STATE OF CALIFORNIA
REGIONAL WATER QUALITY CONTROL BOARD
CENTRAL COAST REGION

STAFF REPORT FOR REGULAR MEETING OF APRIL 17-18, 2025

Prepared on April 4, 2025

ITEM NUMBER:	**11**
SUBJECT:	**Executive Officer's Report to the Board**
STAFF CONTACTS:	**Ryan Lodge** **[805/549-3140** ryan.lodge@waterboards.ca.gov]
ACTION:	**Information/Discussion**
KEY INFORMATION:	**This item presents a brief overview of issues that may interest the Board. Upon request, staff can provide more detailed information about any item.**

MOSS LANDING ENERGY STORAGE FACILITY LITHIUM-ION BATTERY FIRE

This section of the Executive Officer's Report is an update of the activities related to the battery fire that occurred at the Moss Landing Energy Storage Facility on January 16, 2025, including summary of the incident, initial efforts to respond to the fire and address threats to human health and the environment, water quality issues of concern, and inter-agency coordination. The Site Cleanup Program is taking the lead to represent the Central Coast Water Board on water quality issues related to the battery fire.

Summary of Incident

On January 16, 2025, a Moss Landing Energy Storage Facility lithium-ion battery fire occurred, at 7301 Highway 1, Moss Landing in Monterey County. The Moss Landing Energy Storage Facility is operated by Texas-based Vistra Corporation (Vistra) on the site of a historic natural gas and oil power plant. The fire location is approximately 0.25 mile east of Moss Landing Harbor and adjacent to where the Old Salinas River, Moro Cojo Slough, Elkhorn Slough, and Bennett Slough converge with the Monterey Bay National Marine Sanctuary and the Pacific Ocean (Figure 1).

Initially, the batteries' internal water-cooling systems and the building's water-based fire suppressant system were used to suppress the fire. These systems were later disabled and firefighters allowed the fire to burn out to limit the potential for electrical short circuiting and subsequent thermal runaway. No other firefighting materials, such as aqueous film-forming foam (AFFF) with per- and polyfluoroalkyl substances (PFAS), were applied.

The release of ash and smoke led to air quality concerns that resulted in the evacuation of approximately 1,500 residents in the surrounding area. Air quality monitoring began on January 16, 2025. By the morning of January 17, 2025, the fire significantly subsided but continued to smolder for several days. Based on the results of the air quality monitoring, the evacuation order was lifted at 6:00 pm on January 17, 2025. On February 18, 2025, a flare up occurred within the same area as the original fire and burned out by February 20, 2025.

The fire was limited to the building housing the Phase 1 batteries (Building 300). The cause of the fire has not yet been determined, and cleanup activities have been limited to areas outside an exclusion zone. The fire caused significant structural damage to the building; it is anticipated that it will take at least 6 to 12 months to be deemed safe enough to investigate soil and groundwater impacts at the fire location.

Preliminary Fire-Related Site Assessments

Air Quality Monitoring and Soot Deposition Modeling

Soon after the fire started, U.S. Environmental Protection Agency (USEPA) began monitoring air for particulate matter and hydrogen fluoride, which is a highly toxic gas produced during lithium-ion battery fires. The USEPA installed nine monitoring stations throughout the facility, adjacent properties, and the nearby community. Data collected by USEPA showed concentrations of particulate matter to be consistent with the air quality index throughout the Monterey Bay and San Francisco Bay regions, with no measurements exceeding the moderate air quality level. Hydrogen fluoride gas was measured at one second intervals and there were no exceedances of California's human health standards.

In addition to the air quality monitoring conducted by USEPA, Vista conducted community air monitoring for hydrogen fluoride, hydrogen chloride, carbon monoxide, hydrogen cyanide, and particulate matter. Results from the Vistra study yielded no detections of these compounds, except for particulate matter (PM 2.5) which remained below the site-specific action level of 0.138 mg/m^3. The Federal Emergency Management Agency (FEMA) Interagency Modeling and Atmospheric Assessment Center (IMAAC) also prepared a soot model to illustrate the general area of concern based on a worse-case release. This model was used by public agencies and community groups to direct initial sampling efforts.

Preliminary Surface Screening

The California Environmental Protection Agency (CalEPA), in collaboration with Monterey County Health Department, Environmental Health Bureau (EHB), requested assistance from the Department of Toxic Substances Control (DTSC) to perform

preliminary surface screening using an X-Ray Fluorescence (XRF)[1] instrument and corresponding surface sampling to test for metals prior to an impending rain event. DTSC staff conducted 27 XRF surface scans across eight locations in Monterey County. In addition to the XRF scans, DTSC collected 8 surface samples to analyze total metals and polycyclic aromatic hydrocarbons (PAHs). DTSC determined that the data from this sampling indicates there are not elevated metals associated with the fire in soil. DTSC obtained soil samples directly north from the location of the fire and up to four miles away, including at residences, schools, and community parks. While initial surface screenings of ash and debris detected elevated levels of metals, subsequent soil samples did not. However, DTSC recommended additional sampling directly north of the site to further evaluate some elevated concentrations of PAHs.

DTSC also conducted limited surface water sampling during this period. Metals were analyzed in 2 water samples collected by DTSC staff and 6 water samples collected by Elkhorn Slough Reserve staff. Metals of concern (cobalt, copper, and nickel) were not detected in 7 of the 9 samples. Samples with detections ranged from 0.382 to 0.386 mg/L nickel and one sample had 0.327 mg/L cobalt.

Wipe Sampling

In emergency response situations, wipe sampling is used to collect surface contaminants for analysis is conducted to aid in assessing the extent of contamination and guiding remediation efforts. Community wipe sampling was conducted by Vistra and community-based volunteers who were organized by Never Again Moss Landing. The 124 wipe samples collected by community-based volunteers documented higher concentrations of metals of concern in wipe samples within approximately 10 miles of the fire.

The wipe sampling data and proposed wipe sample screening levels developed by Vistra were provided to DTSC's Human and Ecological Risk Office (HERO) for review. HERO concluded that the wipe data should not be used alone as a basis for additional sampling or for quantitative risk assessment and that comparisons of the wipe data to wipe screening levels may not well represent potential health risks of human receptors near where the wipe samples were collected. HERO recommended using the wipe data and the wipe screening levels together with other information, such as proximity to the fire, prevailing wind direction, surface gradient, runoff route, and presence of human receptors, to decide locations of additional sampling. Central Coast Water Board staff agree with HERO's recommendations.

[1] X-ray fluorescent (XRF) screening is a preliminary qualitative tool used to measure the concentration of metal at the surface of a material such as soil, plastic or paint. XRF surface screening is a quick tool that can help to identify areas of increased metal concentrations where media sampling for confirmatory, quantitative analytical results may be needed.

Water Quality Issues Related to Moss Landing Energy Storage Facility Fire

Central Coast Water Board staff are responsible for addressing the potential groundwater and surface water impacts that may have resulted from the discharge of wastes during and after the fire. This includes addressing water quality issues related to the ongoing infiltration at the burn location, particularly as a result of rain events and from surface water runoff of rainwater that encounters the burn debris.

Chemicals of Concern

Based on information included in material safety data sheets (MSDS) for the batteries and other known potential byproducts of combustion, the current list of chemicals of concern include metals (lithium [as a salt], cobalt, copper, nickel, and manganese), per- and polyfluoroalkyl substances (PFAS), dioxins and furans, and PAHs. Central Coast Water Board staff have requested that Vistra sample captured fire suppressant water for these constituents to help confirm chemicals of concern. Vistra has provided some of this information, but has not provided any data on PFAS, dioxins and furans, and PAHs. Coast Water Board staff continue to evaluate other available analytical methods to help refine the list of chemicals of concern.

Potential Groundwater Impacts

Central Coast Water Board staff have identified potential infiltration of fire suppressant water and subsequent stormwater to the subsurface as a potential risk to groundwater quality. Based on close proximity to Moss Landing Harbor (just a few hundred feet away from the Building 300 burn location) and historical shallow groundwater data depth and flow directions through high-permeability sand dune sediments, Central Coast Water Board staff requested that Vistra install groundwater monitoring wells surrounding the burn location to monitor for groundwater impacts and assess if containment measures will be needed to prevent spread of wastes via groundwater transport into Moss Landing Harbor and/or Elkhorn Slough. USEPA indicated it will likely be 6- to 12-months before sufficient waste and building debris removal will be done before it will be safe to install groundwater monitoring wells at and near the burn location.

On February 21, 2025, Central Coast Water Board staff meet with Vistra, CalEPA, DTSC, and Monterey County EHB on-site to conduct a site visit and discuss submittal of a work plan to install groundwater monitoring wells. Additionally, Central Coast Water Board staff participated in two virtual meetings with Vistra to discuss concerns regarding groundwater impacts and the submittal of a work plan. While a work plan hasn’t yet been submitted, Vistra is not objecting to the request for monitoring and has proposed installing three downgradient wells. Additional wells will be required to accomplish sufficient groundwater monitoring around the burn location; Discussions with Vistra are ongoing.

Potential Surface Water Impacts

Based on the proximity to multiple surface water bodies, including Moss Landing Harbor, Old Salinas River, Moro Cojo Slough, Elkhorn Slough, Bennett Slough and the Monterey Bay National Marine Sanctuary, and the aerial deposition of ash, the Central Coast Water Board have identified deposition of contaminants both during the initial incident and future discharges resulting from stormwater runoff as a potential risk to surface water quality. Central Coast Water Board staff will evaluate the data collected from the community sampling efforts and determine what additional sediment and surface water monitoring is needed.

Stormwater Management

Initial fire suppression water and stormwater collected within the first few days after the fire were captured via stormwater management facilities and stored in an on-site retention pond (Pond 3). Pond 3 water is currently being stored for transport off-site for disposal as hazardous waste. Significant storm events generated large volumes of potentially impacted stormwater. Until February 12, 2025, this stormwater was also captured via stormwater management facilities. Currently, this water is being stored on-site in Baker Tanks until chemical characterization is complete. Determinations on disposal will be made following the results of the chemical characterization. Vistra continues to capture stormwater from the Building 300 area, but they are no longer capturing stormwater from other portions of the site.

Community Sampling Request

On March 13, 2025, Monterey County EHB submitted a request for Vistra to prepare a community sampling plan that included soil sampling and surface water sampling at specified locations. Central Coast Water Board staff reviewed the draft community sampling plan requirements and provided input through the soil, ambient water, and debris subgroup. In response to this request by EHB, Vistra submitted a Soil Sampling Work Plan (Work Plan) on March 26, 2025. The Work Plan proposes evaluating cobalt, copper, lithium manganese, and nickel in soil at 14 locations ranging from approximately 0.25 to 4.5 miles from the fire location. The Work Plan proposes conducting sediment, pore water, and surface water sampling at a later phase but does not provide specifics on the extent of sampling or timing of this phase of work. Central Coast Water Board staff will continue to provide technical recommendations to EHB during their review of the Work Plan.

Multi-Agency Coordination

Monterey County EHB is coordinating closely with USEPA, CalEPA, State Water Resources Control Board (SWRCB), Central Coast Water Board, DTSC, California Department of Fish and Wildlife, Office of Environmental Health Hazard Assessment, and Monterey Bay Air Resources District to oversee the cleanup. These coordination efforts include several weekly meetings. Central Coast Water Board staff currently

participate in soil, ambient water, and debris subgroup meetings, State-only agency meetings, and general all agency meetings that include State agencies, Monterey County Health Department, and USEPA. CalEPA is acting as the primary point of contact for the State agencies and is managing information requests to Vistra from individual State agencies.

The USEPA will oversee the cleanup of an estimated 23 million pounds of surface wastes from the fire. Cleanup may include on-site recycling of the batteries and off-site disposal at permitted land disposal units. In alignment with historical cleanup activities at the Moss Landing power plant, DTSC agreed to retain a lead agency role for "traditional" site cleanup oversight separate from the USEPA-led surface waste removal. However, DTSC and the Central Coast Water Board have agreed that the Central Coast Water Board will lead on groundwater and surface water investigation and cleanup issues related to the fire.

Next Steps

The Central Coast Water Board is continuing to work with Vistra Corporation, CalEPA, SWRCB, and the other agencies to determine additional actions to protect water quality.

Additional Information

Additional information about the Moss Landing Energy Storage Facility, Vistra Corp. – Lithium-Ion Battery Fire is available online:

- County of Monterey Emergency, Readiness, Response, and Recovery, 2025 Moss Landing Vistra Power Plant Fire: https://www.readymontereycounty.org/emergency/2025-moss-landing-vistra-power-plant-fire

- Vistra Corporation web site: https://www.mosslandingresponse.com

Figure 1: Aerial photograph showing the Moss Landing Energy Storage Facility, Vistra Corp. lithium-ion battery fire location and nearby surface waters.

STATE WATER RESOURCES CONTROL BOARD FUNDING INFORMATION

The State Water Board Division of Financial Assistance (DFA) administers a number of funding programs supporting wastewater and drinking water infrastructure projects in addition to other water quality protection and restoration projects. See the DFA website[2] for information regarding available loan and grant programs administered by the State Water Board.

State Water Board DFA maintains the following online dashboards tracking project funding applications and funded projects:

[2] DFA website: https://www.waterboards.ca.gov/water_issues/programs/grants_loans

Application Status Search Tool,[3] allows users to search for the status of State Water Board drinking water and clean water State Revolving Fund (SRF) project applications that have been submitted for funding consideration and are currently under review (this portal does not include approved projects).

Program funding dashboard,[4] documents funded projects and descriptions via pull down menu options and graphics by funding program and geographic area for the most recent fiscal year for which the funding cycle has ended.

PROGRAM PERFORMANCE MEASURES

Please see the following standard attachments.

ATTACHMENTS

1. Table 1 - 401 Water Quality Certification Applications Received
2. Table 2 - 401 Water Quality Certifications Issued
3. Table 3 - Groundwater Section, Case Closure Performance Scoreboard
4. Table 4 - Groundwater Case Closures
5. Table 5 - Enrollments in General Orders/Waivers

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[3] Application Search Tool: https://public.waterboards.ca.gov/dfaAppSTAT/
[4] State Water Board Division of Financia Assistance project funding dashboard: https://app.powerbigov.us/view?r=eyJrIjoiZjk1ZjM5ZWQtOTFkYi00OGFjLThhMjUtMjJjMzlmYTI1ZTEwIiwidCI6ImZlMTg2YTI1LTdkNDktNDFlNi05OTQxLTA1ZDIyODFkMzZjMSJ9