

Date of Hearing: July 1, 2025

ASSEMBLY COMMITTEE ON ENVIRONMENTAL SAFETY AND TOXIC MATERIALS

Damon Connolly, Chair

SB 234 (Niello) – As Amended June 27, 2025

SENATE VOTE: 37-0

SUBJECT: Wildfires: workgroup: toxic heavy metals

SUMMARY: Creates a workgroup among state agencies to, among other requirements, establish best practices and recommendations for wildfire-impacted communities, first responders, and other people engaged in wildfire response and cleanup to avoid exposure to heavy metals after a wildfire. Specifically, **this bill:**

- 1) Makes legislative findings about the impacts of wildfires on California, including about the health risks associated with wildfires.
- 2) Requires, upon appropriation by the Legislature, the Department of Forestry and Fire Protection (CAL FIRE), the Office of Emergency Services (Cal OES), and the Department of Toxic Substances Control (DTSC), in consultation with academic and research institutions with demonstrated relevant expertise and any other governmental agency, educational institution, or representatives of other organizations representing people exposed to potential toxic heavy metals in response to a wildfire, as specified, to form a workgroup related to exposure to toxic heavy metals after a wildfire.
- 3) Requires the workgroup to do all of the following:
 - a) Establish best practices, including outreach, and recommendations for wildfire-impacted communities, first responders, and other personnel engaged in wildfire response and cleanup to avoid exposure to heavy metals after a wildfire;
 - b) Study and consider ways that communities can mitigate and prevent exposure to heavy metals from a wildfire;
 - c) Study and consider ways that communities can mitigate or remediate the accumulation of heavy metals in the environment after a wildfire, including, but not limited to, bioremediation through vegetation, fungal, or bacterial treatments; and,
 - d) Study and consider ways that fire departments, agencies, and other organizations can develop and implement best practices and policies for avoiding, minimizing, and mitigating exposure risk.
- 4) Authorizes CAL FIRE to contract with public universities, research institutions, and other technical experts to support the work of the workgroup.
- 5) Requires, not more than three years after the convening of the first meeting of the workgroup, CAL FIRE, Cal OES, and DTSC to report the workgroup's findings to the Legislature.

EXISTING LAW:

- 1) Establishes CAL FIRE within the California Natural Resources Agency and vests CAL FIRE with responsibility for fire protection, fire prevention, maintenance, and enhancement of the

state's forest, range, and brushland resources, contract fire protection, associated emergency services, and assistance in civil disasters and other nonfire emergencies. Requires CAL FIRE to coordinate programs of fire protection, fire prevention, pest control, and forest and range maintenance and enhancement. (Public Resources Code (PRC) § 701 et seq.)

- 2) Establishes Cal OES within the Governor's Office under the supervision of the Director of Emergency Services. Vests CAL OES with responsibility for the state's emergency and disaster response services for natural, technological, or man-made disasters and emergencies, including responsibility for activities necessary to prevent, respond to, recover from, and mitigate the effects of emergencies and disasters to people and property. (Government Code (GC) § 8585 et seq.)
- 3) Establishes the Hazardous Waste Control Law (HWCL) and authorizes DTSC to regulate the management of hazardous wastes in California. (Health and Safety Code (HSC) § 25100 et seq.)
- 4) Requires DTSC to prepare, adopt and revise when appropriate, a listing of wastes that are determined to be hazardous, and a listing of wastes that are determined to be extremely hazardous. Requires DTSC, when identifying such wastes, to consider, but not be limited to, the immediate or persistent toxic effects to humans and wildlife and the resistance to natural degradation or detoxification of the wastes. (HSC § 25140)

FISCAL EFFECT: Unknown.

COMMENTS:

Need for the bill: According to the author,

"Between 2018 and 2025, California's fire seasons were among the most destructive on record, with millions of acres burned, thousands of homes destroyed, and dozens of lives lost. The magnitude and scale of these wildfires have created unprecedented challenges for affected Californians, including years-long site cleanup and hazardous material removal, prolonged displacement, and serious health complications.

A recent Stanford University study showed that unmanaged wildfires can release toxic metal particles. Specifically, the study showed extreme high heat wildfires can transform a natural element in soils into a potentially cancer-causing and airborne metal known as hexavalent chromium, or chromium 6. Chromium 6 can possibly increase cancer risk when inhaled or ingested. Other serious health consequences include asthma, heart attacks, and early death, due to its toxicity.

These health risks to firefighters, disaster response workers, and California residents living and working near or downwind from conflagrations from airborne chromium 6 need to be further vetted and mitigated. More research and study is needed to better understand how to limit high-heat fires, which increase exposure to chromium 6, by implementing strategies, including controlled burns and other forest clean-up measures.

Further research and mitigation strategies will better protect humans and ecosystems, including waterways and groundwater."

Wildfires in California: According to the California Air Resources Board (CARB), climate change, primarily caused by the burning of fossil fuels, is increasing the frequency and severity of wildfires, not only in California but also all over the world. The Office of Environmental Health Hazard Assessment (OEHHA) noted in 2022 that the area burned by wildfires and the number of large fires (10,000 acres or more) across the state have increased markedly in the last 20 years—trends influenced by altered fuel conditions and climate change. Wildfires in 2020 burned an unprecedented 4 million acres across California. In 2021, about 2.6 million acres burned, making it the second highest burn year, followed by 2018, with 1.5 million acres burned. CAL FIRE data shows that as of 2024, half of the state's 20 largest fires in recorded history had occurred over the previous five years, with all but one of the state's largest fires occurring in the 21st century. CAL FIRE data also show that four out of the five most destructive wildfires in California history happened in just the last 10 years. In 2025, the Eaton and Palisades fires in Los Angeles County destroyed over 16,000 structures and burned 38,000 acres combined; in 2018, the Camp Fire in Butte County destroyed nearly 19,000 structures and burned 153,000 acres; and in 2017, the Tubbs Fire in Napa and Sonoma counties destroyed more than 5,500 structures and burned nearly 37,000 acres.

Wildfires and toxic exposure: CARB states that California is facing increasingly catastrophic wildfire seasons, and notes that wildfire smoke – a complex mixture of air pollutants – is unhealthy to breathe and can be especially dangerous for children, the elderly, pregnant women, and people with heart or respiratory conditions. According to CARB, air pollutants from wildfires include particulate matter and toxic air contaminants. CARB specifies that when wildfires burn structures, they produce a range of harmful and toxic substances, including metals, carbon monoxide, hydrogen cyanide, and toxic volatile organic compounds. To illustrate this point, on July 2021, CARB released the report, "Camp Fire Air Quality Data Analysis." This analysis compares the air quality data from the 2018 Camp Fire, which burned 19,000 structures, to the air quality data of other large wildfires in 2018 that mostly burned vegetation. In the analysis CARB found elevated levels of lead, zinc, calcium, iron, and manganese from the Camp Fire, some of which were detected 150 miles from the wildfire site (in San Jose and Modesto, CA).

Chromium 6 and wildfires. Senate Bill (SB) 234 includes findings that highlight a December 2023 study by researchers at Stanford University. The study, "Metal toxin threat in wildland fires determined by geology and fire severity," published in *Nature Communication*, found that toxic metals – specifically hexavalent chromium (chromium 6) – may be released into the environment following an extreme high heat fire event. In nature, chromium most commonly occurs in a form known as trivalent chromium (chromium 3), but may also occur in the form of chromium 6 in rocks. Chromium can enter groundwater by the weathering of rocks or from industrial contamination. Oxidizing chromium 3, such as by high heat, produces chromium 6. Chromium 6 is the most toxic form of the metal chromium.

The *Nature Communication* study reported that in naturally occurring chromium-rich areas in California where wildfires burned at high heat for long time periods, toxic chromium 6 concentrations were found at levels approximately seven times higher than in unburned areas. Additionally, relatively dry post-fire weather contributed to the persistence of elevated levels of chromium 6 in surface soil layers for up to 10 months after the fire, suggesting that the potential for elevated particulate matter concentrations of chromium 6 in the atmosphere likely persisted, as well. While metals in soils and ash have been linked to structural burning within wildland-

urban interfaces for a while, this study highlights another source of potential chromium 6 contamination.

Humans are exposed to chromium 6 is through inhalation by breathing polluted air, ingestion by drinking contaminated water, or dermal contact by touching contaminated soil. Research has shown that chromium 6 can cross the placenta barrier – passing from mother to baby. Chromium 6 is listed on California's Proposition 65 list, pursuant to the Safe Drinking Water and Toxic Enforcement Act of 1986, as a carcinogen (since 02/27/1987), a developmental toxicant (since 12/19/2008), and as a reproductive toxicant for both sexes (since 12/19/2008). In 2023, CARB adopted a rule to phase out chromium 6 at industrial facilities, noting that there was "no known safe level of exposure" to chromium 6.

Firefighters and cancer: According to the National Institute for Occupational Safety and Health (NIOSH), cancer is the leading cause of death among firefighters. Research suggests that firefighters are at higher risk of certain types of cancers compared to the general population. During fire events, firefighters can be exposed to hundreds of different chemicals in the form of gases, vapors, and particulates. Exposure can be through inhalation, ingestion, through their eyes, or by handling protective clothing.

In 2022, the International Agency for Research on Cancer (IARC) published an IARC Monograph on, "Occupational Exposure as a Firefighter." In this publication, IARC classified occupational exposure as a firefighter as "carcinogenic to humans." This classification is based on sufficient evidence for cancer in humans, specifically mesothelioma and bladder cancer, from firefighters' occupational exposure. IARC also concluded there was limited evidence for colon cancer, prostate cancer, testicular cancer, melanoma, and non-Hodgkin lymphoma related to firefighters' occupational exposure.

Wildfire Debris Removal and Recovery Operations: The Department of Resources Recycling and Recovery (Cal Recycle) implements the Consolidated Debris Removal Program, and notes that wildfire debris must be safely removed to prevent more harm to people and communities. Cal Recycle describes the two phase wildfire debris removal and recovery process as: Phase 1: visible household hazardous waste removal happens right away; and, Phase 2: remaining contaminated ash and debris is safely removed taking environmental precautions.

DTSC or the United States Environmental Protection Agency are tasked with Phase 1 of the process, which is the removal of visible household hazardous waste, such as household batteries, bulk pesticides, paints, household cleaners, and bulk asbestos from impacted areas. This Phase is meant to reduce public and recovery workers' toxic exposure. Under Phase 1, toxic materials such as lead, mercury, arsenic, and asbestos remain under heavy debris and mixed into ash and soil.

Following DTSC's work, Cal Recycle implements Phase 2. Phase 2 consists of debris removal such as concrete, metal, ash and the top 3 - 6 inches of contaminated soil. Soil testing and contaminated soil removal are part of the process because toxins like arsenic, lead, mercury, and chlorine can be present. Since Phase 1 does not remove all asbestos, Phase 2 crews will conduct a full asbestos assessment and removal.

This bill: This bill requires, upon appropriation by the Legislature, CAL FIRE, Cal OES, and DTSC, in consultation with academic and research institutions with demonstrated relevant

expertise, and any other governmental agency, educational institution, or representatives of other organizations representing people exposed to potential toxic heavy metals in response to a wildfire that has experience in occupational and public health and wildfires, to form a workgroup related to exposure to toxic heavy metals after a wildfire. This bill requires the workgroup to establish best practices and recommendations for wildfire-impacted communities, first responders, and other personnel engaged in wildfire response and cleanup to avoid exposure to heavy metals after a wildfire; study and consider ways that communities can mitigate and prevent exposure to heavy metals from a wildfire; study and consider ways that communities can mitigate or remediate the accumulation of heavy metals in the environment after a wildfire; and, study and consider ways that fire departments, agencies, and other organizations can develop and implement best practices and policies for avoiding, minimizing, and mitigating exposure risk.

This bill then requires, not more than three years after the convening of the first meeting of the workgroup, CAL FIRE, Cal OES, and DTSC to report the workgroup's findings to the Legislature.

Arguments in support:

The American Federation of State, County, and Municipal Employees (AFSCME), AFL-CIO writes in support of the bill,

"Catastrophic wildfires, such as those recently experienced in Los Angeles, have numerous adverse human health and environmental impacts that may continue even after the wildfire has been extinguished. There is extensive body of research on the health impacts of exposure to wildfire smoke and the risk of exposure to carcinogenic materials and incidence of cancer amongst firefighters who are front and center in firefighting, yet there is little research on the health risks that non-emergency public employees engaged in recovery response are exposed to.

In 2019, AFSCME worked with our affiliate, Local 119, the skilled Automotive/Helicopter Mechanics and Equipment Maintenance Workers and Repairmen, employed by the County of Los Angeles on AB 1400 (Chapter 717, Statutes of 2019.) to have the Commission on Health and Safety and Workers Compensation (CHSWC) research health risks related to exposure to carcinogens on the equipment they service. Local 119 members continue to experience clusters of members being diagnosed with and dying from cancer. The study is expected to begin this year, despite a five-year delay, yet the more time that lapses, these men and women continue to face ever-increasing risks of developing adverse health risks.

The magnitude and scale of recent wildfires have created unprecedented challenges for our public employees tasked with clean-up and debris removal, including years-long site cleanup and hazardous material removal, and serious health complications. Public works and parks and recreation employees in LA County have been working over-time to help restore their communities with little training on how to protect themselves with properly fitted PPE and respirators.

SB 234 is an opportunity to develop a model for local governments to mitigate their employees' health risks following a catastrophic wildfire, and most importantly, can help save lives."

The California Fire Chiefs Association (CalChiefs) and the Fire Districts Association of California (FDAC) writes in support of the bill, "Emerging research, including findings from Stanford University, has revealed that high-heat wildfires can transform naturally occurring elements in soil into airborne toxins such as hexavalent chromium (chromium 6)—a dangerous, cancer-causing compound. These toxins pose significant risks to firefighters, emergency personnel, and nearby communities, with potential long-term impacts on respiratory and cardiovascular health... SB 234 takes a proactive and science-based approach to protecting both the public and first responders by developing best practices to minimize exposure and informing strategies for future wildfire response and forest management."

Arguments in opposition: None on file.

Related legislation:

- 1) AB 372 (Bennett, 2025). Establishes, contingent upon funding appropriated from a 2024 bond act, the Rural Water Infrastructure for Wildfire Resilience Program for the distribution of state matching funds to urban wildland interface communities in high and very high fire hazard severity zones. This bill is pending before the Senate Committee on Natural Resources and Water.
- 2) SB 223 (Alvarado-Gil, 2025). Would have required the State Department of Public Health to create, operate, and maintain a statewide integrated wildfire smoke and health data platform, as specified. This bill was held on the suspense file in the Senate Appropriations Committee.
- 3) SB 326 (Becker and Laird, 2025). Requires CAL FIRE to develop a Wildfire Risk Mitigation Planning Framework, to prepare a Wildfire Risk Baseline and Forecast every three years, and a Wildfire Mitigation Scenarios Report, as provided, in part to address health risks. This bill is pending before the Assembly Committee on Emergency Management.
- 4) SB 945 (Alvarado-Gil, 2024). Would have required the State Department of Public Health to create, operate, and maintain a statewide integrated wildfire smoke and health data platform, as provided. This bill was held on the suspense file in the Assembly Appropriations Committee.
- 5) SB 1014 (Dodd, 2024). Would have required Cal OES to develop a Wildfire Risk Mitigation Planning Framework, to prepare a Wildfire Risk Baseline and Forecast every three years, and a Wildfire Mitigation Scenarios Report, as provided, in part to address health risks. This bill was held on the suspense file in the Assembly Appropriations Committee.
- 6) SB 1176 (Niello, 2024). Would have required CAL FIRE, Cal OES, and DTSC to form a workgroup and, by January 1, 2026, report to the Legislature on exposure to toxic heavy metals after a wildfire. This bill was held on the suspense file in the Assembly Appropriations Committee.
- 7) AB 102 (Ting, Chapter 38, Statutes of 2023). Appropriates \$7 million from the General Fund to the University of California, in partnership with the State Department of Public Health and the FIRESCOPE Program Cancer Prevention Subcommittee, for the California Firefighter Cancer Prevention and Research Program.

- 8) AB 700 (Grayson, Chapter 268, Statutes of 2023). Establishes the California Firefighter Cancer Prevention and Research Program, and requests the University of California to develop a research grant program to understand firefighter exposures to chemical carcinogens.
- 9) SB 436 (Dodd, 2023). Would have required Cal OES to develop a Wildfire Risk Mitigation Planning Framework to prepare a Wildfire Risk Baseline and Forecast every three years, and a Wildfire Mitigation Scenarios Report, as provided, in part to address health risks. This bill was held on the suspense file in the Senate Appropriations Committee.

Double referral: This bill was double referred to the Assembly Committees on Natural Resources and on Environmental Safety and Toxic Materials. It passed out of the Committee on Natural Resources on a 14 - 0 vote on June 23, 2025.

REGISTERED SUPPORT / OPPOSITION:

Support

American Federation of State, County and Municipal Employees, AFL-CIO
California Fire Chiefs Association
California Forestry Association
California Professional Firefighters
Fire Districts Association of California

Opposition

None on file.

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