
	The EVLOFLEX BESS underwent UL 9540A testing at the cell, module, and unit levels. Results showed: • Thermal propagation was limited to a few cells within a module, with no spread to other modules or strings. • No external flames, projectiles, or explosions occurred at any test level. • Gas concentrations (e.g., H_2, CO, CO_2) remained below 25% of the LFL and well under IDLH values. Each unit has the following mitigation features: • BMS monitors battery conditions and isolates faulted components. • TMS provides active cooling to prevent overheating. • Passive Fire Barriers including aluminum heat sinks, insulation layers, internal fire walls, and airflow channels to limit thermal transfer and flame spread. • Electrical Protection including fuses, contactors, and ground-fault detection minimize escalation of electrical faults. Explosion risk is mitigated by an emergency ventilation system. This performance was validated through an Explosion Prevention Analysis prepared by Jensen Hughes (Doc. No.: 1O2300770.000.002). This analysis employed CFD-based modeling to evaluate whether the EVLOFLEX design prevents flammable gas buildup during thermal runaway events. Its goal was to demonstrate compliance with NFPA 69 by confirming that the system's ventilation and detection features maintain gas concentrations below 25% LFL for different scenarios. Toxic gas risk is minimized by the outdoor, non-occupiable design. Only typical fire byproducts (e.g., CO_2) were detected; no HF, HCl, or HCN were found in the UL 9540A testing. The measures outlined in the HMA report meet the intent of NFPA 855 4.4.3, demonstrating that fire containment, toxic gas, and explosion risks are adequately addressed for thermal runaway.
Failure of an energy storage management system or protection system that is not covered by the product listing failure modes and effects analysis (FMEA).	<u>BMS Failure</u> The BMS monitors voltage, current, temperature, and SOC, and can disconnect the system under hazardous conditions. It also transmits alarms and control signals. The risk from BMS failure is mitigated through system redundancy, backup detection, and maintenance practices. A BMS failure would disable active monitoring temporarily, however safeguards such as electrical fault protection devices allows for early

Failure Mode	Evaluation
	detection and resolution. Failure of the BMS does not pose an unmitigated fire or explosion risk and therefore meets NFPA 855 requirements.
	<u>TMS Failure</u> The consequences of ventilation failure were evaluated, recognizing potential risks of overheating or gas accumulation. The EVLO BESS depends on ventilation during both normal and emergency conditions to maintain safe temperatures and limit gas buildup. The TMS is continuously monitored and is to receive routine maintenance checks. TMS failure is unlikely to cause thermal runaway as the peak ambient temperature (33°C) is below the cell venting threshold. Any failure would be quickly detected, and the Local Operations Centre (LOC) can remotely discharge or shut down affected modules to reduce the state of charge of the cell. While prolonged loss of cooling could cause battery degradation, it poses minimal immediate hazard. The analysis meets NFPA 855 4.4.2(3) as it is not expected to result in gas accumulation sufficient to cause deflagration.
	<u>Voltage Surge and Short Circuits</u> Protection against voltage surges and short circuits is through a combination of electrical fault protection, active BMS monitoring, and system-wide supervision. In the event of overvoltage or increased current, the fault protection automatically isolates the circuit, while the BMS cuts power to the affected area, reducing the risk of thermal runaway. In a worst-case scenario, thermal runaway is possible however the mitigative features to address this are discussed in the failure mode (“A thermal runaway or mechanical failure condition in a single ESS unit”).
Failure of a required protection system including, but not limited to, ventilation, exhaust ventilation, smoke detection, fire detection, fire suppression, or gas detection.	The EVLOFLEX BESS fire protection features include: • Smoke and hydrogen gas detectors, • An emergency ventilation system with both passive and mechanical components. Mitigation measures include: • Redundant smoke/gas detectors in each unit, • Continuous monitoring via the FACP and remote supervision, • Backup power for detection systems, • Passive ventilation to reduce reliance on powered systems, • Routine inspection, testing, and maintenance (ITM). Fire protection system failure alone will not trigger thermal runaway. Failure of any fire detection devices would initiate a trouble signal, prompting operator response. If a failure coincides with a thermal event, it could increase equipment damage but would not cause life safety risk, given the 30 m standoff and absence of nearby exposures.

Failure Mode	Evaluation
	With the failure of the EVLOFLEX BESS units smoke or gas detection (or ventilation system), the mitigative measures demonstrating that fire is contained, evacuation is not impaired, and deflagration hazards are addressed, satisfying NFPA 855 Subsection 4.4.3

The HMA for the Project 903 BESS evaluates all required failure modes in accordance with Subsection NFPA 855 4.4.2, including thermal runaway, BMS/TMS failure, voltage surges, and failure of fire protection systems. The analysis aligns with the criteria of NFPA 855 Subsection 4.4.3 by highlighting that fires are contained within ESS enclosures, occupant evacuation is not significant factor, and deflagration hazards are mitigated through ventilation design, UL 9540A testing, and an Explosion Prevention Analysis. Therefore, the HMA meets the intent of NFPA 855 and supports AHJ approval.

6.4. COMBUSTIBLE STORAGE

Restriction of the storage of combustible materials in, or near (within 0.9 m) ESS units is required by NFPA 855 Section 4.5. Compliance with this requirement is demonstrated in the HMA report (Section 5.2.1).

6.5. EQUIPMENT

NFPA 855 Sections 4.6 and 9.2 govern equipment design, listing, and modifications. ESS must be UL 9540 listed, noncombustible and provided with an ESMS or BMS.

The EVLOFLEX is UL 9540 listed; The battery module forming part of the BMS is certified to UL 1973. Compliance with this requirement is stated in the HMA report (Sections 5.2.2 and 7.2.2).

NFPA 855 Section 9.1.5 requires compliance with fire and explosion testing (UL 9540A) and supporting reports for safety justification. The EVLOFLEX underwent UL 9540A cell, module, and unit-level testing. An HMA was also conducted. The tests confirmed that there is no external fire, explosion, or projectile hazard. See Section 6.3 of this report.

6.6. INSTALLATION

NFPA 855 Section 4.7 and 9.4 addresses criteria, such as seismic bracing, signage, emergency egress, security, elevation restrictions, and impact protection.

Compliance with pertinent fire and life safety requirements demonstrated in the HMA report sections 5.2.2 through 5.2.6. Installation requirements such as electrical and seismic were not addressed in the HMA report.

An item for clarification was raised to confirm if the project is compliant with NFPA 855 Section 4.7.1, 4.7.2 and 4.7.3 and documented in Appendix A.

ESS are required to be divided into groups with no more than 50 kWh of stored energy each. Each group must be spaced at least 3 feet (0.9 m) from other groups and from walls. The Authority Having Jurisdiction (AHJ) may approve larger group sizes if validated by fire and explosion testing per NFPA 855 Section 9.1.5. Testing per NFPA 855 Section 9.1.5 provided as EVLOFLEX unit exceeds 50 kWh. Additionally, NFPA 855 Table 9.5.2 exempts remote locations from this requirement. Compliance stated in the HMA report (Section 5.3.6).

Maximum stored energy must not exceed 600 kWh unless justified by an HMA and fire and explosion testing per UL 9540A. Total site capacity is approximately 5 MWh which has been adequately justified through UL 9540A testing and HMA. Additionally, NFPA 855 Table 9.5.2 does not require remote locations to comply with the maximum storage limits. Compliance stated in the HMA report (Section 5.3.7)

6.7. SMOKE AND FIRE DETECTION

NFPA 855 Section 4.8 and 9.6.1 requires smoke detection systems to be installed in ESS areas. It includes provisions for annunciation, monitoring, battery backup for alarms, and notification of responders via supervising stations.

Compliance with these requirements has been demonstrated in the HMA report section 5.3.8 as follows:

- Each unit is equipped with a multi-criteria photoelectric smoke detector in accordance with NFPA 72.
- Visual and audible notification are provided locally via horn/strobe on each unit.
- A 24-hour standby / 2-hour alarm backup power supply is provided.
- Alarm signals are transmitted to a supervising central station, which will automatically notify the local fire department.

Section 4.1.6 of the HMA report states that the detection system will be connected to a fire alarm control panel (FACP). An item for clarification was raised regarding the location of the FACP and documented in Appendix A.

6.8. FIRE CONTROL AND SUPPRESSION

Section 4.9 requires fire control or suppression systems based on ESS type and location. Per NFPA 855 Section 9.5.2.5, when agreeable with the ESS owner and approved by the AHJ, fire suppression systems and water supply shall not be required for remote locations. Project 903 BESS is proposed for a remote location and is considered an outdoor NWI installation and therefore does not require fire suppression.

Per NFPA 855 Section 4.9.4.2, where no permanent adequate and reliable water supply exists for firefighting purposes, the requirements of NFPA 1142 typically apply.

HMA Report Section 5.4.3 states that the requirements of NFPA 1142 apply. An item for clarification was documented in Appendix A to confirm what are the relevant NFPA 1142 requirements, and whether they are met for this site.

HMA Report Section 4.1.5 states that a dry hydrant is being proposed. An item for clarification was documented in Appendix A to confirm the details regarding its location and what standard it is to comply with.

6.9. LOCATION CLASSIFICATION AND APPLICATIONS

Outdoor ESS can be classified as remote or near exposure; remote systems require 30 m setback from buildings, lot lines that can be built upon, public ways, stored combustible materials, hazardous materials, high-piled stock, and other exposure hazards not associated with grid infrastructure. Project 903 BESS is classified as a remote outdoor installation as it is greater than 30 m from all hazards. Compliance regarding these requirements is stated in the HMA report (Section 5.1)

Areas within 10 ft (3 m) on each side of outdoor ESS shall be cleared of combustible vegetation and other combustible growth. It is stated in Section 5.3.5 of the HMA report that the area surrounding Project 903 BESS is cleared of combustible vegetation.

Outdoor ESS cabinets shall not exceed 53 ft × 8.5 ft × 9.5 ft (16.2 m × 2.6 m × 2.9 m). EVLOFLEX units are within the size limitations of NFPA 855 Section 9.5.2.4.1 per the HMA report (Section 5.3.1).

6.10. PROTECTION REMEDIATION

Thermal runaway protection is required as per NFPA 855 Table 9.6.5. The HMA report (Sections 5.4.2) addresses thermal runaway protection. It is stated that the EVLOFLEX unit is UL 9540 listed and that BMS forms part of the protection.

An item for clarification was documented to confirm (1) specifically how the BMS is certified to UL 9540, and (2) Explain whether the TMS forms part of the thermal runaway protection.

Per NFPA 855 Section 9.1.5, explosion prevention or deflagration venting shall be provided unless an approved fire and explosion testing, and a deflagration hazard study demonstrates that flammable gas concentrations cannot exceed 25 percent of the LFL. The HMA report (Section 5.4.1 and 7.1.3.1) justified not providing explosion prevention or deflagration venting based on the following:

- Unit-level UL 9540A testing which showed no external flame propagation or explosive discharge during the test, and
- The explosion prevention analysis which was carried out to confirm gas concentrations remain below 25% LFL.

UL 9540A testing and the Explosion Prevention Design Analysis demonstrated an LFL below 25%.

Section 7.1.3.1 of the HMA report states that testing per UL 9540A is an OFC requirement. An item for clarification was documented in Appendix A requesting confirmation on the applicable section of the OFC which states that testing per UL 9540A is required.

6.11. ONTARIO BUILDING AND FIRE CODE

The Ontario Building Code (OBC) does not apply to Project 903 BESS as the units are considered non-occupiable enclosures that house equipment, and do not support an occupancy. The OFC is applicable as Project 903 BESS is considered a "facility", which is defined as a "property where regulated by this Code, including open air public assembly activities, open air industrial processing and outdoor storage, occurs, whether or not a building is located on the property".

The OFC is referenced throughout the HMA report however specific OFC sections are not referenced where applicable.

An item for clarification was documented in Appendix A requesting to clarify the applicable sections of the OFC where mentioned.

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7. CONCLUSIONS

Armour Township is proposing the installation of a utility-scale Battery Energy Storage System (BESS), identified as the Project 903 BESS, located within the Township of Armour, Ontario. The proposed system consists of nine (9) EVLOFLEX lithium-ion battery enclosures with a total energy capacity of approximately 4.99 MWh

PLC completed a Third Party Review (TPR) review of the provided Hazard Mitigation Analysis Report for the BESS installation, which resulted in the documentation of nine (9) clarifications as detailed in APPENDIX A, and await disposition by proponents.

APPENDIX A

Items for Clarification

DISPOSITION OF FINDINGS

NO.	REVIEWER COMMENT	DESIGN DISPOSITION	REVIEWER CONCURRENCE
1	Prior to system operation, construction documents must be provided to the building owner, and a detailed operations and maintenance (O&M) manual must be delivered to both the ESS owner and system operator. The O&M manual must outline system specifications, maintenance procedures, contact information, operational narratives, and service logs. It must be finalized before approval and remain accessible to AHJs and emergency responders. Confirmation is required that project documentation will be provided to the AHJ as needed and will meet all the requirements of the applicable codes including NFPA 855. *Reference: NFPA 855 Section 4.9*		
2	Installation requirements such as electrical, loading and seismic were not addressed in the HMA report. Clarify if the project is compliant with NFPA 855 electrical, loading and seismic requirements of Chapter 4. *Reference: NFPA 855 Section 4.7.1, 4.7.2 and 4.7.3*		

NO.	REVIEWER COMMENT	DESIGN DISPOSITION	REVIEWER CONCURRENCE
3	Section 4.1.6 of the HMA report states that the detection system will be connected to a fire alarm control panel (FACP). HMA Report to clarify the location of the FACP. *Reference: NFPA 855 Section 4.8*		
4	HMA Report Section 5.4.3 states that the requirements of NFPA 1142 apply. Clarify what are the relevant requirements, and whether they are met for this site. *Reference: NFPA 855 Subsection 4.9.4*		
5	HMA Report Section 4.1.5 states that a dry hydrant is being proposed. Confirm the details regarding its location and what standard it is to comply with.		
6	(1) Clarify specifically how the BMS is certified to UL 9540, and (2) Explain whether the TMS forms part of the thermal runaway protection. *Reference: NFPA 855 Section 9.6.5.5*		

NO.	REVIEWER COMMENT	DESIGN DISPOSITION	REVIEWER CONCURRENCE
7	Section 5 (Page 27) of the HMA report states that the OFC references NFPA 855. Additionally, Section 7.1.3.1 (Page 39) notes that the "EVLO BESS has been tested to UL 9540A as required by the OFC". Clarify these statements with specific references to the OFC. *Reference: Ontario Fire Code (O. Reg. 213/07)*		
8	The OFC is referenced throughout the HMA report, however the specific relevant OFC sections are not referenced where applicable. Clarify the applicable sections of the OFC, where mentioned in the HMA report.		
9	Ontario Electrical Safety Code covers all electrical work and electrical equipment operating or intended to operate at all voltages in electrical installations for buildings, structures, and premises. Section 26 of Ontario Electrical Safety Code in particular outlines requirements for storage battery installations. Ontario Electrical Safety Code is not referenced in the HMA report. Provide further details on whether the installation will comply with CSA C22.1. *Reference: Ontario Electrical Safety Code*		

APPENDIX B

Documents Reviewed

Document Number	Document Name	Rev.	Issue Date	Document Type
	EVLO 2 RISK ASSESSMENT REPROT	0	2024-05-13	Document
	EVLO FIRE SAFETY PRESENTATION			Document
	EXPLOSION PREVENTION DESIGN ANALYSIS EVLO 2 REPORT	01	2024-04-03	Document
	HAZARD MITIGATION ANALYSIS EVLOFLEX BATTERY TECHNOLOGY	0	2024-12-11	Document
	SAFETY DATA SHEET EVLOFLEX	1	2023-02-01	Document
7169012620-001	TEST REPORT ANSI/CAN/UL 9540A:2019 REDACTED BY EVLO		2023-07-12	Document
CXL2-SPEC-ING-002	EVLOFLEX BASED SOLUTION TECHNICAL SPECIFICATION	09	2023-11-30	Document