PESTICIDE REGISTRATION AND EVALUATION COMMITTEE (PREC) Meeting Minutes – September 18, 2026

Committee Members/Alternates in Attendance:

Elizabeth Marder – California Department of Public Health (CDPH)
Fabiola Estrada – U.S. Environmental Protection Agency (U.S. EPA), Region 9
Fatemeh Ganjisaffar – California Department of Food and Agriculture (CDFA)
Kevi Mace (Alternate) – CDFA
Katie Sutherland-Ashley – Office of Environmental Health Hazard Assessment (OEHHA)
Kevin Graulich (Alternate) – Department of Industrial Relations (DIR)
Kristin Pidcock – CalRecycle
Mai Ngo – Department of Toxic Substances Control (DTSC)
Nan Singhasemanon (PREC Chair) – Department of Pesticide Regulation (DPR)
Ryan Bourbour – Department of Fish and Wildlife (DFW)
Stan Armstrong – California Air Resources Board (CARB)
Stephen Scheer – California Agricultural Commissioners and Sealers Association (CACASA)
Tom Ineichen – Structural Pest Control Board (SPCB)
Kathleen Boyle (Alternate) – SPCB
Wendy Linck, PG, PMP – State Water Resources Control Board (SWRCB)
David Fairman (Alternate) – SWRCB
Jonathan Williams (Alternate) – SWRCB

Visitors in Attendance:

Note: Only attendees who identified themselves or could be identified by DPR are listed.

Andy Hedgecock, Spectrum Brands
Ann Jonynas, AMVAC
Anna VerMeer, Safety Call
Anne Komarovsk
Anne Katten, California Rural Legal Assistance Foundation
Beth Breeding, Boehringer Ingelheim
Bob Schramm, SWA consult
Daniel Hu, Exponent
Emily Saad, Exponent
Eric Chu, California Council on Science and Technology (CCST)
Gerald Holmes, CCST
Gene Harrington, Animal Health Institute
Heather Kern, Douglas Products
James McFadden, Central Garden and Pet Company
James Nakashima, OEHHA
Jason Kilian, OEHHA

Jay Harriman, Boehringer Ingelheim
Jennifer Stafford, Control Solutions Inc (CSI)
Jenny Broome, CCST
Jing Tao, OEHHA
Julius Reitemeier, Exponent
Karen Da Silva, Corteva
Kathleen Kilpatrick, Safe Ag / Safe Schools (SASS)
Katy Hernandez, Ceva Animal Health
Kevin Finnegan, Hartz
Kim Parra, CCST
Leanna Bosarge, CSI
Marcia Trostle, Nutrien
Margaret Reeves, Pesticide Action Network North America (PANNA)
MaryLou Verder-Carlos, Exponent
Matt Roman
Mayra Sanchez, Californians for Pesticide Reform (CPR)
Megan McCarthy, Virbacus
Michelle Lin, City of San Jose
Mike Zeiss, CPR
Nikki Mayes, Boehringer Ingelheim
Rachel Cumberbatch, Boehringer Ingelheim
Raisa Rahim
Regina Ware, Spectrum Brands
Renee Pinel, Healthy Plants Org
Rhonda Stevenson
Savannah Gosselin, Kahn, Soares, and Conway (KSC) Lawyers
Shawn Fields, TriCal
Sophie Johnson, Ramboll
Valerie Pagano

DPR Staff in Attendance:

Ajay Kumar – Pesticide Registration Branch
Andrew Turcotte – Pesticide Registration Branch
Andy Viet Nguyen – Pesticide Registration Branch
Ann Shaffner – Worker Health and Safety Branch
Anson Main – Environmental Monitoring Branch
Brittanie Clendenin – Pesticide Registration Branch
Byron Tam – Integrated Pest Management Branch
Celia Pazos – Environmental Justice and Equity Division - Deputy Director
David Bonnar – Human Health Assessment Branch
Elana Varner – Pesticide Registration Branch
Erik Kwok – Human Health Assessment Branch
Jagjinder Sahota – Worker Health and Safety Branch

Jeanne Martin – Enforcement Headquarters Branch
Jeff Nagle – Environmental Monitoring Branch
John Wheeler – Environmental Monitoring Branch
Kyle Sherbin – Environmental Monitoring Branch
Lauren Timmons – Pesticide Registration Branch
Laurie Brajkovich – Registration and Evaluation Division
Lucy Graham – Worker Health and Safety Branch
Nan Singhasemanon – Sustainable Pest Management Division
Natalie Jarrell – Pesticide Registration Branch
Madison Le – Monitoring and Mitigation Division - Deputy Director
Maziar Kandelous – Environmental Monitoring Branch
Rachel Olmstead – Sustainable Pest Management Division
Robert Budd – Environmental Monitoring Branch
Robert Sheffer – Pesticide Registration Branch
Sam Raburn – Sustainable Pest Management Division
Samantha Jones – Human Health Assessment Branch
Sapna Thottathil – Sustainable Pest Management Division - Deputy Director
Sergy El-Morshedy – Communications and Outreach
Taylor Whitehill – Pesticide Registration Branch
Yina Xie – Environmental Monitoring Branch

1. Introductions and Committee Business – Nan Singhasemanon, Chair, DPR

a. In August, the PREC received several emails from DPR regarding:
   - Voluntary cancellation of all CA registrations for paraquat products
   - Proposed regulations on service container labeling
   - Proposed regulations on pesticide registration-related regulatory updates
   - DPR's Fipronil Aquatic Risk Memo

b. DPR also sent out an announcement earlier in September on a steam pilot project in the Pajaro Valley to evaluate a fumigant alternative. Several berry producers will use steam this summer and fall to determine if it is an effective and feasible option, particularly near schools or other sensitive sites. DPR is funding other innovative sustainable pest management (SPM) pilot projects, including a project in Fresno and Stanislaus counties on Navel Orange Worm. More details on this were presented at the SPM Advisory Committee meeting held virtually yesterday. The recording will be available on our YouTube channel and there is a public comment period for the topics presented at the committee through October 1.

c. The most recent notification from DPR was the tribufos close-out. Tribufos is an organophosphorus pesticide used as a cotton defoliant in California. While U.S. EPA's recent actions mitigated most occupational risks, seasonal risks to certain workers remained unaddressed. DPR worked with U.S. EPA and the registrants of tribufos products to make California-specific label changes to address these risks.

With these label amendments in place, U.S. EPA and DPR conclude that additional mitigation for tribufos is not needed at this time. DPR posted the tribufos close out memo on its website earlier this week.

d. DPR recently posted two documents: The Draft Fipronil Mitigation Options Memo and The Economic Pest Management Evaluation of Fipronil, which contains a detailed alternatives analysis. These documents initiate the next step in DPR's continuous evaluation for aquatic risks associated with fipronil pet products. Public comments are being accepted through November 16 on DPR's public comment portal.

e. DPR released proposed regulations to revise and strengthen existing workplace decontamination requirements and clarify eyewash rules to provide consistent protection across agricultural and non-agricultural industries. The proposed changes expand decontamination sites requiring them for all employees and for eyewash equipment to meet American National Standards Institute (ANSI) standards. Public comments are open from September 18th to Nov 2nd.

f. The Scientific Prioritization and Review Committee (SPARC), held its inaugural meeting on August 7th and the Sustainable Pest Management Advisory Committee held its second meeting earlier this week. Both committees are now fully active, with meeting information and materials posted regularly on their webpages.

DPR has set up new several new committees with different and distinct roles, and DPR and PREC members have received questions related to different committees, roles and responsibilities. The statutory consultative role of the PREC will stay consistent as DPR moves through its evaluation and mitigation processes. We will continue to bring these actions to this committee for consultative purposes. We more recently convened a new committee, SPARC, which was originally envisioned as an additional committee for the Department, by the external SPM Workgroup and Roadmap. SPARC will serve as an upstream role by providing a public, transparent, and scientific discussion on what pesticides DPR should prioritize to move through continuous evaluation and mitigation processes. Now, as we process resources and move through these processes, all mitigation actions will continue to come to PREC for consultation, which is consistent with PREC's historic role. We know there is a lot of interest from this committee in what we prioritize for our work and would welcome recommendations or other input from members of the PREC or the public to engage on that element through the SPARC processes. SPARC recently opened a call for public submission on pesticide potential priority recommendations, which just closed. Our next SPARC meeting will discuss what has been submitted to inform future recommendations from SPARC to DPR on where we should prioritize our work. As we move through this work, the role of the PREC will stay consistent. Aligned with that, we have a full agenda today to fulfill consultative requirements for both our reevaluation of total release foggers, and potential mitigations and next steps for

fipronil. We anticipate full agendas for PREC meetings as we continue to advance our mitigation actions at the department. At the inaugural meeting a few months ago, DPR provided SPARC with an overview of our current work across reevaluations, risk assessments, and mitigation. We also provided PREC with a similar update last year, and biannually, we provide updates on our online continuous evaluation and mitigation table on the department's website. Now, as time allows in future agendas, we will provide a look ahead to the PREC on what consultations may come in the future. In the meantime, PREC members can view our continuous evaluation table, which was most recently updated this July.

Tom Ineichen (PREC Member, SPCB): There's been no change in the role of PREC. I saw the letter that came out regarding this issue and as far as I understand, there's been no change in our particular role. Obviously, SPARC is new and DPR may be considering recommendations from them, but that's really been the only change, correct?

Nan Singhasemanon (PREC Chair, DPR): Yes. That's the way I see it as well. I think that we're certainly bringing items to the PREC. Typically like today's agenda, our items are pretty focused within that scope and occasionally we'll have our deputy directors speak regarding continuous evaluation and mitigation information and then we get feedback. That's essentially our consultation with PREC. So that's going to continue and happen still. I don't see why that would change. I just know that a lot of the discussions, which also include a lot of public discussion or input, are going to be happening at SPARC meetings as well. I just wanted to clarify that we're not going to be stopping what we're doing just because there is SPARC. There's just another committee in place and that's going to be where a lot of the discussions and interactions are going to happen on prioritization. I just wanted to make that clear.

Note that the PREC meeting presentations were summarized using artificial intelligence and have been reviewed for accuracy.

2. **Fumigant Use in California and Assessment of Available Alternatives: Pre-Plant Soil Fumigants - Methyl Bromide and MITC Generators – Eric Chu, Gerald Holmes, Jenny Broome, and Kim Parra, California Council on Science and Technology**

CCST's final deliverable in DPR's multi-year Fumigant Alternatives Study was presented by Eric Chu, Gerald Holmes, Jenny Broome, and Kim Parra. The presentation focused on pre-plant soil fumigation, specifically the use of methyl bromide and MITC generators, both of which play critical roles in California's nursery plant propagation and crop production systems. Nan Singhasemanon opened the session and welcomed CCST's update on findings, conclusions, and recommendations developed under DPR's study charge.

Eric Chu began by outlining CCST's study approach, which is modeled after the National Academy of Sciences (NAS) process to ensure scientific rigor, transparency, and

consensus. CCST assembled a multidisciplinary team of experts and a steering committee, conducted conflict-of-interest screening, and carried out peer review to ensure credibility of each report. Eric reviewed the scope of the project, which included documenting fumigant use patterns across California, identifying all currently available alternatives, synthesizing research on chemical and non-chemical methods, assessing feasibility of adopting alternatives, and identifying barriers and incentives that influence grower uptake. Chu explained CCST's use of Findings, Conclusions, and Recommendations (FCRs) to structure its analysis and decision-support framework.

Gerald Holmes, Steering Committee Chair, provided an overview of the report's structure, which spans characterization of fumigants, environmental and health impacts, alternative methods and technologies, research needs, and barriers and incentives to widespread adoption of the fumigant alternatives studied. He presented key technical background on methyl bromide, first introduced in the 1950s and phased out beginning in 2005 due to its ozone-depleting properties. Although largely discontinued, methyl bromide continues to be used under strict quarantine and pre-shipment (QPS) exemptions, particularly in strawberry, grapevine, and tree-nut nurseries, where phytosanitary regulations require stringent pest control. Holmes contrasted methyl bromide with MITC generators—including metam sodium, metam potassium, and dazomet—which have been used since the 1970s. These products increased in use as methyl bromide declined but offer lower and more variable efficacy, with performance highly dependent on soil moisture and environmental conditions.

Holmes noted that CCST identified 12 potential alternatives, none of which currently serve as true drop-in replacements for methyl bromide or MITC generators. Barriers to adoption include the continued availability of fumigants, reduced performance reliability of alternatives, and economic constraints facing growers. He emphasized the need for long-term, multi-year studies to evaluate combinations of alternative techniques and warned that agricultural systems are complex, meaning unintended consequences—both beneficial and adverse—should be expected when fumigant use shifts.

Jenny Broome then presented detailed findings from DPR's Pesticide Use Reports, describing changes in fumigant use over time. Methyl bromide use dropped dramatically from 17–18 million pounds in the 1990s to 1.5 million pounds in 2023, nearly all in nursery systems. Roughly 6,000 acres were treated with methyl bromide in 2023. Application techniques remain concentrated in tarped shallow broadcast injection and used only in plant-propagation systems. She also described expanded use of MITC generators, with metam potassium reaching 8–9 million pounds in 2023, applied to processing tomatoes, strawberries, carrots, peppers, onions, sweet potatoes, and potatoes. Metam sodium use has declined to approximately 3 million pounds due to concerns about salt accumulation in soil. Broome noted international reports of microbial degradation of

MITC following repeated field applications, highlighting the need for California-specific studies to confirm potential for similar degradation activity.

Broome also explained why nurseries represent a uniquely challenging context for fumigant alternatives. Because nursery stock is distributed statewide, nationally, and internationally, strict phytosanitary regulations often require fumigation unless plants can be repeatedly tested and proven free of regulated pests. For certain nematodes, even a single detection can cause total loss of salable nursery stock, underscoring why methyl bromide remains critical for these uses. She also discussed global methyl bromide trends, noting that some countries have fully eliminated use while others have increased reliance, and she highlighted the need for improved understanding of methyl bromide's global "budget," including how climate-driven atmospheric changes may influence emissions and concentrations.

Turning to fumigant alternatives, Broome outlined CCST's evaluation of twelve chemical, thermal, biological, and avoidance-based approaches, ranging from steam soil disinfestation, anaerobic soil disinfestation (ASD), and solarization to crop rotation, cover cropping, soilless cultivation, and diversified farming systems. She noted that efficacy varies widely, with studies lacking standardization and systematic tracking. Some alternatives matched or exceeded fumigation performance in certain conditions, while others were ineffective or increased pest pressure. Broome emphasized the need for more research including California-specific field trials, economic analyses, and commercial-scale testing, especially in nursery environments. Future research opportunities into fumigants and alternatives highlighted ranged from calling for longer-term studies, integrating multiple tactics, engineering innovations in soilless production and steam soil disinfestation, genomic tools for host resistance or rapid quantification of soilborne pathogens, to the importance of nursery-focused research.

Broome noted that growers and nurseries face serious structural barriers to adopting alternatives; however, various policy tools could be employed to increase their adoption such as private and public loans, public procurement of produce grown using these alternatives, market-based support for transitioning to organics or other certification programs to within market limits, and finally additional funding for fumigant alternatives research, demonstration and extension**.**

Kim Parra concluded the presentation with CCST's assessment of human health risks associated with methyl bromide and MITC generators. Inhalation is the primary route of exposure for both, and methyl bromide is associated with neurological and respiratory impacts. Between 1992 and 2020, 328 acute injury and illness cases were documented in California, with applicator exposures decreasing after the 2005 phaseout, although farmworker exposures did not. Many community exposures stemmed from drift or off-site

movement. Parra noted that long-term epidemiological studies show children may be particularly susceptible to ambient methyl bromide exposure. For MITC generators, acute effects include respiratory and ocular irritation, along with skin effects for applicators; long-term health data are limited.

Parra emphasized significant challenges with human biomonitoring—high cost, limited laboratory capacity, and lack of reliable biomarkers for MITC—making environmental air monitoring essential. She highlighted DPR's monitoring data from 2018–2022, which found no exceedances in Oxnard, Santa Maria, Shafter, or Watsonville but recommended expanding monitoring and tailoring it to local conditions. She concluded by discussing cumulative exposures, environmental justice concerns, and the need for regulatory frameworks that more accurately reflect real-world exposure scenarios involving multiple stressors.

Committee Questions and Comments

None

Public Questions and Comments

Mike Zeiss (CPR): Which other countries, if any, allow pre-plant field fumigation with methyl bromide under the quarantine and pre-shipment (QPS) exemption. A report by the International Regulatory Agency, sometime within the last or the past five years, stated that the U.S. was the only country that interpreted the QPS exemption as allowing field fumigation. If that has changed, which countries now allow.

Jenny Broome (CCST): Most of the data that I presented came from the Food and Agriculture Organization (FAO), the UN Montreal Protocol website. You're right, I don't think many do allow field fumigation. It's mostly post-harvest uses that are there, but there's a little bit of structural. But the data is not as good as California's to really understand the details of that.

Mike Zeiss (CPR): I acknowledge your statement that chronic health effects need more research. But did your economic analyses include the societal costs of the health effects that already have been quantified, including acute effects? For example, did your economic analyses include costs of workdays lost due to illnesses, school days lost, etc.

Gerald Holmes (CCST): I do not recall any data available on this topic.

Kim Parra (CCST): In terms of workdays lost to illness, the pesticide injury surveillance program, it's a publicly available where we were able to draw upon the acute cases that were reported in California. They have tabulated days lost, but no formal economic analysis was done in this report that quantified the public health costs to being exposed to methyl bromide or MITC.

Mike Zeiss (CPR): The presentation (slide # 50) stated air monitoring is needed in the absence of human biomarker studies. What are the main barriers to carrying out human biomarker studies. Are there reliable biomarkers that could be monitored?

Kim Parra (CCST): Human studies are notoriously expensive, especially when it comes to biomarkers such as urine, hair and blood samples. One thing is to collect the data; the other thing is the time sitting in a queue in a specialized lab can take years. In this case, with the fumigant methyl bromide, bromide ion is often used as an indicator of exposure. However, it's not a reliable biomarker. This is where pesticide use reports in these population-based studies are so informative. It's a proxy for methyl bromide exposure. Unfortunately, there has not been a reliable biomarker that I know of to capture exposure to MITC generators.

Margaret Reeves (PANNA): Regarding the air monitoring, when are samples taken relative to application dates and times of day?

Kim Parra (CCST): I don't have the particular date and times, but these are 24-hour samples that are taken. If I remember correctly, they do their best to collect these samples over the same period. I can go back and check. These AMN (Air Monitoring Network) sites not only collect fumigants but also other pesticides. These are monitors that are put up in these agriculturally intensive areas and they are 24-hour air samples that are collected. There are some gaps in the data where, for instance during Covid, there was no one sent out to collect and analyze the samples. I can get back to you and give you those exact dates and times when they were collected. I can tell you that they were collected in a uniform way and method.

Per AMN reports, sampling start dates were randomly assigned to the greatest extent possible and sampling start times were left to discretion of field personnel. Therefore, air monitoring samples were not scheduled relative to any specific pesticide application dates/times. One 24-hour sample was collected weekly at each site. Pesticide detections are posted quarterly in the Pesticide Air Monitoring Results (PAMR) database and summarized annually in the AMN report. Pesticide detections and reported concentrations represent a time weighted average of the 24-hour sample beginning on the sample start

date.

For more info on AMN: https://www.cdpr.ca.gov/environmental-monitoring/air-monitoring/

For AMN reports: https://www.cdpr.ca.gov/reports-directory/

Anne Katten (CRLA): Did you look at the more sensitive health impact recommendations from OEHHA for some MITC endpoints?

Kim Parra (CCST): Absolutely. We gleaned pesticide registration data as well as other regulatory agencies' data. This was a thorough, systematic review of all available literature to be able to position DPR in way to respond to these findings and these conclusions and recommendations. You can find that all in our report, although it's quite lengthy, our hope is that you will take the time to review those and reach out to us with any further questions or concerns, as well as suggestions.

Kathleen Kilpatrick (SASS): Just given the uncertainties in the health effects and all the areas that it's showing up. I mean, methyl bromide is even being found in urban areas, in port cities, and close to schools and homes. I kind of honed in on the list of all the available alternatives and the lack of a systematic way to evaluate which ones are the most effective. I'm just wondering, in the countries where they have dramatically reduced or eliminated the use, have they used a systematic method of evaluating the least toxic alternatives and apply those? And is there any kind of vision of how that could be done? How there could be a systematic way of saying, yes, this crop rotation and cover cropping method is effective in a way that's equivalent to. I'm just wondering if there is something like that is possible.

Jenny Broome (CCST): Yes, certainly we looked at that. I'd encourage you to look at Chapter 4 on the alternatives. Some of the countries that have eliminated, say, methyl bromide are going to soilless nursery plant propagation systems. They've done that for quite a while. It is more expensive. It is complicated. It's a whole different system of production. But that's one solution that we mentioned. Another is a preplant steam soil disinfestation and I've done work with that alternative, and we're trying to optimize and commercialize that technology here, but it's used a lot in Europe and greenhouses for nursery plants, in particular plant propagation systems. The problem is, there's no one alternative that is a drop-in replacement for every production system. So that's why we're encouraging more research, more focused looks at these specific crops and pests that need more work.

MaryLou Verder-Carlos (Exponent): Will there be an opportunity for stakeholders to provide feedback on individual report modules following completion of the CCST Fumigant Alternatives Research project, we noted some inaccuracies and factual errors during the discussion at the July PREC meeting regarding the report modules on sulfuryl fluoride, which we addressed in an open letter to DPR dated September 15. What can we do to identify an appropriate mechanism to correct the project record?

Eric Chu (CCST): The reports are completed and have been submitted to DPR. For the appropriate process, I would defer to DPR here for more clarity, I believe the process is for DPR stakeholders to submit their comments via the appropriate channels, and then we will often receive those via DPR. After that, we would defer to DPR's proper procedures to consider those comments received from their stakeholders.

Sapna Thottathil (DPR): Folks heard about CCST's study process and their peer review process. They're an independent entity that conducted this study. As such, whenever we receive comments about CCST's study, we pass then pass them along to CCST and hope that CCST shares those with the study authors. But right now, the study has concluded. If you have additional comments about the merits of the study, or additional things you would like the researchers to consider, you can certainly share them and I'll pass them along.

3. **Pesticide Investigation into Reported Illnesses Related to Total Release Foggers and Decision to Begin Reevaluation – Lucy Graham, Worker Health and Safety Branch and Ajay Kumar, Pesticide Registration Branch**

Lucy Graham summarized findings from DPR's recent investigation into illnesses associated with total release foggers (TRFs). These products, also known as foggers or bug bombs, are pesticide products designed to disperse their full contents as a fine mist within an enclosed area once activated. TRFs, which commonly contain pyrethrins, pyrethroids, or both, are widely available and require no specialized training for consumer use. From 2018 to 2024, TRFs averaged approximately $11 million in annual sales in California. Most of the TRFs contain an aerosol propellants, while a smaller subset are water-activated to generate the fog. The investigation identified 391 illness cases from 2018–2024 involving TRFs and found that TRF-related incidents consistently involved respiratory and systemic symptoms, including coughing, throat irritation, headache, and nausea. A majority of affected individuals were evaluated and discharged from emergency departments, though eight hospitalizations occurred during this period. Illnesses affected both applicators and bystanders, including children and emergency responders, often

resulting from early reentry, unexpected activation events, or exposure to lingering residues.

The investigation also highlighted patterns of misuse and misunderstanding that existing product labels have not successfully mitigated. Approximately 82% of implicated TRFs were propellant-based, and over 60% of all reported cases reflected at least one label non-compliance, such as early reentry, failure to notify others before activation, excessive use of foggers, or misuse of TRFs as space-spray aerosols. Most incidents occurred in residential settings, including single-family homes and multifamily units, with a smaller number documented in nonresidential locations such as offices, retail spaces, restaurants, and food-processing facilities. The investigation supports the finding that a significant adverse impact on public health is likely based on the frequency of documented exposures and the nature of the exposure routes being due to misuse of the products, which has not been previously evaluated.

Ajay Kumar, the Total Release Fogger Reevaluation Coordinator, discussed DPR's Decision to Begin Reevaluation of Specified Total Release Fogger (TRF) Products for Indoor Consumer Use, issued by the Director on June 29, 2026. The reevaluation scope includes 45 products containing one or more of the following active ingredients: cyfluthrin, cypermethrin, esfenvalerate, etofenprox, etoxazole, n-octyl bicycloheptene dicarboximide, permethrin, piperonyl butoxide, pyrethrins, pyriproxyfen, s-methoprene, and tetramethrin. In conjunction with the posting of the Decision, there was a 30-day public comment period that closed on July 29th. Ajay then provided an overview of DPR's reevaluation process, followed by the current status and next steps for the TRF reevaluation. DPR is currently reviewing comments on the reevaluation initiation with completion targeted for Q4 2026. For next steps, DPR will determine data requirements and any other requests for registrants by Q2 2027. DPR aims to complete evaluation of the requested submissions by registrants to address identified exposure concerns by Q2 2028, and initiate rulemaking or other mitigation by Q1 2029, if required. DPR will provide ongoing updates via the Continuous Evaluation Mitigation Table biannually regarding the progress and next steps of the reevaluation.

Committee Questions and Comments

None

Public Questions and Comments

Mike Zeiss (CPR):
Why were TRF illness incidents so concentrated in residential settings? Is this simply because most TRFs are used inside residences? If so, why? Are the target pests more

common in residences, or do nonresidential, such as offices, rely on pest control options rather than TRFs?

Lucy Graham (DPR):
Thank you for the question, Mike. Most TRF products are labeled for residential use only and are not for use in nonresidential settings such as restaurants, so that is why they are concentrated in home use.

Kathleen Kilpatrick (SASS):
I have not yet read the full report but am curious whether the investigation evaluated what pests people were targeting and what barriers might contribute to improper use—for example, language or literacy barriers. Since EPA's efforts to improve compliance have not reduced illnesses, could an intermediate mitigation step include a public health campaign on proper TRF use? This seems especially important in multilingual or low-literacy communities. Whose responsibility is it to implement such outreach—DPR or another department? Why wait for the longer reevaluation and mitigation process before improving public information?

Madison Le (DPR):
Thank you for the question, Kathleen. You highlight an important issue. Because TRFs are primarily used by residents, barriers such as language access, literacy, and label comprehension likely contribute to misuse. We are actively exploring options to better support communities in the near term, including approaches outside of the formal reevaluation process. This work is occurring in coordination across DPR programs as we consider both immediate outreach efforts and longer-term mitigation strategies.

Anne Katten (CRLA):
Do you have more information on the causes of ~ 40% of cases where non-compliances weren't identified?

Lucy Graham (DPR):
We rely on investigations conducted by County Agricultural Commissioners. In cases where reports do not contain sufficient information in the report to determine whether or not there were noncompliance's then it would be recorded as unknown. This accounts for approximately 40% the cases with unknown compliance.

4. **Fipronil Pet Products: Assessment, Mitigation, and Alternatives – John Wheeler, Environmental Monitoring Branch & Sam Raburn, Executive Office**

John Wheeler presented an overview of DPR's assessment of fipronil-containing flea and tick pet products, which are registered for companion animal use. DPR has determined that these products pose potential risks to aquatic life and human health. To support regulatory

considerations, the Department released two documents—a draft mitigation options memo and an alternatives analysis—and opened a 60-day public comment period ending November 16.

Wheeler summarized findings from DPR's aquatic risk evaluation. Peer-reviewed studies and statewide wastewater monitoring data show that fipronil frequently enters wastewater systems through activities such as pet bathing and persists through treatment with only minimal removal. Fipronil concentrations exceeded the chronic aquatic life benchmark in roughly 80 percent of effluent samples, indicating potential harm to freshwater species in receiving waters with limited dilution. DPR's use of the Pesticide Registration Evaluation Model (PREM) further indicated acute aquatic risk from dog spot-on and spray products for larger dogs, and chronic risk from spot-on treatments for dogs of all sizes. Under current down-the-drain registration evaluation criteria, the Surface Water Protection Program (SWPP) would not recommend registration of fipronil spot-on dog products.

Turning to human health, Wheeler noted that DPR's 2023 Risk Characterization Document identified occupational risks to pet groomers applying sprays and spot-ons, as well as residential exposures for pet owners and individuals—especially children—who interact with treated animals. Dermal exposure drives most risk for adults, while both dermal and oral pathways contribute to children's exposures. Groomers experience the greatest risk because they treat multiple animals daily.

Wheeler then reviewed potential mitigation strategies under consideration. Stakeholder feedback emphasized that voluntary stewardship and consumer education—such as informational materials, product-selection tools, and point-of-sale outreach—could help reduce exposures. DPR acknowledges that stewardship and consumer education could encourage practices that mitigate risks caused by fipronil and improve consumer awareness; however, DPR considers these insufficient as a standalone measure, particularly for spot-on products. DPR also evaluated several types of use restrictions: reducing the number of applications per year, lowering application rates or product concentrations, adding dog-bathing restrictions to limit down-the-drain transport, and implementing occupational restrictions for groomers. Wheeler noted that while personal protective equipment (PPE) could reduce exposure somewhat, PPE alone is insufficient to meaningfully reduce subchronic or chronic risk; additional restrictions would be required.

He also described the potential effects of designating fipronil pet products as restricted materials. This designation would limit product access to licensed applicators with permits, likely reducing overall use and lowering fipronil loading to wastewater. However, this measure would not eliminate human health risks for groomers or home users who still obtain the products, highlighting the need for complementary risk-reduction strategies.

Sam Raburn presented DPR's alternatives analysis for fipronil spot-on products, emphasizing its role in supporting sustainable pest management. The analysis used a partial-budget framework to estimate changes in direct consumer costs if fipronil spot-ons became unavailable. DPR evaluated 54 fipronil-containing and 89 potential alternative spot-on products using sales data, online pricing, and pet-weight distributions. Alternatives in other

formulations were not analyzed due to data limitations, though non-chemical practices from a 2025 IPM review were incorporated qualitatively. Between 2023 and 2025, spot-on products accounted for 400,000 monthly applications annually, with 45 percent containing fipronil. DPR estimates that switching to alternatives would increase statewide consumer costs by approximately $327,000 per year—a roughly 30 percent rise. Cost impacts vary by species, with an average monthly increase of $0.56 per dog and $3.64 per cat. Raburn stressed that alternatives are available, but economic effects differ significantly across pet owners.

In closing, Wheeler reaffirmed that fipronil pet products present potential risks to both aquatic ecosystems and human health. DPR will continue stakeholder engagement and consider mitigation options informed by technical analyses and public input. The public comment period for the mitigation memorandum and alternatives analysis remains open until November 16.

Committee Questions and Comments

Fatemeh Ganjisaffar (CDFA): Expressed appreciation for the analysis and noted CDFA conducts similar economic evaluations.

Public Questions and Comments

Anne Katen (CRLA):
Could you please provide the link to the non-chemical practices review mentioned?

Anrew Turcotte (DPR):
Please email the PREC email list and we will be able to provide you a link for that.

Kevin Finnegan (Hartz):
Was the contribution of the use of fipronil in structural pest control considered in the environmental impact?

John Wheeler (DPR):
When discussing environmental impacts, we primarily focus on wastewater pathways. Some analysis of structural pest control uses is included in the mitigation options document, specifically within an appendix. We did consider the issue, but most of our environmental assessment centers on wastewater and down-the-drain transport from pet product use.

Mike Zeiss (CPR):
I appreciate the quality of the analysis presented. However, I want to raise two concerns:

1. Economic analyses should not ignore indirect or external costs, such as health impacts. Entire fields of economic research address these issues, so excluding them should not be considered acceptable.
2. The timeline for DPR's risk assessment and mitigation processes remains too long. For example, the fipronil RCD was released in 2023—six years after the problem formulation document. Now, three and a half years later, we are only beginning mitigation discussions. DPR has acknowledged delays before, and the process still takes far too long. I strongly encourage DPR to pursue solutions that accelerate these timelines.

Kathleen Kilpatrick (SASS):
The outreach strategies described early in the presentation—explaining risks and safer use methods—appear to be good models for public communication on total release fogger (TRF) issues. Regarding fipronil, given its environmental persistence and the human health risks, especially for pet groomers, it seems clear that mitigation alone may not be effective. The chemical appears to be a strong candidate for phase-out. DPR should begin informing users that fipronil may not remain available and explain why, especially since viable alternatives exist. This would help prepare the public and support the transition.

Emily Saad (Exponent):
The economic analysis' dose data for dogs implies annual fipronil use in dog spot-on products of approximately 50 pounds, more than 700-fold below the ~36,000 pounds the final aquatic risk memo attributes to dog spot-on sales. How does DPR intend to reconcile the use estimates across these documents, and will DPR revise the aquatic risk conclusions from both the PREM and aquatic toxicity benchmark approach, both of which rely on sales data to estimate risk, accordingly?

Nan Singhasemanon (DPR):
As this is a multifaceted set of questions, and we are short on time, DPR will provide a written follow-up after the meeting.

Madison Le (DPR):
Thank you, Emily, for the thoughtful questions. We will follow up in writing regarding all outstanding questions that we were unable to address today.

DPR: DPR staff followed up by email after the meeting and let Emily know her comments would be responded to, along with all other comments received about the Draft Fipronil Mitigation Options Memo and The Economic Pest Management Evaluation of Fipronil, following the close of the comment period on November 16, 2026.

5. Agenda Items for Next Meeting

None suggested from the committee.

The next PREC meeting is scheduled for November 20, 2026, at 10:00 am. This meeting will be held virtually on the Zoom platform and broadcast live on the CalEPA webcast page <video.calepa.ca.gov/>

6. Adjourn