PESTICIDE REGISTRATION AND EVALUATION COMMITTEE (PREC)
Meeting Minutes – November 21, 2025

Committee Members/Alternates in Attendance:

Stan Armstrong – Air Resources Board (CARB)
Elizabeth Marder – Department of Public Health (CDPH)
Fabiola Estrada – U.S. Environmental Protection Agency (EPA), Region 9
Garrett Keating – Department of Industrial Relations (DIR)
Wendy Linck, David Fairman (alternate) – State Water Resources Control Board (SWRCB)
Matt Hengel, Kari Arnold (alternate) – University of California (UC), Davis, IR-4 Program and Environmental Toxicology
Fatemeh Ganjisaffar – California Department of Food and Agriculture (CDFA)
Katie Southerland-Ashley – Office of Environmental Health Hazard Assessment (OEHHA)
Mai Ngo – Department of Toxic Substances Control (DTSC)
Nan Singhasemanon – Department of Pesticide Regulation (DPR)
Ryan Bourbour – Department of Fish and Wildlife (DFW)
Stephen Scheer – California Agricultural Commissioners and Sealers Association (CACASA)

Visitors in Attendance:

Note: Only attendees who identified themselves using their full name are listed below

Abby Taylor-Silva, KSC
Alex Borgas
Amanda Albers, Bayer
Anne Katten, CRLAF
Bianca Lopez, VIP
Bruce Houtman
Byanka Santoyo
Clara Casanova
Emily Marquez, PAN
Emily Saad, Exponent
Emma Vega, CPR
Erika Rohr, BioWorks
George Cavinta, Norwood Associates
James Nakashiam, OEHHA
Dr. Jeffrey Driver
Jeff Nagle
Juan Hidalgo, County of Monterey
Julie Schlekau, Valent
Kevin Henry, TKI
Laura McCready, County of Sacramento
Lena Freij, NRDC

Margaret Reeves, PAN
Matthew Allen, WGA
Mayra Sanchez, CPR
Noah Beyeler, County of Santa Barbara
Sage Calderaz
Sarah Aird, CPR
Stephanie Burton, TriCal
Susan Sobeloff, Environment California
Ted Valenta, TKI
Vicki Ghaffarzadeh, Valent
Renee Pinell, WPH

DPR Staff in Attendance:

Aisha Shahid – Environmental Monitoring Branch
Ajay Kumar – Pesticide Registration Branch
Andy Rubin – Human Health Assessment Branch
Amber Morris – Pesticide Programs Division
Amy MacPherson – Office of Outreach & Communications
Andrew Turcotte – Pesticide Registration Branch
Ann Schaffner – Worker Health and Safety Branch
Bryan George – Pesticide Registration Branch
Daisy Reynaga – Worker Health and Safety Branch
David Larsen – Pesticide Evaluation Branch
David Mauss – Pesticide Programs Division
Eric Kwok – Human Health Assessment Branch
Irina Vaysertreyger – Human Health Assessment Branch
Jeannie Martin – Enforcement Branch
Dr. Jill Townzen – Pesticide Evaluation Branch
John Adragna – Human Health Assessment Branch
Joy Dias – Environmental Monitoring Branch
Dr. JT Teerlink – Pesticide Programs Division
Kyle Sherbine – Environmental Monitoring Branch
Lan-Xin Shi – Pesticide Evaluation Branch
Laurie Brajkovich – Pesticide Programs Division
Madison Le – Pesticide Programs Division
Maisa Lima – Pesticide Evaluation Branch
Matthew Michel – Pesticide Evaluation Branch
Maziar Kandelous – Environmental Monitoring Branch
Omid Zandvakili – Environmental Monitoring Branch
Randy Segawa – Environmental Monitoring Branch
Scott Tiscione – Human Health Assessment Branch
Sergy El-Morshedy – Office of Outreach & Communications
Svetlana Koshlukova – Human Health Assessment Branch
Yingzhi Lu – Pesticide Evaluation Branch
Yvan Delgado – Environmental Monitoring Branch

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

a. DPR rulemaking took effect in August adding chitosan to the list of active ingredients permitted in minimum-risk pesticides.
b. The first meeting of the DPR Environmental Justice Advisory Committee (EJAC) is scheduled for Dec. 10th. EJAC advises DPR on policies and programs to address environmental justice concerns, in particular in communities located in areas of high pesticide use.
c. DPR's Scientific Prioritization and Review Committee (SPARC) is currently accepting nominations for membership through Dec. 1.
d. DPR's Sustainable Pest Management Advisory Committee, which advises DPR on goals, tactics, and partnerships that support the implementation of SPM statewide, is accepting nominations for membership through December 19th.

2. Pesticide-Treated Seeds – Bryan George, Pesticide Evaluation Branch, DPR

Bryan George, Environmental Program Manager in the Plants, Pests and Disease program, presented proposed rulemaking for pesticide-treated seeds.

The presentation focused on DPR's proposed rulemaking for pesticide-treated seeds, reiterating material previously shared during an informal public workshop. DPR emphasized its mission to protect human health and the environment through sustainable pest management and pesticide regulation. The presentation aimed to clarify the distinction between pesticide-treated seeds and seed treatment products, provide regulatory background, and walk through the draft regulatory proposal. Attendees were encouraged to provide feedback, with the public comment period for the workshop open through December 1st.

Pesticide seed treatment products are pesticides applied to seeds to protect them from pests such as insects, fungi, and bacteria. Not all seed treatments are pesticidal; some involve coatings for mechanical planting or micronutrients for early growth, which are not the focus of DPR's proposed regulations. A wide variety of pesticide products and active ingredients may be used, and multiple products can be applied to a single seed. Once treated, these seeds are referred to as "pesticide-treated seeds," which are the subject of the proposed regulations. Pesticide seed treatment products are typically sold in liquid form and applied as a slurry or spray. Treated seeds are often dyed with bright colorants to indicate pesticide treatment and ensure proper handling.

Regulatory oversight differs between federal and state levels. While pesticide seed treatment products must be registered with both the U.S. EPA and DPR, pesticide-treated seeds themselves are not registered. U.S. EPA considers them pesticides but exempts them from registration under the federal Treated Article Exemption, provided the treatment is intended to protect the seed and the pesticide is registered for seed use. DPR's proposed regulations would adopt a similar approach, exempting treated seeds from registration if they meet specific criteria. This would allow DPR to manage environmental and health impacts without requiring seed registration. Currently, seeds treated out-of-state with federally registered but unregistered-in-California

pesticides can be planted in California; the proposed regulations would prohibit this practice.

DPR has investigated how seeds are treated, purchased, and planted in California. For major crops like cotton, corn, and soy, seeds are typically purchased pre-treated from large companies with standardized labeling. Specialty crops may be sourced through seed dealers, with treatments applied by third-party providers who do not take ownership of the seeds. On-farm seed treatment is reportedly uncommon in California. DPR seeks further input on treatment practices and planting responsibilities, including the role of contract planting companies and their licensing status. Understanding these dynamics is essential for developing practical and enforceable regulations.

The use of pesticide-treated seeds has increased significantly in recent years. A 2021 DPR workshop gathered over 8,000 public comments, highlighting widespread interest and concern. Historically, DPR has not collected use report data on treated seeds, limiting its ability to assess environmental pesticide exposure. Although seed treatments generally involve lower pesticide application rates than traditional methods, the difference varies by product. For example, mefenoxam applied via seed treatment results in significantly lower quantities per acre compared to foliar applications. However, with clothianidin, the difference is smaller. These comparisons underscore the need for accurate data to evaluate cumulative impacts.

Legal and legislative developments have shaped DPR's regulatory approach. A 2017 petition by the Center for Food Safety challenged the EPA's exemption of treated seeds, but the petition was denied, and a 2024 court ruling upheld the exemption. In California, a 2023 lawsuit alleged DPR's handling of treated seeds constituted an underground regulation. A 2024 settlement required DPR to submit formal regulations addressing treatment product registration, impact mitigation, and reporting. Assembly Bill 1042, signed in 2024, mandates new labeling requirements effective January 1, 2027, including EPA registration numbers and pesticide quantities. These changes will enable tracking of pesticide active ingredients entering the environment through seed planting.

DPR's proposed regulations include amendments to Title 3 of the California Code of Regulations. These would define pesticide-treated seeds, exempt them from registration under specific conditions, require use reporting, and exempt planting near schoolsites from certain distance restrictions. The exemption applies if seeds are treated solely with DPR-registered pesticides for seed protection and are properly labeled, including toxicity signal words, treatment material names, hazard statements, and EPA registration numbers. Use reporting would require monthly aggregate data on pesticide amounts applied to seeds and total treated seed planted, submitted via DPR's reporting system. This data would support risk evaluation and inform mitigation strategies. The proposed exemption from schoolsite distance restrictions aligns treated seeds with other low-drift pesticide forms, though aerial applications would still be subject to a ¼ mile restriction.

DPR's proposed regulatory framework aims to ensure that pesticide-treated seeds used in California are treated only with registered products, are properly labeled, and are subject to appropriate reporting. While exempt from registration, treated seeds would remain under all other applicable pesticide regulations. This initiative supports DPR's mission to protect health and the environment through science-based, transparent, and accountable pesticide management.

Committee Comment

Mai Ngo (DTSC): Are treatments with growth enhancements included in these regulations?

Dr. Jill Townzen, DPR: If it's not a pesticide, it wouldn't fall under the proposed regulations. We're only looking at pesticide-treated seeds.

Public Comment

Alex Borgas: What does it mean for a pesticide-treated seed to be exempt from registration? Does this imply that you would not track its usage? What other purposes would a pesticide have other than protecting the seed, in other words, how broad of an exemption to registration?

Dr. Jill Townzen, DPR: DPR is proposing to not require each of the seeds that is treated with pesticides to be registered. Similar to the exemption in place for 25B products, they would still be considered pesticides but don't require individual registration. If the seeds are treated for a purpose other than protecting the seed itself, for example controlling mosquitos or managing nematodes away from the plant, that claim would extend beyond protection of the seed and those types of claims would indicate that the pesticide-treated seed would require registration.

Kathleen & Woody: I'm concerned about the use of bright colored toxic seeds near schools without notification. Are you aware of what kids might put in their mouths? Also birds and other wildlife? How would potential poisoning be discovered or tracked?

Dr. Jill Townzen, DPR: DPR is not proposing to exempt seeds from the schools notification requirement, only the distance requirement when planted in the ground. We incorporate information about consumption of seeds by birds and other small animals as a part of our evaluation, so we are already taking that into consideration. DPR already has an extensive system for reporting pesticide illnesses and exposures, so those would also apply to pesticide treated seeds.

3. **DPR Ambient Air Monitoring Results for 2024 – Maziar Kandelous and Yvan Delgado, Environmental Monitoring Branch, DPR**

Dr. Maziar Kandelous opened the presentation by introducing himself as DPR's Air Program Manager and noted that he was joined by Dr. Yvan Delgado, Senior Environmental Scientist. He explained that the purpose of the presentation was to share the results of DPR's ambient air monitoring for 2024. Dr. Kandelous outlined the agenda, which included an overview of the studies, a discussion of screening levels and regulatory targets, results from the Air Monitoring Network (Study 257) and the 1,3-Dichloropropene monitoring study (Study 309), and regulatory actions related to these findings.

Dr. Kandelous described the two studies. Study 257, the Air Monitoring Network (AMN), included four stations located in Oxnard, Santa Maria, Shafter, and Watsonville. This study

monitored 35 pesticides and 5 breakdown products from January 1 through December 31, 2024. Study 309 focused exclusively on 1,3-Dichloropropene (1,3-D) at two stations in Delhi and Parlier during the same timeframe. He noted that 1,3-D is also monitored at AMN sites, and for statewide comparison, results from both studies would be presented together.

Dr. Kandelous then explained screening levels and regulatory targets. Screening levels are based on health risk assessments and represent air concentrations at which no adverse effects are expected, with conservative safety factors included. A concentration above a screening level does not necessarily indicate a health concern but signals the need for further evaluation and possible mitigation. Regulatory targets, which supersede screening levels, are legally enforceable thresholds requiring measures to limit exposure and prevent adverse effects. He noted that pesticides such as 1,3-D, chloropicrin, methyl bromide, and MITC have regulatory targets for one or more exposure periods.

Dr. Kandelous clarified detection terminology used in the report: “quantifiable” refers to concentrations above the limit of quantitation, “trace” refers to concentrations below that limit but above the detection limit, and “non-detect” means below the detection limit. He emphasized that quantifiable detections are far below screening levels and regulatory targets.

Dr. Delgado then presented the results for Study 257. He stated that out of 40 chemicals monitored in 2024, 13 pesticides were detected at quantifiable levels, 6 at trace levels, and 21 were not detected. Methyl bromide and 1,3-D were detected at all four monitoring stations, while MITC, chloropicrin, and malathion were detected at three sites. He noted that methyl bromide had the highest frequency of quantifiable detections, appearing in 51% of samples at Shafter, and chloropicrin was detected in up to 35% of samples at Oxnard.

Dr. Delgado continued by reviewing concentration magnitudes. He reported that the highest acute (24-hour) concentrations were well below screening levels, with chloropicrin reaching only 1% of its acute SL and MITC reaching 2% at Shafter. For subchronic exposures (4–13 weeks), chloropicrin reached 77% of its SL at Oxnard and MITC reached 86% at Shafter, but neither exceeded thresholds. Annual chronic concentrations were also below SLs, with MITC at Shafter reaching 83% and chloropicrin ranging from 21% to 30% across sites. He emphasized that no acute, subchronic, or chronic screening levels or regulatory targets were exceeded.

Dr. Delgado addressed cumulative organophosphate exposures, explaining that hazard indices were calculated for 15 organophosphate pesticides. All hazard indices were 0.05 or less, well below the threshold of 1.0 that would trigger further evaluation. He also presented cancer risk estimates for DDVP, noting that all sites were at 5% or less of the regulatory threshold.

Dr. Delgado then transitioned to Study 309 results for 1,3-D. He explained that monitoring occurred at Delhi and Parlier, with additional data from AMN sites, for a total of six locations. Quantifiable detection rates ranged from 12% at Oxnard to 52% at Parlier. He reported that the highest acute concentration was 7.2 ppb at Shafter, which is 13% of the regulatory target of 55 ppb. Subchronic and chronic concentrations were also below screening levels, with the highest annual average at 0.20 ppb (11% of SL) at Shafter. He noted that long-term trends show a decline in Parlier’s annual concentrations from 1.95 ppb in 2021 to 0.16 ppb in 2024, following implementation of new non-occupational bystander regulations in January 2024. However,

Parlier's cumulative average remains above the lifetime cancer risk target of 0.56 ppb, though mitigation measures appear effective.

Dr. Kandelous summarized the findings, reiterating that no screening levels or regulatory targets were exceeded in 2024 and that hazard indices and cancer risk estimates remained well below thresholds. He noted that DPR is conducting a detailed evaluation of chloropicrin following 2021 exceedances, using pesticide use data, weather patterns, modeling, and additional monitoring. He also highlighted the Fumigant Alternatives Study by CCST, released in March 2025, which supports DPR's sustainable pest management framework.

Dr. Kandelous concluded by outlining program updates. DPR now publishes annual AMN and 1,3-D reports and quarterly data updates online, with a new Power BI dashboard for visualization. Five virtual community meetings were scheduled in December 2025 to share site-specific data and gather feedback. Effective January 1, 2026, the Delhi station will expand to monitor all AMN pesticides, and the Watsonville station will relocate from Ohlone Elementary to Pajaro Middle School for more representative sampling. He invited questions and encouraged stakeholders to provide feedback on data access and reporting tools.

Committee Comments

Matt Hengel, UC Davis IR-4: Are there any plans to expand the monitoring network to include the north valley? Everything seems to be in the southern end of the state, and we certainly have a lot ag, and to be fair different ag.

Dr. Maziar Kandelous, DPR: We are always looking for resources, and we are always to looking to expand. For example, one expansion here now is for Delhi. So we are always looking at all the research that is available to us, and going through that process. We have talked to communities about that, and that has always been our goal and intention year to year. We may be able to expand it this year, given the opportunity and resource access.

Elizabeth Marder, CDPH: Chloropicrin is elevated in the sub-chronic exposure air levels in the 2024 report. Could you elaborate on where you in your process of review and evaluation?

Dr. Maziar Kandelous, DPR: I don't have anything to share right now, but we are actively working on it, specifically for Oxnard. We are looking at all of the use data, in particular air dispersal modeling, which as you all know is a time consuming and very complex process. We will be sure to share with this group what we find, and what actions we will be taking.

Public Comments

Anne Katten: Is DPR investigating the source of the frequent methyl bromide detections?

Dr. Maziar Kandelous, DPR: A few years ago, we came to this meeting and shared what we had: we had observed methyl bromide detection and were looking into it. The next meeting, we

came and talked about what we have done in terms of looking at the possible avenues. Not a complete report, but sharing where we were at in that process. What we have done is look at everything, usage data, other potential sources of methyl bromide other than application. We talked to scientists at NOAA about global ambient concentrations levels to see what is happening, and if it's California specific. We reviewed our processes and equipment to make sure there was no potential cross contamination, or potentially detecting something that wasn't MeBr. We are still working on that final evaluation with the team. I wanted to come to this meeting and say that we found it and have a solution. One result of all of this work is that the analysis is inconclusive. We really don't know why this is happening. It's a very low level, slightly above quantifiable detection, and some are even trace level detections. NOAA scientists have told us that we are seeing background concentrations that could have many sources, from oceans or sometimes wildlife that produce MeBr, including some plants and wetlands. We are not giving up, and we have seen elevated detection frequency this year as well. When we have something concrete to share, we will come to this committee and present it.

Anne Katten: The 2023 AMN Report stated that DPR was reviewing chloropicrin use, weather, and modeling data to investigate the source of high sub-chronic air levels at the coastal sites. When will this review be completed?

Dr. Maziar Kandelous, DPR: We are working on it. I don't have a specific date for the completion, but we are actively working on it, including a very detailed comprehensive evaluation of the use, looking at weather data, and everything all together. When we have something to share, we will share it with this committee and the public about what we have found, but at this moment I don't have a specific date for completion.

Anne Katten: Is DPR investigating why the 1,3-D annual average levels in Delhi, Parlier, and Santa Maria increased between 2023 and 2024, given that lower emission methods were required in 2024, and reported use decreased in some areas?

Dr. Maziar Kandelous, DPR: We are looking into it now. There is always some variation in the use, so were are looking into it to see where were the users in 2023, and where were the users in 2024. As you know, we post the use data on our website. You are absolutely correct that applications have moved to lower emissions methods. The increase is a slight increase, but that is something that my team is looking into.

Margaret Reeves: Are the detailed methods publicly available? Why is random sampling used, rather than taken in association of when the pesticides are actually applied? Why use the adult breathing rate, rather than the much faster child breathing rate? Don't we want to protect the most vulnerable individuals?

Dr. Maziar Kandelous, DPR: Our report includes appendices containing detailed information on our sampling procedure and how the lab analyzes the samples. Regarding random sampling,

that is the scientific way to conduct monitoring. Randomization ensures that there is no bias in the timing, and that sample will be a representation of the ambient air in that area. The thresholds defined are already set for the most vulnerable populations, so our goal is to protect children and sensitive members of our communities.

Anonymous Attendee: Why aren't captan and malathion listed as carcinogens?

Dr. Maziar Kandelous, DPR: Every year we work internally to update our list. If they are not listed (as carcinogens) that means they are not considered to be. I'll make sure to talk with the branch about those two and see if there are any changes that need to be made to our report.

Emily Marquez: How do plants produce methyl bromide? Is this in the AMN Report?

Dr. Maziar Kandelous, DPR: It is not in the report. That was mind-blowing for me as well. The methyl bromide detection frequency taught me a lot of things, and one was that yes, plants could possibly produce methyl bromide. If you e-mail the team, I'll make sure to share that reference with you.

Questions Received by Email:

Anne Katten: Is DPR investigating the source of the increased subchronic MITC levels at the Shafter site and how this could be reduced in the future since it is now almost at 90% of the regulatory level?

DPR: DPR has been closely monitoring MITC levels at all sites, including Shafter. MITC has a subchronic Screening Level of 1 ppb. Screening levels (SL) are based on risk assessments of possible health effects. A measured concentration that is above the SL does not necessarily indicate a health concern, but it does indicate the need for a refined evaluation and possible mitigation. In 2024, the highest rolling average concentration for MITC was 0.86 ppb which is below the subchronic SL of 1 ppb. Although it was below the SL, DPR evaluated the use patterns and their temporal trends, finding no abnormal changes.

DPR will continue closely monitoring MITC. If further evaluation is needed in the future, DPR would integrate use patterns and trends with local weather data and other relevant information from the Pesticide Use Reporting (PUR) system. This combined data would serve as input for an air dispersion model, enabling a comprehensive evaluation to assess the relationship between MITC use and observed air concentrations.

Anne Katten: I think that the increase in chloropicrin level at the Watsonville site should also be investigated. I think that moving the site to Pajaro Middle School makes sense but the chloropicrin increase at Ohlone should still be investigated. to see how it can be mitigated in the future.

DPR: DPR has been closely monitoring chloropicrin levels at all sites, including Oxnard and Watsonville. We will continue to monitor chloropicrin concentrations at Pajaro Middle School, along with the local use patterns.

If further evaluation is needed, the next phase involves integrating these use patterns and trends with local weather data and other relevant information from the Pesticide Use Reporting (PUR) system. This combined data will serve as input for an air dispersion model, enabling a comprehensive evaluation to assess the relationship between chloropicrin use and observed air concentrations.

Anne Katten: I don't understand why captan and malathion aren't identified as carcinogens in the report given that they are listed as carcinogens under Proposition 65.

DPR: Captan and malathion are identified by DPR as carcinogenic. We are looking into providing more consistency and clarity in our future reports.

Anne Katten: I do appreciate that looking into possible sources of the frequent low level methyl bromide detections has been challenging. I note that the highest percentage of quantifiable detections was in Shafter where I don't think that the ocean or wetlands are plausible sources. Could the source be somewhat distant commodity or potting soil fumigation or other nursery operations?

DPR: DPR conducted a comprehensive evaluation of the frequent low-level methyl bromide detections. As it was mentioned during the meeting, DPR could not single out a specific source for those detections. Possible sources include MeBr use under Quarantine and Pre-Shipment (QPS), the ocean, wildfires, wetlands (salt marshes), and some terrestrial crops, such as Brassica plants. A similar analysis is currently underway for the 2024 data, and we will provide an update if we are able to narrow the sources to a specific category.

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Yvon-Lewis, S. A, Saltzman, E. S, & Montzka, S. A. (2009). Recent trends in atmospheric methyl bromide: analysis of post-Montreal Protocol variability. Atmospheric Chemistry and Physics, 9(16), 5963-5974. http://dx.doi.org/10.5194/acp-9-5963-2009 Retrieved from https://escholarship.org/uc/item/08d7r51c

Friedli, H. R., E. Atlas, V. R. Stroud, L. Giovanni, T. Campos, and L. F. Radke (2001), Volatile organic trace gases emitted from North American wildfires, Global Biogeochem. Cycles, 15(2), 435–452, doi:10.1029/2000GB001328.

Gan, J., Yates, S. R., Ohr, H. D. & Sims, J. J. Production of methyl bromide by terrestrial higher plants. Geophys. Res. Lett. 25, 3595±3598 (1998).

5. Agenda Items for Next Meeting

None to report.

The next PREC meeting is scheduled for January 16, 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