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*Comment Received From: Karell Reader*  
*Submitted On: 5/30/2026*  
*Docket Number: 26-OPT-02*

## **Toxins from BESS Firefighting Water Run-off**

Please, read carefully the attached letter and the cited research on the toxicity of the firefighting water run off. Take this into consideration when examining the potential siting of the Seahawk BESS near Watsonville.

*Additional submitted attachment is included below.*

PO Box 74  
Aptos, California 95001  
May 31, 2026

Eric Veerkamp, Project Manager  
California Energy Commission  
715 P Street, MS-40  
Sacramento, California 95814

Re: Siting of the Seahawk BESS on Farmland next to Neighborhoods and our Water Sources

Dear Mr. Veerkamp:

Please include these scientific studies on the firefighting run-off water that support our concerns for protecting the Pajaro Valley's water sources and the health of our environment and neighbors. The location at 90 Minto Road is dangerous and entirely inappropriate for this type of facility. Most of the studies below relate to the thermal runaway on just one or two modules, not even a worst case scenario full conflagration of an entire facility.

Toxic water from BESS fire run-off is why the Standard operating procedure for firefighters is now to "Let it burn"...

These research papers discuss the additional risk of toxic and contaminated water running off-site or even being absorbed in the ground.

How would this impact neighboring properties- besides being declared a superfund site by the EPA?

The uncontrolled release of lithium BESS fire-water runoff would be far worse than verified levels of high concentrations of **heavy metals, fluoride, and nutrients** found in the EPA's test results and would lead to severe, complex, and potentially long-lasting **negative impact** on adjacent properties, farmland and underlying aquifers.

While each one of the toxins released would be bad individually, the extreme danger comes from the unique combination of contaminants that are simultaneously toxic, corrosive, and nutrient-rich.

### **IMPACT ON AQUIFERS (GROUNDWATER)**

Aquifers are highly susceptible to contamination from surface water runoff infiltrating the soil. The contaminants' levels found pose a high risk to groundwater quality.

#### 1. Heavy Metal Contamination (Long-Term Risk)

The high levels of **Zinc , Nickel , Cobalt , and Lead** are of greatest concern for groundwater.

**Infiltration and Residence Time:** The metals can be carried into the groundwater system by infiltration through soils.

Once there, chemical pollutants can persist for **weeks, months, years, or even decades**, making the water unsuitable for drinking or irrigation for a significant period.

**Mobility:** While some metals (like Iron and Aluminum) may precipitate out and be "locked up" in the soil depending on PH of the soil. Others like **Cobalt and Lithium** may be more mobile and rapidly travel toward the aquifer.

**Human Health Risk:** Contaminated groundwater that is used for farm irrigation or as a drinking water source for nearby residences poses a direct human health risk from toxic metal ingestion.

## 2. Fluoride Contamination

The extremely high concentration of **Fluoride** could enter the aquifer, causing long-term issues.

**Solubility:** Fluoride's mobility in soil is dependent on PH and the concentration of other minerals (like Calcium and Aluminum).<sup>6</sup> In many soils, F mobility is high, posing a direct threat to groundwater.

**Health Risk:** High fluoride in drinking water causes **dental and skeletal fluorosis**, especially in children, and may cause other illnesses.



## IMPACT ON FARMLAND AND CROPS

The direct contact or irrigation of farmland with the untreated runoff would be highly destructive to soil health, crop productivity, and the food chain.

### PHYTOTOXICITY FROM METALS AND FLUORIDE

**Crop Health and Productivity:** The extreme levels of heavy metals like **Zinc, Nickel, Cobalt, and Aluminum** can cause **oxidative stress** in plants, disrupting cell function, enzyme activity, and photosynthesis. This leads to **reduced crop yield, stunted growth, and death** (Source 1.2).

**Fluoride Toxicity:** High concentrations of fluoride are **phytotoxic** (toxic to plants). It accumulates in plant leaves, causing visible injuries like **necrosis (dead tissue) and chlorosis (yellowing)**, typically starting at the tips and margins. This high F concentration can significantly impact plant metabolism, growth, and productivity (Source 3.3).

### **Food Chain Transfer (Bioaccumulation)**

**Crop Uptake:** Plant roots are the primary point of contact for heavy metals in the soil. While plants have mechanisms to reduce pollutant bioavailability, some metals will still be absorbed and accumulate in the edible parts of crops (Source 1.3).

**Risk to Animals and Humans:** When humans or grazing animals consume crops grown on metal-contaminated soil, the pollutants are transferred up the food chain. This can lead to **chronic toxicity** and health problems in both livestock and people (Source 1.3).

### **Soil Ecology and Nutrient Disruption**

**Soil Microbes:** The toxic metals and high fluoride can devastate the **soil microbial community**, which is essential for nutrient cycling, soil structure, and overall soil health (Source 3.4).

**Nutrient Overload (Phosphate):** The high **Phosphate** is a major nutrient. While low levels are beneficial, this level is likely an **overload**, which can disrupt the balance of other essential soil minerals and promote the growth of unwanted organisms, leading to **eutrophication** in any nearby surface water bodies.

In summary, the BESS runoff represents a major environmental liability. Its release would initiate contamination pathways that could render adjacent **aquifers unusable** for years and severely damage **farm soil health and crop safety**, leading to long-term economic and environmental consequences.

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The 11-day Chandler BESS fire that used over 6 million gallons of water, required dozens of tanker trucks to pump the toxic water and haul it offsite as toxic waste (see included pic of tanker trucks at Chandler BESS):

<https://www.facebook.com/share/p/1BdFJ6UCLs/>

MDPI

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

Various Natural and Anthropogenic Factors Responsible for Water Quality Degradation: A Review – MDPI

Consequently, these toxic pollutants are released into river water either directly or indirectly, mainly by industrial waste, municipal and urban factors, as ...

MDPI

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

Various Natural and Anthropogenic Factors Responsible for Water Quality Degradation: A Review - MDPI

When groundwater is polluted with toxic chemical compounds through human activities it can become unsuitable for several years [25]. The residence time of ...

Exponent

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

Is Firefighting Water from Battery Fires Hazardous? - Exponent

Exponent's work helped utilities and BESS site managers understand the potential water quality impacts of firefighting at BESS facilities, including which ...

ResearchGate

[www.researchgate.net](http://www.researchgate.net)

Impact of fluoride on agriculture: A review on it's sources, toxicity in plants and mitigation strategies – ResearchGate

The pH, clay and organic carbon in the soil are mainly responsible for the retention of fluoride in the soil. In soils, fluoride is primarily associated with ...

Frontiers

[www.frontiersin.org](http://www.frontiersin.org)

Fluoride Exposure and Probabilistic Health Risk Assessment Through Different Agricultural Food Crops From Fluoride Endemic Bankura and Purulia Districts of West Bengal, India – Frontiers

Intake of high doses of fluoride can cause several diseases such as ligaments calcification, liver and kidney dysfunction, nerve weakness, developmental ...

ResearchGate

[www.researchgate.net](http://www.researchgate.net)

Impact of fluoride on agriculture: A review on it's sources, toxicity in plants and mitigation strategies - ResearchGate

- ~ 1677 ~ - collapse due to F toxicity (Panda, 2015) . . . (Landis et al., 2011) . - Fig 1: Leaf spots due to fluorine toxicity (Neil Bell, 2009) - In most ...

NIH

[pmc.ncbi.nlm.nih.gov](http://pmc.ncbi.nlm.nih.gov)

Effect of soil contamination with fluorine on the yield and content of nitrogen forms in the biomass of crops – NIH

The negative effect of fluorine on plants is manifested, for example, by chlorosis (yellowing) and necrosis of leaves as well as a decreasing content of ...

ResearchGate

[www.researchgate.net](http://www.researchgate.net)

Impact of fluoride on agriculture: A review on it's sources, toxicity in plants and mitigation strategies - ResearchGate

F toxicity has a deleterious effect on plant metabolic activity, low nutrient uptake, seed germination, growth and productivity, biomass accumulation, ...

PubMed Central - NIH

[pmc.ncbi.nlm.nih.gov](http://pmc.ncbi.nlm.nih.gov)

Heavy Metals and Pesticides Toxicity in Agricultural Soil and Plants: Ecological Risks and Human Health Implications - PubMed Central

Heavy metal accumulation can be described as an aggregation of elements in the ecosystem. Plant roots are the essential point of contact for heavy metal ions ...

Frontiers

[www.frontiersin.org](http://www.frontiersin.org)

Fluoride Exposure and Probabilistic Health Risk Assessment Through Different Agricultural Food Crops From Fluoride Endemic Bankura and Purulia Districts of West Bengal, India –

Frontiers

The dietary intake of fluoride enriched crops and vegetables was found to stimulate chronic toxic effect on both the human and animal body system who feed in ...

PubMed Central - NIH

[pmc.ncbi.nlm.nih.gov](http://pmc.ncbi.nlm.nih.gov)

Heavy Metals and Pesticides Toxicity in Agricultural Soil and Plants: Ecological Risks and Human Health Implications - PubMed Central

The accumulation of heavy metals in internal human tissues can affect the central nervous system, and act as a pseudo-co-factor or promotor of some health ...

WTW

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

From first sparks to long-term liabilities: The ripple effects of BESS failures - WTW  
Under both scenarios, this runoff can cause pollution and thus environmental legal liabilities relating to third-party damage and clean-up.” ...

I will follow up with a letter concerning size and engineering of retention ponds that can handle retaining firefighting run-off water in the event of a catastrophic failure requiring millions of gallons which would be likely in the case of a geologic event along the faultline where this BESS is proposed.

Please, read and consider all this information in the design and any permitting for this BESS at 90 Minto Road. Our concerns are valid and need to be given the full weight in the

Commisson's decisions on this project. We do not wish to be victims of an ill-informed faulty process that puts our lives and our livelihoods at risk.

Thank you for your consideration.

*Karell Reader*

Karel Reader