



**FIRE & RISK**  
\*\*ALLIANCE\*\*

---

**Preliminary Fire Protection System  
Commissioning Plan for  
Battery Energy Storage Systems:  
Voyager BESS Facility, Saline Township, Michigan**

*Report | Rev0 | February 7, 2025*



**Prepared for:**  
Voyager Energy Storage LLC

**Prepared by:**  
Fire & Risk Alliance, LLC  
7640 Standish Place  
Derwood, MD 20855

---

[www.fireriskalliance.com](http://www.fireriskalliance.com)

877-961-4118

*The distribution of this document to third parties is prohibited without written approval from Fire & Risk Alliance, LLC.*

---

Fire & Risk Alliance, LLC 7640 Standish Place, Rockville, MD 20855, [www.fireriskalliance.com](http://www.fireriskalliance.com) 301-658-3060

<b>Date</b>	<b>Revision</b>	<b>Reason for Issue</b>	<b>Developed By</b>	<b>Approved by</b>
2025.02.07	0	Initial	MK	GM

**Revision Control Sheet**

<b>Revision</b>	<b>Section</b>	<b>Change Noted</b>

**TABLE OF CONTENTS**

**1.0 GENERAL PROJECT INFORMATION ..... 2**

**2.0 COMMISSIONING PLAN PURPOSE AND GOAL..... 2**

**3.0 APPLICABLE CODES AND STANDARDS..... 2**

**4.0 REFERENCE DOCUMENTS..... 2**

**5.0 CLOSE OUT FORMS..... 3**

5.1 Closeout Forms Required from the Contractor..... 3

**6.0 DAILY TESTING ACTIVITY ..... 3**

6.1 Steps Prior To Starting Daily Testing..... 3

6.2 Steps After Completion of Daily Testing ..... 3

**7.0 TEST PROCEDURES..... 4**

7.1 Fire Alarm Initiating Devices ..... 4

7.1.1 Photoelectric Smoke Detectors ..... 4

7.1.2 Heat Detectors..... 4

7.1.3 Simultaneous Smoke and Heat Detector Activation..... 4

7.1.4 Simultaneous Smoke and Smoke Detector Activation ..... 5

7.1.5 Simultaneous Heat and Heat Detector Activation ..... 5

7.1.6 Gas Detector Test..... 5

7.1.7 Manual Fire Alarm Box(es)..... 5

7.2 NFPA 69 Combustible Gas Concentration Reduction Ventilation Fan..... 6

7.2.1 Ventilation Fan Test..... 6

7.3 Trouble Signal and General Testing ..... 6

7.4 Water Storage Tank ..... 6

7.4.1 Bolted Steel Water Storage Tank..... 7

7.4.2 Dry Firewater Hydrant Main ..... 7

## 1.0 GENERAL PROJECT INFORMATION

The Hithium Infinity Block Generation 2 (Hithium) battery energy storage system (BESS) is intended for installation at the Voyager facility in Saline Township, Michigan. The Hithium BESS is a pre-assembled, non-walk-in (NWI) style lithium-ion BESS container that is factory-integrated with fire alarm detectors, modules, and devices that must be controlled and monitored by the site-level fire alarm system. The site is expected to include a water storage tank for fire department use and a dry firewater hydrant main.

As such, the BESS factory-integrated fire alarm devices, the site-level fire alarm system, water storage tank, and dry firewater hydrant main installation must be tested and commissioned in accordance with the fire code to ensure that the system is properly installed and functioning as intended.

## 2.0 COMMISSIONING PLAN PURPOSE AND GOAL

The intent of this plan is to assist in the commissioning of the factory-integrated and site-level fire alarm system at the Voyager BESS facility. The goal of this document is to streamline the commissioning efforts and to ensure that the fire alarm systems are installed and functioning as intended by the Engineer of Record (EOR).

## 3.0 APPLICABLE CODES AND STANDARDS

### Saline Township

- International Fire Code (IFC) – 2021 Edition (as adopted/amended by Saline Township)
- Saline Township Zoning Ordinance – Section 11.10 – Battery Energy Storage Systems, As Amended November 13, 2024.

### National Fire Protection Association (NFPA)

- NFPA 22, *Standard for Water Tanks for Private Fire Protection* – 2018 Edition
- NFPA 24, *Standard for the Installation of Private Fire Service Mains and Their Appurtenances*– 2019 Edition
- NFPA 25, *Standard for the Inspection, Testing, and Maintenance of Water-Based Fire Protection Systems* – 2020 Edition
- NFPA 69, *Standard on Explosion Prevention Systems* – 2019 Edition
- NFPA 70, *National Electrical Code* – 2020 Edition
- NFPA 72, *National Fire Alarm and Signaling Code* – 2019 Edition

## 4.0 REFERENCE DOCUMENTS

- Voyager BESS Preliminary Site Plan, Dated 2024.12.19
- Voyager Battery Storage Facility with Gen-Tie Preliminary Site Plan, Dated 2024.12.19
- Voyager BESS Site Signage and Battery Specification Plans, Dated 2025.01.31

- Hithium User Manual, V2.6
- Hithium Maintenance Manual, V1.1
- Fire Protection Device and Equipment Product Data and UL Listing
- Fire alarm system points list (to be provided by the contractor upon completion of field installation)

## **5.0 CLOSE OUT FORMS**

### **5.1 Closeout Forms Required from the Contractor**

1. NFPA 72 Record of Completion Form
2. Punchlist/comments as necessary (Pass/Fail)
3. Record of completion statement, pending complete fire alarm system commissioning

## **6.0 DAILY TESTING ACTIVITY**

### **6.1 Steps Prior To Starting Daily Testing**

1. Job Safety Briefing Form and Pre-Work Safety Meeting.
2. Notify field personnel of testing.
3. Notify the remote monitoring company that they may be receiving alarm signals and disregard.
4. Notify Jupiter Remote Operations Center that they may be receiving alarm signals and disregard.
5. Notify the local AHJ and/or fire department that testing is occurring and to disregard signals (unless receiving a direct 911 call).
6. Verify that the site-FACP panel is free of signals (alarm, pre-alarm, supervisory, trouble) prior to the start of testing.
7. Ensure that BESS and grid electrical system and equipment are LOTO, as applicable.

### **6.2 Steps After Completion of Daily Testing**

1. Notify field personnel that testing has concluded. Inform field personnel to regard any subsequent alarm notification signals.
2. Notify the remote monitoring company that testing is complete and that any additional signals should be regarded as an actual event.
3. Notify Jupiter Remote Operations Center that testing is complete and that any additional signals should be regarded as an actual event.
4. Notify the local AHJ and fire department that testing is complete and to regard further signals.

## 7.0 TEST PROCEDURES

This section outlines the preliminary required test procedures for fire protection systems planned for the Voyager BESS facility. This test procedure shall be updated upon the completion of the facility design and prior to the commencement of commissioning activities. A complete fire alarm point list shall be provided by the contractor which shall be referenced and checked for intended function during commissioning activities.

All testing shall be performed in accordance with manufacturer recommendations. Where conflicts exist between these test procedures and the manufacturer's recommendations, the manufacturer's recommendations shall take precedence.

### 7.1 Fire Alarm Initiating Devices

The purpose of the initiating device testing is to verify that all fire alarm signals are received by the fire alarm control unit, labeled appropriately, and programmed to perform the correct output functions. Output functionality will be tested separately.

#### 7.1.1 Photoelectric Smoke Detectors

1. Photoelectric smoke detectors shall be actuated with UL-listed "canned" smoke to verify alarm receipt and programming.
2. Fire alarm control unit shall receive and display the ALARM signal within 10 seconds of actuation.
3. Address number and alphanumeric label shall be displayed on the fire alarm control panel.
4. Initiate the corresponding Hithium horn strobe
5. BMS receives first-level alarm signal.

#### 7.1.2 Heat Detectors

1. Heat detectors shall be actuated to verify alarm receipt and programming.
2. Fire alarm control unit shall receive and display the ALARM signal within 10 seconds of actuation.
3. Address number and alphanumeric label shall be displayed on the fire alarm control panel.
4. Initiate the corresponding Hithium horn strobe
5. BMS receives first-level alarm signal.

#### 7.1.3 Simultaneous Smoke and Heat Detector Activation

1. Photoelectric smoke detectors shall be actuated with UL-listed "canned" smoke to verify alarm receipt and programming.
2. Heat detectors shall be actuated to verify alarm receipt and programming.
3. Fire alarm control unit shall receive and display the ALARM signal within 10 seconds of actuation.
4. Address number and alphanumeric label shall be displayed on the fire alarm control panel.
5. Initiate the corresponding Hithium horn strobe
6. BMS receives second-level alarm signal.
7. Repeat this test for alternate smoke and heat detector combinations.

#### 7.1.4 Simultaneous Smoke and Smoke Detector Activation

1. Two (2) photoelectric smoke detectors shall be actuated with UL-listed “canned” smoke to verify alarm receipt and programming.
2. Fire alarm control unit shall receive and display the ALARM signal within 10 seconds of actuation.
3. Address number and alphanumeric label shall be displayed on the fire alarm control panel.
4. Initiate the corresponding Hithium horn strobe
5. BMS receives second-level alarm signal.

#### 7.1.5 Simultaneous Heat and Heat Detector Activation

1. Two (2) heat detectors shall be actuated to verify alarm receipt and programming.
2. Fire alarm control unit shall receive and display the ALARM signal within 10 seconds of actuation.
3. Address number and alphanumeric label shall be displayed on the fire alarm control panel.
4. Initiate the corresponding Hithium horn strobe
5. BMS receives second-level alarm signal.

#### 7.1.6 Gas Detector Test

1. The gas detector shall be tested with 10% LEL calibration gas and using the test port, per gas detector manufacturer testing procedures.
2. Fire alarm control unit shall receive and display the ALARM signal within 10 seconds of actuation.
3. Address number and alphanumeric label shall be displayed on the fire alarm control panel.
4. Initiate the corresponding Hithium horn strobe.
5. Initiate combustible gas concentration reduction emergency ventilation fan.
6. BMS receives a gas alarm signal.
7. Verify that the emergency ventilation fan operation latches and continues to operate even when the gas detector self-reset.

#### 7.1.7 Manual Fire Alarm Box(es)

1. Manual fire alarm boxes and releasing stations shall be physically actuated.
2. Fire alarm control unit shall receive and display the ALARM signal within 10 seconds of actuation.
3. Address number and alphanumeric label shall be displayed on the fire alarm control panel.
4. Appropriate light shall illuminate on the fire alarm control panel.
5. Reset the manual fire alarm box with the manufacturer provided key.

## 7.2 NFPA 69 Combustible Gas Concentration Reduction Ventilation Fan

The purpose of the NFPA 69 ventilation fan testing is to verify that the ventilation fan provides minimum airflow as required per the engineering analysis provided by the manufacturer. The ventilation fan testing shall use a calibrated capture hood on the outlet fan to record airflow measurements. The airflow measurement records shall be kept for a minimum of 3 years, to serve as a baseline measurement for subsequent re-test of the system.

### 7.2.1 Ventilation Fan Test

1. Activate the ventilation fan by rotating the emergency ventilation fan start switch.
2. Measure the exhaust fan airflow.
3. Record airflow and compare it to the minimum airflow requirement.
4. Deactivate the ventilation fan by rotating the emergency ventilation fan start switch.
5. Reset the BMS.

## 7.3 Trouble Signal and General Testing

Trouble signals shall be tested in accordance with NFPA 72. In addition, trouble signals from the emergency ventilation fan shall be tested.

1. Fire alarm control unit shall receive and display the TROUBLE signal within 200 seconds of actuation.
2. Address number and alphanumeric label shall be displayed on both fire alarm control unit displays and be verified for accuracy.

## 7.4 Water Storage Tank

Water storage tank for fire protection use should be inspected and tested prior to completion of the project. The main purpose of this commissioning activity is to ensure proper tank construction and proper operation of auxiliary systems and components.

Prior to placing the tank in service, a representative of the tank contractor and a representative of the owner shall conduct a joint inspection of the completed equipment. The AHJ shall be notified as to the time and date of the inspection.



### 7.4.1 Bolted Steel Water Storage Tank

1. The completed tank shall be tested by filling it with water, and any detected leaks shall be repaired in accordance with AWWA D103.
2. Low water level alarms and low water temperature alarms, if provided, shall be tested.
  - a. Address number and alphanumeric label shall be displayed on the fire alarm control panel.
  - b. Fire alarm control unit shall receive and display the TROUBLE signal within 200 seconds of actuation.
3. Verify water heating system activation and set points.
4. The structure shall be tested for liquid tightness by filling the tank to its overflow or top operating liquid level elevation.
5. The contractor, in accordance with the manufacturer's recommendations shall correct any leaks disclosed by this test.

### 7.4.2 Dry Firewater Hydrant Main

The dry firewater hydrant main and components shall be tested according to the procedures outlined in NFPA 24.

1. Flush firewater hydrant main prior to use. Flow the required rate until water is verified to be clear of debris at the hydrants.
2. Perform hydrostatic for all piping and attached appurtenances at gauge pressure of 200 psi or 50 psi in excess of the system working pressure, whichever is greater, and maintain that pressure at gauge pressure of  $\pm 5$  psi for 2 hours.
3. Successful test results shall be determined by indication of either a pressure loss less than gauge pressure of 5 psi or by no visual leakage.
4. Perform hydrant operating test to ensure that hydrants can be fully opened and closed under system water pressure.
5. Ensure all water drains through the buried low point drip drains after the test.