



**PESTICIDE REGISTRATION AND
EVALUATION COMMITTEE (PREC)
Meeting Minutes –July 18, 2014**

Committee Members/Alternates in Attendance:

Ann Prichard, Department of Pesticide Registration (DPR)
Charles Salocks, Office of Environmental Health Hazard Assessment (OEHHA)
David Luscher, Department of Food and Agriculture (CDFA)
David Ting, OEHHA
James Seiber, University of California (UC), Department of Toxicology
Jeff Fowles, Department of Public Health (CDPH)
Jodi Pontureri, State Water Resources Control Board (SWRCB)
Lynn Baker, Air Resources Board (ARB)
Patti TenBrook, U.S. Environmental Protection Agency (EPA), Region 9 –via webcast
Rebecca Sisco, University of California (UC), IR-4 Program
Stella McMillin, Department of Fish and Wildlife (DFW)
Valerie Mitchell, Department of Toxic Substances Control (DTSC) –via webcast

Visitors in Attendance:

Aimee Brooks, CA Cotton Ginners and Growers Assoc./Western Agricultural Processors Assoc.
Andi Cameron, DPR –Pesticide Registration
Ann Hanger, DPR –Pesticide Registration
Anne Katten, California Rural Legal Assistance Foundation
Artie Lawyer, Technology Sciences Group
Brian Bret, Dow AgroSciences
Carlos Gutierrez, DPR –Pesticide Registration
Ed Wilson, Ensystem
Eryn Shimizu, DPR –Pesticide Registration
Jeanne Martin, DPR –Enforcement Headquarters
Jennifer Teerlink, DPR –Environmental Monitoring
Jill Townzen, DPR –Pesticide Registration
Joshua Adams, Pest Control Operators of California
Justine Weinberg, CDPH
Ken Kendall, Ensystem
Kevin Solari, DPR –Worker Health & Safety
Linda O’Connell, DPR –Worker Health & Safety
Lisa Zwicky, DPR –Personnel Services
Naeem Ahmad, DPR –Pesticide Registration
Pam Wofford, DPR –Environmental Monitoring
Rima Woods, OEHHA
Rachel Kubiak, Western Plant Health Association
Terry Davis, Univar
Tom Estill, Ensystem



1. **Introductions and Committee Business** –Ann Prichard, Chair, DPR
 - a. About thirty-five (35) people attended the meeting.
 - b. No corrections to the previous meeting minutes, held on May 16, 2014 identified.
2. **Sulfuryl Fluoride (Structural) Mitigation Efforts** –Kevin Solari, DPR, Linda O’Connell, DPR, and Pam Wofford, DPR

In September 2006, DPR completed a Risk Characterization Document (RCD) for sulfuryl fluoride used in structural and non-food commodity fumigations and identified exposure scenarios of concern: worker, bystander, and residential exposure, based on limited data and using health-protective factors to compensate for data uncertainties. In April 2007, DPR issued a Risk Management Directive (RMD) based on the RCD for sulfuryl fluoride use in structural and non-food commodity fumigations requiring the mitigation of acute and repetitive worker exposures, and acute exposures for residents and bystanders. This RMD stated acute exposures to sulfuryl fluoride should not exceed the 24-hour time-weighted average reference concentrations of 2.57 ppm (10.7 mg/m³) for workers and 0.12 ppm (0.51 mg/m³) for bystanders and residents. DPR defines a bystander as persons living or working in proximity to a fumigated structure. Note, the 0.12 ppm (0.51 mg/m³) for bystanders is due to an additional safety factor and DPR is missing a delayed neurotoxicity study.

In June 2007, sulfuryl fluoride was designated a toxic air contaminant (TAC) in regulation (Section 6860(a)) and a year later, DPR initiated reevaluation of sulfuryl fluoride products intended for structural fumigation due to the RCD. An additional concern was the decrease in the permissible reentry concentration for sulfuryl fluoride from 5 ppm to 1 ppm, as defined on the 2006 labels. The tarpaulin removal and aeration plan (TRAP) was developed to protect workers and removed excess sulfuryl fluoride. Since TRAP was not developed to meet 1 ppm threshold, a concern arose that TRAP might not be adequate to address the new label changes.

DPR requested data to assess if TRAP, or another method, is adequate to reduce risks to workers, bystanders, and residents. During the course of this reevaluation, the California Aeration Plan (CAP) was developed to lower worker exposure and concentration to 1 ppm. First implemented in November 2010, CAP replaced TRAP. The studies submitted to DPR under sulfuryl fluoride reevaluation used this CAP method. Review of these studies indicates use of the new CAP method reduces acute and repetitive worker exposures to sulfuryl fluoride used in structural fumigations. The sulfuryl fluoride reevaluation concluded in March 2013 and subsequently, CAP² was implemented May 2013 to further improve indoor aeration and to address aeration duct placement and construction.

Meanwhile, the TAC law was recently amended (FAC sections 14022, 14023, and 14024) to require DPR to adopt mitigation measures within two years of a decision to mitigate a pesticide that is determined to be a TAC, effective January 1, 2014. DPR is currently evaluating sulfuryl fluoride data and exposures to bystanders and residents to assess potential mitigation strategies.

In the beginning of the mitigation process, DPR investigates information on how the active ingredient is used. The top three counties for structural use from 2008 to 2012 are Los Angeles, Orange, and San Diego. Seventy-nine percent of structural use of sulfuryl fluoride occurred in

Southern California. Of the illness cases reported from 2005 to 2010, twenty-three percent occurred in lower use counties.

DPR intends to use air dispersion modeling with the AMS/EPA Regulatory Model (AERMOD). Since AERMOD is new to DPR, DPR has requested ARB's assistance with this modeling. The Environmental Monitoring Branch of DPR will develop the AERMOD modeling procedure for the simulation of structural fumigations by viewing past data and to determine the specific modeling set-up during Phase I. Phase II will model the potential exposure of sulfuryl fluoride in residential areas of counties with most use of structure fumigation and to develop mitigation measures to reduce the health risk to bystanders in these areas. DPR plans to model fumigations in Alameda County, Los Angeles County, San Bernardino County, San Diego County, and Santa Clara County.

The Worker Health & Safety (WHS) Branch of DPR is using direct reading instrumentation that reads to 0.3 ppm to characterize the concentration gases. From preliminary work, the gas appears to leak through the seals. WHS's goal is to characterize the gas to lower the concentration during the fumigation process. WHS recognizes the concern of exposure during the aeration process and is interested in the period for the exposure during aeration. The currently difficulty is the air samples collected in the past are composite air samples, integrated samples collected on charcoal. This method of data is collected over a course of hours so the concentration during the initial exposure cannot be determined. WHS is planning on collecting data and collaborating on a study with industry this summer.

3. Second Generation Anticoagulant Rodenticide Update –Ann Hanger, DPR

Second generation anticoagulant rodenticides (SGARs) contain the active ingredients brodifacoum, bromadiolone, difenacoum, or difethialone. SGARs are labeled for use only to control the house mouse, Norway rat, and roof rat in and within 100 feet of a structure. There are no approved field uses of SGARs.

SGARs are designed to be lethal to a rodent in a single feeding. These "single dose" rodenticides are more toxic than the first generation anticoagulants rodenticides (FGAR), which contain the active ingredients chlorophacinone, diphacinone, or warfarin. FGARs require multiple feedings over time to produce a lethal effect. Even though the SGARs are lethal in a single feeding, it takes several days for a rodent to die after it feeds on an anticoagulant; rodents may feed on a SGAR multiple times before dying, leading to concentrations of a SGAR in rodent carcasses that are many times over the lethal dose. Consequently, SGARs can also affect nontarget predators that feed on the poisoned rodents.

In 1999, the California Department of Fish and Wildlife (DFW) requested that DPR place products containing the SGAR, brodifacoum, into reevaluation based on the reported impacts to nontarget wildlife. DPR placed brodifacoum into reevaluation in December of 1999 and began reviewing information to determine any significant adverse effects, and if so, how to mitigate the effects. However, U.S. EPA was also evaluating impacts associated with rodenticides at the same time. Since U.S. EPA had similar concerns regarding wildlife impacts, DPR decided to wait for

the completion of U.S. EPA's assessment before determining a course of action to take on the reevaluation.

In 2008, U.S. EPA completed its full assessment and issued a risk mitigation decision (RMD) for ten rodenticides (FGARs, SGARs, bromethalin, cholecalciferol, and zinc phosphide). This RMD addressed use in and around buildings only and not field uses. U.S. EPA previously addressed field uses in 1998. The RMD set a maximum application distance from buildings these rodenticides could be applied. In 2008, the distance was within fifty feet of buildings and in 2012, U.S. EPA changed this to one hundred feet within a "man-made structure." The 2008 RMD had two major components: 1) reducing children's exposure to rodenticides used in the home; and, 2) reducing risks to wildlife. To reduce children's exposure to rodenticides used in the home, U.S. EPA required all FGAR and non-anticoagulants marketed to residential consumers (containing ≤ 1 lb. bait) be sold in solid formulations with bait stations. Four tiers of bait stations for consumer products were established based on whether they were used indoors or outdoors and accessible to children or pets. To reduce wildlife and ecological risks, U.S. EPA prohibited consumer-sized SGAR products entirely. U.S. EPA wanted SGARs to be used only by professional users. Furthermore, U.S. EPA required bait stations for outdoor, above ground uses for SGARs with a requirement for tamper-resistant bait stations if used in areas within reach of children, pets, domestic animals, or nontarget wildlife.

Instead of federally restricting SGARs as proposed in 2007, U.S. EPA's 2008 RMD relied on distribution and package size limits to reduce the availability of SGARs to the residential consumer market. U.S. EPA allowed only two types of SGAR products: 1) eight pound plus packages for use only in and within 100 feet of a man-made agricultural structure, with some burrow baiting uses allowed; and 2) 16 pound plus packages, for use only in and 100 feet of man-made structures such as homes, food processing facilities, industrial, commercial, and agricultural buildings, with some burrow baiting and sewer uses allowed. Finally, U.S. EPA prohibited SGARs from being sold in stores oriented towards residential consumers (e.g., Home Depot and Lowe's). Although U.S. EPA limited the sale of SGARs to farm, tractor, and agricultural stores, U.S. EPA did not place any restrictions on purchasers.

Initially, three companies refused to comply with U.S. EPA's 2008 RMD. These companies argued U.S. EPA had violated the Federal Insecticide, Fungicide, and Rodenticide Act by threatening to cancel due to misbranding instead of following the official cancellation process. U.S. EPA then issued a draft Notice of Intent to Cancel on November 2, 2011. The Scientific Advisory Panel met in December 2011 and on January 30, 2013, U.S. EPA announced it would move forward with cancellation. At this point, Reckitt Benckiser, LLC was the lone registrant to continue to challenge U.S. EPA's actions. Reckitt Benckiser, LLC refused to modify its d-CON consumer-size SGAR products, which were sold as loose pellets without a bait station. Although the d-CON SGAR products did not comply with U.S. EPA's RMD, Reckitt Benckiser, LLC could continue to sell them in retail stores while the federal cancellation process was still pending.

In California, in July 2011, DPR received a request from DFW to designate all SGARs as California restricted materials. DFW wanted DPR to limit the use of SGAR to certified pesticide applicators due to the concern regarding nontarget wildlife impacts. In response to this request,

DPR analyzed wildlife incident and mortality data, land use data, and sales and use data from multiple sources. DPR found the data indicate exposure and toxicity to nontarget wildlife from SGARs is a statewide problem. Of the 492 animals analyzed between 1995 and 2011, roughly 73 percent had residues of a SGAR. Approximately 69 percent of the 492 animals had brodifacoum residues,

DPR's draft assessment of the data went through external peer review in February 2013 and DPR finalized the assessment in June 2013. DPR's assessment demonstrated SGARs pose a hazard to nontarget wildlife. In response to these findings, DPR met with various stakeholders to discuss mitigation options and in July 2013, DPR proposed regulations to designate all SGARs as California restricted materials. Only certified applicators, or those under their direct supervision, can purchase and use restricted materials. Before the purchase and use of a restricted material, certified applicators must obtain a permit from the County Agricultural Commissioner (CAC), except for applicators licensed by the structural pest control board who are exempt from the permit requirement. Additionally, only licensed pest control dealers can sell restricted materials—retailers like Home Depot and Lowe's are not California licensed pest control dealers. DPR also proposed to prohibit the placement of any aboveground bait more than 50 feet from a man-made structure unless there is a "feature" associated with the site that is harboring or attracting the pests targeted on the label between the 50-foot limit and the placement limit specified on the label, which in most cases is 100 feet.

Finally, DPR proposed to revise the definition of a private applicator in Title 3 of the California Code of Regulations to refer to the federal definition of agricultural commodity. This change would allow livestock, poultry, and fish producers the option of obtaining a private applicator certificate from the CAC if they want to use a SGAR (or another restricted material). Note that none of these new requirements involve changes to the labels. The comment period for the proposed regulations closed on October 4, 2013. DPR received approximately 26,000 comments.

The Secretary of State approved the regulations on March 18, 2014. Ten days later, Reckitt Benckiser, LLC filed a lawsuit against DPR as well as a preliminary injunction to prevent the regulations from taking effect on July 1, 2014. A hearing for the preliminary injunction occurred in early May and the court sided with DPR. Soon after, Reckitt Benckiser, LLC dropped its lawsuit against DPR and the regulations, as proposed, became effective on July 1, 2014.

Also in May, U.S. EPA and Reckitt Benckiser, LLC reached an agreement to cancel all rodenticide products not in compliance with U.S. EPA's mitigation measures. Reckitt Benckiser, LLC agreed to stop producing these products by the end of 2014 and stop distributing to retailers by March 31, 2015. Regardless, in California, all of Reckitt Benckiser, LLC's consumer-size d-CON SGAR products are now restricted materials and only DPR-licensed pest control dealers may sell these products.

DPR is closing out the brodifacoum reevaluation. DPR is mailing letters concluding the reevaluation today and the Notice will appear on the DPR website <www.cdpr.ca.gov> on Monday, July 21, 2014. DPR will continue to monitor data received by DFW and other wildlife organizations. Furthermore, DPR is working to finalize a new webpage to focus on rodent management strategies and frequently asked questions. For more information regarding the

SGAR regulations, please contact Senior Environmental Scientist, Ms. Ann Hanger at <Ann.Hanger@cdpr.ca.gov>.

4. Reevaluation Conclusion of Certain Pyrethroid Pesticide Products –Carlos Gutierrez, DPR

Pyrethroids are a large class of insecticides that are synthetic analogues of naturally occurring pyrethrins and are widely used agriculturally and in households. Pyrethroids have a high target pest toxicity coupled with low mammalian and moderate bird toxicity. In contrast, organophosphates, another common class of insecticides, have a higher mammalian and bird acute toxicity. Over the last ten years, use of pyrethroids has increased while use of organophosphate pesticides has declined. Residential uses of pyrethroids may result in urban runoff, potentially exposing aquatic life to harmful levels of these insecticides in water and sediment.

The California Department of Pesticide Regulation's (DPR) mission is to protect human health and the environment by regulating the sale and use of pesticides. This involves both pre-registration and post-registration activities. Post-registration activities include the continuous evaluation of new information and environmental monitoring. DPR initiated the Pyrethroid Reevaluation on August 31, 2006 ([California Notice 2006-13](#)) based on environmental monitoring studies. Monitoring revealed widespread presence of pyrethroids in urban and agricultural waterways at levels toxic to *Hyaella azteca*, an aquatic crustacean used to indicate environmental health and water quality in streams, lakes, and other bodies of water. The reevaluation included any pesticide product containing one or more of the twenty synthetic pyrethroids. Products exempt from the reevaluation included pressurized liquids, dusts, and powders; impregnated materials (e.g., ear tags, flea collars, stakes –this does not include fabric); and, manufacturing use products.

The reevaluation split the pyrethroid active ingredients into three different groups to gather data for characterizing how pyrethroids residues were moving into California surface waters. Group I (first-generation) pyrethroids are photosensitive and include bioallethrin, d-allethrin, imiprothrin, phenothrin, prallethrin, resmethrin, and tetramethrin. Groups II and III are the newer second generation pyrethroids which are less photosensitive and persist longer. Group II includes tau-fluvalinate and tralomethrin. Group III includes beta-cyfluthrin, bifenthrin, cyfluthrin, cypermethrin, deltamethrin, esfenvalerate, fenpropathrin, gamma-cyhalothrin, lambda-cyhalothrin, permethrin, and (S)-cypermethrin. DPR required registrants with products containing active ingredients in Group I to submit certain environmental fate data. For Group II, sediment persistence and toxicity and monitoring data were required. Group III pyrethroids required environmental fate, sediment persistence and toxicity, off-site and transportation, and monitoring data.

Reevaluation Timeline:

- January 26, 2007, DPR hosts a reevaluation workshop to discuss study development for reevaluation data requirements.
- July 19, 2007, registrants of Group III active ingredients forms a data generating task force named the Pyrethroid Working Group (PWG), which submits an overall plan to

address transport mechanisms and mitigation to address off-site movement of pyrethroid residues.

- January 8, 2008, registrants submit all required environmental fate data for Group I pyrethroids.
- June 4, 2009, U.S. EPA notifies registrants of new environmental hazard and general labeling requirements for pyrethroid non-agricultural outdoor products (PR Notice 2008-01). While adoption was not mandatory, most registrants voluntarily adopted the labeling changes.
- November 11, 2009, DPR issues a directive for Group III pyrethroids to focus on urban offsite movement. Additional data required include a pest control business survey, urban pathway identification study, and wash-off dynamic study.
- December 2, 2010, PWG submits a final report from the pest control business survey.
- July 11, 2011, DPR expands the Publicly Owned Treatment Works (POTW) data requirement from permethrin to all Group III pyrethroids.
- July 29, 2011, DPR and registrants enter into a memorandum of understanding agreeing to add more restrictive label language to outdoor residential and structural use bifenthrin products.
- July 19, 2012, DPR adopts surface water regulations that limit the types of applications and the application methods for some pyrethroids that can be used by pest control businesses.
- May 30, 2013, PWG submits a final report from the pathway identification investigation.
- October 30, 2013, PWG submits a final report surveying 30 POTWs in California for Group III pyrethroid residues.
- May 5, 2014, PWG submits a final report investigating hard surface wash-off properties of specific pyrethroid pesticide product formulations.
- May 2014, all required Group III off-site transport, mitigation, and monitoring data are submitted.
- May 22, 2012, DPR concludes the pyrethroid reevaluation with California Notice to Stakeholders 2014-07.

DPR determined the reevaluation provided all the required data for the development and implementation of mitigation measures to reduce pyrethroid runoff from outdoor residential use patterns ([California Notice 2014-07](#)). Use restrictions on outdoor residential use pyrethroids represented the most effective opportunity to reduce pyrethroids in California water bodies. DPR's surface water regulations will minimize offsite movement of pyrethroids from hard non-porous surfaces. DPR continues to monitor urban and agricultural pyrethroid use. Indoor use patterns are being evaluated for its possible contribution to POTWs. For more information regarding the pyrethroid reevaluation, please contact Environmental Scientist, Carlos Gutierrez at 916-445-2885 or by email at <Carlos.Gutierrez@cdpr.ca.gov>.

5. Public Comment and Questions

Charles Salocks inquired how DPR defines the sulfuryl fluoride illness cases and if a medical professional determined the illness cases were due to exposure. Kevin Solari responded that the pesticide illness surveillance program determines the validity of the case.

James Seiber inquired about which chemicals, if any, are used as an alternative to sulfuryl fluoride. Kevin Solari stated sulfuryl fluoride has taken methyl bromide's place and currently, there are no competing pesticides. The non-chemical alternatives include heat treatment, infrared, and orange oil.

David Luscher questioned the high use of sulfuryl fluoride in Southern California. Dr. Brian Bret stated the pesticide is largely used for dry wood termites and Southern California is more prone to this type of pest.

Dr. Brian Bret questioned how DPR receives the illness cases for sulfuryl fluoride. Linda O'Connell replied DPR receives the cases from medical professionals.

David Luscher inquired if the concern regarding bystanders is during aeration or the fumigation process. Pam Wofford stated the concern is during both as ARB has collected some data with a concern for the concentration.

Lynn Baker inquired if neighboring residents are assumed to have windows closed and inside their home during nearby aeration and fumigation and why DPR would look into the information. Linda O'Connell stated the concentration is assumed to be equivalent whether inside or outside the home and DPR is gathering all possible information.

Rebecca Sisco inquired if 24-hour time-weighted average is the original aeration time and if the time can be lengthened or shortened. Linda O'Connell stated the 24-hour time-weighted average is an exposure period that DPR toxicologists determined.

Rebecca Sisco further inquired about the length of time it takes to aerate a structure. Linda O'Connell stated that it typically takes twelve hours to aerate a structure. However, a formula is used to include the type of pest, the concentration, the amount of pesticide, and the size of the house. There is an active aeration period and it appears it takes a full day for the fumigation to occur and then another day for the active aeration to occur and then the clearance is conducted on the third day.

Rebecca Sisco asked how long it took clearance to occur, as it is her understanding the highest exposure rate occurs then. Linda O'Connell stated the exposure during the clearance is not an issue with the aeration and clearance procedures in place.

Rebecca Sisco inquired the how long the time period is for worker exposure during the opening process of fumigation. Dr. Brian Bret stated in the past, workers would take down the tarps as the fumigation concluded and exposure to workers to any residual fumigants would then occur. Currently, the CAP procedure uses active ventilation before the removal of tarps to expel any residual fumigants. With the CAP procedure in place, the worker exposure is little to none and is assumed the exposure is less than 1 ppm.

Dr. James Seiber inquired if there was data showing any ambient exposure due to fumigants. Linda O'Connell stated there have been seven illness cases due to fumigation of neighboring structures.

Lynn Baker commented that there should be an advanced public notification when active aeration is taking place to adjacent bystanders.

Charles Salocks inquired if there were any illness cases reported other than upper respiratory problems and if DPR's Medical Toxicology Branch follows up on the cases. Linda O'Connell stated the vast majority of the symptoms could be related to chloropicrin and the Medical Toxicology Branch does not follow up on the cases. The county conducts an investigation of the illness and the county reports the investigation to DPR's WHS.

Justine Weinberg asked if WHS could look at chloropicrin levels along with the sulfuric fluoride evaluation. Linda O'Connell stated DPR is looking at chloropicrin levels at least in the reentry of homes.

Anne Katten commented that it might be important to factor in the type of ventilation system the home has in the sulfuric fluoride evaluation.

Charles Salocks inquired if the outcome of the brodifacoum reevaluation meant there was a shift in the use and if DPR compared brodifacoum levels in the animals analyzed in the wildlife incident and mortality data to the land use data, and sales and use data received by DPR. Ann Hanger stated DPR analyzed all the SGAR chemicals and all the SGARs are restricted materials.

David Luscher inquired whether there are lawn fertilizer products that incorporate pyrethroids and if there is a concern in possible overuse. The Scotts Company is one of the large lawn fertilizer registrants and voluntarily removed all combination products.

Dr. James Seiber asked whether there were any concerns of pyrethroid residues in homegrown foods as well as commercial agriculture. Carlos Gutierrez stated there are food tolerances for commercial agriculture and for the home user, there are application rates listed on the label.

Dr. James Seiber further inquired if there was data relating to home use of pyrethroids. Carlos Gutierrez stated there is data for food tolerances per the Code of Federal Regulations, Title 40, Section 180. Ann Prichard stated the reevaluation process is required to be focused and the pyrethroid reevaluation focused on toxicity to aquatic organisms. DPR has other branches that look into toxicity and food residue data. Carlos Gutierrez stated DPR has the food safety program in place to take samples to ensure residues on commodities are not above the residues established.

6. Agenda Items for Next Meeting

The next meeting will be on Friday, September 19, 2014, in the Sierra Hearing Room on the second floor of the Cal/EPA building, located at 1001 I Street, Sacramento, California.

Dr. James Seiber has suggested the meeting include an overview of the pesticide registration process in California. Additionally, Dr. James Seiber requested if DPR could quantify the number of registered biopesticides.

UPDATE August 1, 2014

The next meeting will be on Friday, August 15, 2014, in the Sierra Hearing Room on the second floor of the Cal/EPA building, located at 1001 I Street, Sacramento, California.

7. Adjourn