

*NEW YORK STATE  
INTER AGENCY  
FIRE SAFETY  
WORKING  
GROUP AIR, SOIL,  
AND WATER  
DATA FINDINGS*

*December 2023*

## ***Executive Summary***

Energy storage facilities play a critical role in New York State's environmental and economic efforts to transition from fossil-fueled energy sources and reduce the emissions that contribute to climate change. Their safe and effective operation are needed to help the state achieve its ambitious climate goals under the Climate Leadership and Community Protection Act and ensuring the protection of communities across the state.

While fires at energy storage facilities are exceedingly rare, fires at facilities in Jefferson, Orange, and Suffolk counties in summer 2023 underscored the importance of ensuring New York State and communities have the knowledge and resources necessary to prevent and address potential fires.

As such, in July 2023, Governor Kathy Hochul directed the Division of Homeland Security and Emergency Services (DHSES) Office of Fire Prevention and Control (OFPC), New York State Energy Research and Development Authority (NYSERDA), New York State Department of Environmental Conservation (DEC), Department of Public Service (DPS), and the Department of State (DOS) to lead a new Inter-Agency Fire Safety Working Group to independently examine energy storage facility fires and safety standards.

The Working Group is leveraging nationally renowned experts and national laboratories in energy storage root cause and emergency response analyses to independently assess and identify common causes, air monitoring results or other community impacts, and other factors potentially involved with energy storage fires. Among its first actions, the Working Group began compiling and reviewing available data collected during and after the four fires this summer. The Working Group gathered data and worked diligently with project developers, equipment manufacturers, and government officials to learn as much as possible about the fires at battery system facilities. The Executive Summary compiles the findings of the investigations to date.

Following a comprehensive review of analyses of air quality, soil, and/or water data collected in the days following each of the fires, OFPC and DEC, in collaboration with the State Department of Health, concluded that there were no reported injuries, no harmful levels of toxins detected, and no long-term off-site impacts involving any migration of contaminants associated with the fires.

The data assembled and analyzed by the Working Group includes:

- An air monitoring report from OFPC and soil and water sampling data received by DEC from the Chaumont site (Jefferson County) and surrounding properties;
- On-site air monitoring results collected from the Warwick (Orange County) sites by emergency responders and relayed to the Working Group by local officials; and
- An independent third-party site inspection report consisting of air monitoring and surface sampling at school buildings in the vicinity of the June 27, 2023, fire at the Warwick site.

The Working Group will continue its efforts to investigate energy storage deployment, including lithium-ion battery storage facilities, and potential fire causes and develop full recommendations on how to help prevent fires and ensure emergency responders have the necessary training and information to prepare and deploy resources in the event of a fire.

## **BATTERY ENERGY STORAGE SITE INCIDENT SAMPLING**

### **East Hampton**

East Hampton Energy Storage is a 4,100-square-foot battery storage facility located on a .5-acre property at 3 Cove Hollow Road in East Hampton, New York. The facility draws power from the grid during off-peak hours and stores it in the lithium-ion battery racks to later be released during high-demand hours, which is especially critical in the summer months.

On May 31, 2023, a fire occurred at the facility, impacting the lithium-ion battery system in the dedicated use building housing the system. The facility maintained the emergency sprinkler system running for approximately 30 hours to make sure the battery fire was fully extinguished. This resulted in the firewater eventually exiting the dedicated use building and discharging to an adjacent dirt road on the southwest side of the building.

On June 14, the facility had a Certified Industrial Hygienist with LiRo Engineers, Inc. take wipe samples from various items inside the dedicated use building to investigate potential contaminants from battery fire fumes. There were no background or “unimpacted” sample results to compare the results with and no conclusions could be made.

On July 13, Miller Environmental Group, Inc. prepared a Site Sampling Plan to evaluate potential impacts to soil on the southwest side of the dedicated use building where firewater migrated. The plan included taking five surficial soil samples in the form of a grid from the potentially impacted area. In addition, two samples on opposite sides of the potentially impacted area were collected and used as background or “unimpacted” samples to compare results.

On July 20, DEC approved the plan, however, out of an abundance of caution, DEC expanded the list of metals required to be sampled to 26 metals, including lithium.

On Oct. 4, under DEC oversight, soil samples were collected in accordance with the Site Sampling Plan and submitted for analysis. On Nov. 9, NextEra Energy submitted a report detailing the results of the investigation to DEC. After reviewing the report, DEC determined there was no discernable difference in the concentration of metals in the soil sample results collected from the firewater discharge area versus the site background soil samples. Since no adverse impacts to soil from the discharge of firewater were identified, DEC did not require groundwater sampling. Based on the results of this investigation, no further remedial actions are required by DEC at this time.

### **Warwick**

Convergent Energy and Power operates two battery storage facilities located at 63 County Route 1 and at Church Street in the Village of Warwick. The lithium-ion battery facility stores extra energy for release back to the electric grid when needed.

On June 27, 2023, a fire occurred at the 63 County Route 1 site. The Orange County Hazardous Materials (HAZMAT) Response Team responded and conducted air sampling to determine if any hazards from the burning materials were present and if measures to prevent public exposure were required. Based on the results of the county's air sampling, no elevated levels of toxic contaminants were detected.

The energy storage facility was located adjacent to property owned by the Warwick Valley Central School District. The fire caused heavy smoke, leading to precautionary evacuations of the district office, Middle School, High School, and Sanfordville Elementary. The school district implemented a sampling plan to test various surfaces that could have been impacted by the smoke, including schools, buses, transportation, and facilities offices. Results came back with levels below detectable limits, including samples taken from inside the buses.

On June 29, a fire was reported at the Church Street site. Orange County HAZMAT again responded and conducted air sampling. DEC Division of Air Resources staff were also on scene for any assistance needed. Based on the sampling results, no elevated levels of toxic contaminants were detected.

No water was used by local emergency responders at either fire location so there was no water runoff and as a result, no soil samples taken by Convergent, DEC, or other first responders due to the limited potential for off-site impacts.

## **Chaumont**

Chaumont Solar is a 22.5-megawatt solar panel and battery storage facility located on County Route 179 in Chaumont, New York. The system is owned by Convergent Energy. The facility has four discrete 5-megawatt and one 2.5-megawatt projects that generate power from on-site solar panels during peak daylight hours and stores a portion in on-site lithium-ion batteries to be released later during high-demand hours. Each solar panel project has its own modular battery storage system.

On July 27, 2023, a fire occurred at the Chaumont Solar 4 facility in one of the battery storage modules. The local fire department and county emergency management applied water to cool at-risk electrical components and suppress vapors. OFPC supplied advisors, infrared-capable drone resources, and air quality monitors at the village limits. DEC Law Enforcement was on-site for the initial response and DEC Spill Response was on-scene to observe and start building a remedial strategy.

Over the course of approximately five days, fire departments applied a large volume of water to the fire and adjacent equipment. Neighbors with private drinking water wells on adjacent properties were concerned of potentially contaminated leachate affecting their wells.

Reportedly the battery chemistry used at the facility was "lithium nickel manganese cobalt oxide." Plastics, carbon black, iron, aluminum, and fluorides typical of battery electrolytes and construction packaging were presumed present and all were considered potentially released in the resulting fire and runoff.

Groundwater samples were analyzed for volatile organics (VOCs), semi-volatile organics (SVOCs) total analyte lists and EPA 6010 metals for calcium, cobalt, iron, manganese, nickel,

lead and zinc. The lab report included representative battery chemistry metals and most related VOC/SVOC compounds from fire debris that would be present.

On Aug. 4, DEC Spill Response implemented an off-site groundwater sampling plan and mobilized a remedial investigation contractor to collect baseline groundwater data ahead of any effects from leachate reaching the local water table used for drinking water. DEC's contractor took groundwater samples from 11 wells actively used for drinking water. DEC staff, its contractor, a Convergent representative, and their environmental contractors were in attendance.

Groundwater laboratory data was received on Aug. 17. DEC reviewed the data in coordination with the New York State Department of Health's (DOH) Center for Environmental Health. No apparent fire contaminants were identified. DEC and DOH drafted test result letters for each well tested. Letters were sent to residents on Aug. 22.

On Aug. 24, Convergent environmental contractors sampled surficial on-site soils around the facility representing various baseline and downwind locations around the property. Safety buffers of 15 feet remained around the impacted power equipment, so contractors advanced two test pits 20 feet from equipment and took samples at the surface and bedrock interface.

As of Nov. 14, the failed equipment had not been removed from the site. Soil sampling directly beneath equipment is not possible until the equipment is removed. Next steps involve tracking impacted equipment removal and accessibility of native soils to sample, reviewing groundwater re-test results, and assessing whether an additional round of groundwater sampling in 2024 is warranted. Out of an abundance of caution, DEC resampled residential wells on Dec. 6 and anticipates results in early January 2024. New York State will take all necessary precautions if contamination is found to ensure protection of public health and the environment.

## BESS Incident Overviews

### Warwick NY- June 27<sup>th</sup> through 29<sup>th</sup>, 2023.

- 6/27/23- Fire is reported at Convergent Energy site #2, 28 Church Street Extension in the Town of Warwick adjacent to the local school bus garage; Site #1 in the Village of Warwick (behind the Warwick FD) also had an issue the same day that did not result in a fire. Local FD, Convergent Energy and Orange County Hazmat respond.
- 6/28/23- FPS V. Graves is contacted by detective Michael Hoffman of the Warwick PD re: an active fire investigation at the Convergent site #2. FPS Graves gave general overview of BESS emergencies and potential problems. Also on this date, BC Baker spoke with HM Chief Wayne Melton of Orange County HM regarding air monitoring and fire scene operations. Chief Melton indicated air monitoring for O<sub>2</sub>, CO, H<sub>2</sub>S, LEL, VOC and HCN with low levels of CO and HCN detected in the area approximately 1 meter from the affected containers and no readings outside the fence line.
- 6/29/23- In conjunction ESRG, OFPC was requested to the scene at site #2 for technical assistance. DC Jones and FPS Graves responded at 17:59 hours and on arrival (approximately 19:30 hours) witnessed the dismantling of several centipede type containers. Removal of the sections was required to isolate and prevent further fire spread. DC Jones and FPS Graves remained on scene until 22:00 hours.

### Chaumont NY- July 27<sup>th</sup> through August 1<sup>st</sup>, 2023.

- 7/27/23- OFPC was requested for technical assistance at 16:49 for a fire that had started 13:10 at 2783 CR 179 in the Town of Lyme, Chaumont Fire District, Jefferson County NY. Air monitoring was conducted by OFPC for HCN specifically with no readings found at 19:41. OFPC was released from the scene by Chaumont FD and Jefferson County at 20:48 hours.
- 7/28/23- OFPC is requested to the incident by CFC Plummer and the Chaumont Fire Chief at 10:01. Staff arrives at noon and begins 24hour coverage of the scene. Staffing ramps up and will later include six or more FPS, Hazmat 2 and UAS support.
- 7/29/23- At 0500 staff reported all visible fire out, and CO detectable but very low near the perimeter of the hot zone (fence line) with readings in single digits only. Air monitoring in the Village of Chaumont showed 1ppm VOC, consistent with background or sensor drift and not deemed significant. Cooling operations which had started on day 1 continued, and at 18:37 showed temperatures of involved containers at 300-400 Fahrenheit degrees.
- 7/30/23- OFPC day shift at 0700 reports no significant changes overnight. A County UAS mission at 13:50 showed temperatures of 250 Fahrenheit degrees interior to 300 Fahrenheit degrees exterior. No readings were found with air monitors- sensors used were O<sub>2</sub>, H<sub>2</sub>S, LEL, CO, VOC and HCN. Cooling water operations ceased at 13:30. Temperatures by 17:30 had not increased.
- 7/31/23 OFPC on site all day- standing by. No significant findings to report.
- 8/1/23- OFPC UAS confirmed ambient temperatures only with one exception- the container of origin showed one area at 195 Fahrenheit degrees. Meters showed only trace presence of CO, VOC and HCN at the base of the containers. At 13:36 entry was made to conduct a safety survey in anticipation of investigators being allowed access. Nothing

significant was reported. At 17:00 the power feed was secured from the solar field by industry members. Investigators from OFPC, NYSP and DEC made entry to document the scene with OFPC and Watertown Hazmat on standby with Chaumont FD. At 18:43 OFPC Hazmat was released from the scene by Chaumont FD and Jefferson County.