



November 13, 2017

Ms. Moana Appleyard
Office of Pesticide Programs
Regulatory Public Docket Center (28221T)
U.S. Environmental Protection Agency (EPA)
1200 Pennsylvania Ave., NW.
Washington, DC 20460-0001

Subject: Indoxacarb – Preliminary Ecological Risk Assessment (EPA-HQ-OPP-2013-0367)

Dear Ms. Appleyard:

On behalf of the Bay Area Clean Water Agencies (BACWA), we thank you for the opportunity to comment on the Preliminary Ecological Risk Assessment (ERA) for indoxacarb. BACWA's members include 55 publicly owned wastewater treatment facilities ("POTWs") and collection system agencies serving 7.1 million San Francisco Bay Area residents. We take our responsibilities for safeguarding receiving waters seriously. BACWA is especially interested in pesticides that are used in manners that have transport pathways to the sanitary sewer, as even the most sophisticated wastewater treatment plants cannot fully remove complex chemicals like pesticides.

Every day, BACWA members treat millions of gallons of wastewater that is then discharged to fresh or salt water bodies, including local creeks and rivers, bays, and the Pacific Ocean. These waterways provide crucial habitat to a wide array of aquatic species and waterfowl. In some cases, waters receiving POTW discharges ("receiving waters") may be effluent-dominated in that there is little to no dilution, either because the receiving water is small or there is a lack of mixing at certain times due to thermal or saline stratification.

BACWA has a strong interest in indoxacarb due to its high aquatic toxicity. The primary purpose of this letter is to request that the ecological risk assessment be expanded to include an evaluation of sewer discharges from pet flea control products and other indoor indoxacarb uses. A recent study involving several of our member agencies suggests that pet flea control products have a direct pathway, via sewer collection systems, to municipal wastewater treatment plants.

BACWA appreciates that OPP has started to conduct evaluation of risks associated with pesticide discharges to the sewer system ("down the drain" risk assessments). OPP's indoxacarb risk assessment did not include a down-the-drain assessment. Omitting evaluation of the sewer discharge environmental exposure pathway can be harmful to the environment and prove costly for POTWs, as detailed below.

In almost every US state – including California – state law precludes any local regulation of pesticide sales or use. As we have no local option to control use of pesticides consumer products, it is essential to us that OPP's Registration Review adequately evaluates potential impacts to wastewater quality, and results in mitigation measures ensuring that impacts to the beneficial uses of the receiving water are *prevented*.

For these reasons, it is of utmost importance to BACWA that pet flea control products and all other indoxacarb-containing products with pathways to the sewer be carefully and thoroughly evaluated.

In addition to commenting on the preliminary ecological risk assessment, we are also taking this opportunity to provide input on mitigation strategies for U.S. EPA to discuss with indoxacarb registrants. We are providing this input at this time because mitigation measures are essential and we understand that the next opportunity for public comment will be after such discussions and after U.S. EPA has prepared its proposed decision.

Thank you for this opportunity to present our input on each of these topics.

Background – Pesticide Discharges to the Sewer Can Harm the Environment and be Costly

Pesticide discharges to the sewer system can prove costly for POTWs, due to the potential for pesticides to cause or contribute to wastewater treatment process interference, NPDES Permit compliance issues, adverse impacts to receiving waters, degradation of recycled water quality and/or ability to reuse biosolids, in addition to exposing POTWs to the potential for third party lawsuits under the Clean Water Act (CWA).

Of particular concern is the ability of a specific pesticide to cause exceedance of a POTW's effluent toxicity limits. One universal water quality standard in the U.S., which stems directly from the Federal Clean Water Act (CWA), is that surface waters cannot be toxic to aquatic life. NPDES permits require POTWs to demonstrate that they meet this standard by evaluating toxicity using U.S. EPA standard methods (set forth in 40 CFR Part 136). To evaluate toxicity, every POTW must (1) conduct toxicity screening tests with a range of species, (2) select the most sensitive species, and (3) perform routine monitoring (typically monthly or quarterly). These monitoring data are used to determine whether the discharger has a *reasonable potential* to cause or contribute to toxicity in the receiving water. If it does, the CWA requires that numeric effluent limits be imposed, otherwise POTWs may be given numeric effluent triggers for further action. In the event that routine monitoring *does exceed* a toxicity limit or trigger, the POTW must perform accelerated monitoring (e.g., monthly); and if there is still evidence of consistent toxicity, the discharger must do a Toxicity Reduction Evaluation (TRE) to get back into compliance. The TRE requires dischargers to evaluate options to optimize their treatment plants and conduct a Toxicity Identification Evaluation (TIE), the cost of which can vary from \$10,000 to well over \$100,000 depending on complexity and persistence of the toxicant. The goal of the TIE is to identify the substance or combination of substances causing the observed toxicity. If a POTW's effluent is toxic because of a pesticide, it may not have any practical means to comply with CWA-mandated toxicity permit limits.

Once identified, the cost to treat or remove the toxicity causing compound(s) can vary dramatically. Often, there are few ways for a discharger to mitigate the problem other than organic chemicals like pesticides that appear at sub microgram per liter concentrations, largely because sewage is a complex mixture of natural organic compounds. Regardless of this, the

discharger must comply with its CWA permit limits. If a discharger violates a toxicity limit, it can be subject to significant penalties (in California up to \$10/gallon or \$10,000 per day).

In addition, when surface water bodies become impaired by pesticides, wastewater facilities may be subject to additional requirements established as part of Total Maximum Daily Loads (TMDLs) set for the water bodies by U.S. EPA and state water quality regulatory agencies. A number of pesticide-related TMDLs have been adopted or are in preparation in California. The cost to wastewater facilities and other dischargers to comply with TMDLs can be up to millions of dollars per water body per pollutant. This process will continue as long as pesticides are approved for uses that result in water quality impacts; it is therefore imperative that U.S. EPA conducts a Registration Review focusing on water quality impacts and for U.S. EPA to take action to ensure that any impacts are prevented or fully mitigated.

BACWA requests that the ERA be expanded to include an evaluation of sewer discharges from pet flea control treatments and other indoor indoxacarb uses

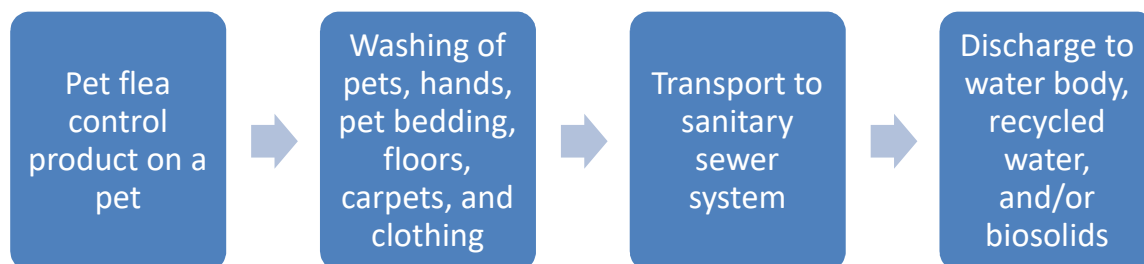
BACWA is concerned that risks associated with indoor indoxacarb use were not examined in the ERA and respectfully asks the U.S. EPA to include this analysis (a “down the drain” risk assessment) in the revised assessment. U.S. EPA has POTW predictive modeling tools which are suitable for conducting this assessment and has conducted similar assessments for many other pesticides.

We request that U.S. EPA specifically analyze sewer discharge sources such as:

- Pet flea control products (including spot-ons)
- Direct use of indoxacarb inside sewers and manholes

As explained in Appendix 1, pet flea control products contribute to POTW influent pesticides loads. Pet flea control chemicals are transported within a home to an indoor drain that flows to a POTW via the pathways illustrated in Figure 1.

Figure 1. Indoxacarb Pathway: From Pet to Wastewater Discharge



Scientific studies detailed in Appendix 1 examined the pathways that transport active ingredients from pet flea control products to the sewer system, both directly (through dog washing) and indirectly (such as after transfer onto human hands or socks that are subsequently washed).

Based on the data from these studies and pet population data, it is clear that pet flea control products are significant sources of pesticides to POTWs that should be accounted for in the ERA. Monitoring data for pet flea control chemicals in POTW influents and effluents show higher

concentrations in northern California POTWs (see Sadaria et al 2017). These data likely reflect real differences between these communities and those monitored in the nationwide study. The Sadara et al. 2017 northern California study was conducted during a severe drought that triggered water use restrictions throughout the study area and significant reductions in POTW influent flows. Its September timing coincides with what may be the peak pet flea control season in the study area. According to Sadaria et al 2017:

“Higher overall concentrations and detection frequencies in effluent from northern California may reflect regional, seasonal, and/or climate-related differences from other sampled facilities, such as lower dilution caused by drought-related water use reductions, presence of pests during all seasons because of the mild coastal climate, and pesticide use responding to regional pest pressures (e.g., high flea populations in California coastal areas).”

BACWA requests that U.S. EPA indoxacarb modeling and mitigation approaches account for these factors. Please see Appendix 2 of BACWA’s comments on the Preliminary Ecological Risk Assessment for the Pyrethroid Insecticides (enclosed), where we detailed potential approaches for addressing these factors within U.S. EPA’s current POTW model.

BACWA Requests that U.S. EPA Examine Risk Mitigation for Indoxacarb

Given findings for other pet flea control products, it seems likely that the “down-the-drain” risk assessment for indoxacarb will conclude that risk mitigation is warranted to reduce POTW indoxacarb discharges. Because 100% of POTWs must comply with the Federal Clean Water Act 100% of the time, whenever U.S. EPA identifies significant risks from pesticides discharged to POTWs, BACWA believes that a robust exploration of risk mitigation is imperative.

In response to the finding that pet flea control products are major sources of pesticides to POTWs, BACWA completed an assessment of pet flea control alternatives. This assessment, which is summarized in Appendix 2, identified multiple practical, effective, non-pesticide alternatives.

In light of these findings, BACWA requests that OPP conduct its risk-benefit evaluation for pet flea control products as a group (i.e. considering pyrethroids, imidacloprid, and fipronil, which are also undergoing Registration Review) and in the context of the broad range of available non-pesticide alternatives, including FDA-approved oral medications and mechanical controls (e.g., vacuuming, washing of pet bedding).

While we agree that pet flea and tick control has societal benefits, our review of control options detailed in Appendix 2 identified many alternatives that are likely far less environmentally problematic than indoxacarb. For example, the new generation of FDA-approved orals seems to be more convenient, equally or more effective, and well accepted by pet owners and veterinarians. Mechanical controls (vacuuming, washing of pet bedding) offer lower cost and greater long-term control, as these are the sole option that addresses all life cycle stages of fleas. Finally, we emphasize that we do not believe that fipronil, imidacloprid, or pyrethroids are good alternatives to indoxacarb.

BACWA suggests that U.S. EPA consider the following additional risk mitigation strategies for indoor indoxacarb products:

- Determine the minimum application rate necessary to achieve pest control for indoor

- uses like pet flea control. This would eliminate unnecessary overuse and minimize POTW discharge quantities.
- Consider adding wastewater-protective use restrictions to product labels—such as dissuading pet owners from washing their pets for two weeks after applying treatments. (See Appendix 3)

Thank you for the opportunity to provide this feedback regarding both the risk assessment and subsequent mitigation strategies. We ask that OPP evaluate indoxacarb discharges to POTWs and fully explore mitigation options, particularly for pet flea control products. BACWA requests that U.S. EPA, coordinate with the California Department of Pesticide Regulation (CDPR) (which has extensive relevant information and expertise), veterinarians, and registrants; bring in the latest scientific information – including CDPR scientific studies and modeling that are currently underway; and examine mitigation strategies for indoxacarb.

If you have any questions, please contact BACWA's Project Managers:

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Respectfully Submitted,




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Enclosures:

1. Sadaria, A.M. et al. 2017. Passage of Fiproles and Imidacloprid from Urban Pest Control Uses Through Wastewater Treatment Plants in Northern California. *Environmental Toxicology and Chemistry*. 36 (6), 1473-1482.
2. Bigelow Dyk, M. et al. (2012). Fate and distribution of fipronil on companion animals and in their indoor residences following spot-on flea treatments, *Journal of Environmental Science and Health, Part B: Pesticides, Food Contaminants, and Agricultural Wastes*, 47(10): 913-924
3. Halos, L. et al. 2014. Flea Control Failure? Myths and Realities. *Trends in Parasitology*, 30:5 228-233.
4. Blagburn, B., and Dryden, M., Biology, Treatment, and Control of Flea and Tick Infestations, *Vet Clin Small Anim*, 2009, Vol 39, pp 1173-1200.
5. Litchfield et al., Safety Evaluation of Permethrin and Indoxacarb in Dogs Topically Exposed to Activyl® Tick Plus, *J Veterinar Sci Technology* 2015, 6:2.
6. Teerlink, J., J Hernandez, R Budd. 2017. Fipronil washoff to municipal wastewater from dogs treated with spot-on products. *Sci Total Environ* 599-600: 960-966.
7. Bay Area Clean Water Agencies (BACWA). July 7, 2017. Appendix 2 - Comment Letter on U.S. EPA Preliminary Ecological Risk Assessment for the Pyrethroid Insecticides.

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Appendix 1

On-Pet Flea Treatments: Evidence for the Pathway to the Sewer

Part I – Evidence for the Pathway to the Sewer

There is mounting evidence that pesticides from pet flea control products (spot-ons and collars) have exposure pathways to the sewer. The research summary below is organized first by the consumer use, followed by specific studies throughout a sewage collection system and at POTWs.

Pet Flea Control Products - Background

Pet topical treatments are designed to impact one or more stages of the flea cycle through direct contact with the pesticide (rather than an adult flea biting the pet and obtaining the pesticide systemically with the consumed blood). Therefore, pesticides in topicals are not meant to enter the pet's bloodstream but rather are meant to stay on the pet's fur in order to be effective.

Pet Washing Discharge Pathway

Pet washing is likely a major discharge pathway for pet flea control products. A study by California Department of Pesticide Regulation (Teerlink et al. 2017; enclosed)¹ measured the washoff of fipronil spot-on products when bathing treated dogs. Fipronil was detected in all samples – even those collected 28 days post-application. According to the authors of the study:

“Results confirm a direct pathway of pesticides to municipal wastewater through the use of spot-on products on dogs and subsequent bathing by either professional groomers or by pet owners in the home. Comparisons of mass loading calculated using California sales data and recent wastewater monitoring results suggest fipronil-containing spot-on products are a potentially important source of fipronil to wastewater treatment systems in California. This study highlights the potential for other active ingredients (i.e., bifenthrin, permethrin, etofenprox, imidacloprid) contained in spot-on and other pet products (i.e., shampoos, sprays) to enter wastewater catchments through bathing activities, posing a potential risk to the aquatic organisms downstream of wastewater discharge.”²

Indirect Sewer Discharge Pathways

Several scientific studies have examined the transport of active ingredients from pet flea control products onto surfaces, such as human hands, that are subsequently washed, completing a transfer pathway to the sewer system.

- *Spot-on treatment product to glove (hands) pathway:* A 2015 study by Litchfield et al. evaluated the transfer of permethrin and indoxacarb from a topical pet flea control treatment to people's hands.³ In the study, the topical treatment was applied to dogs that had not received a topical treatment for at least two months. To simulate human exposure to the pesticides, “Glove sampling included the wipe sampling technique, which

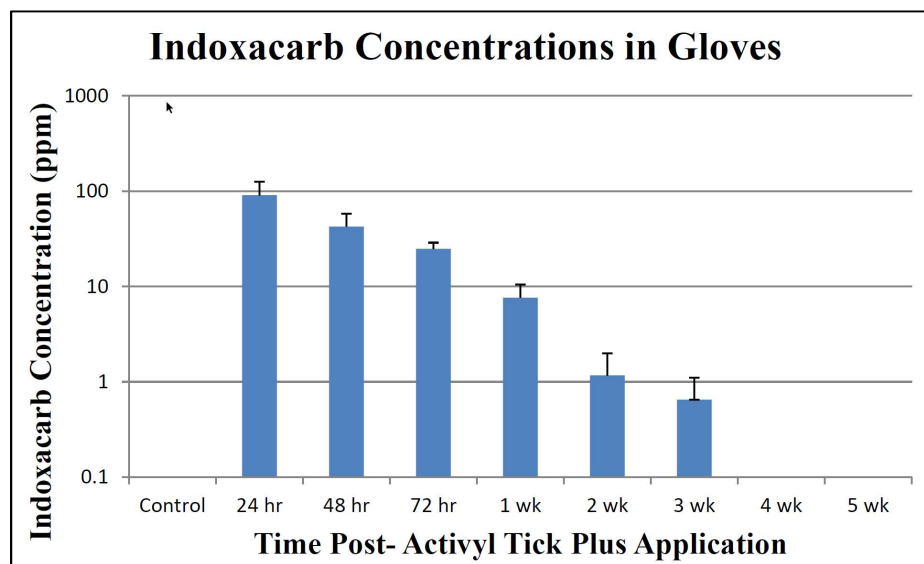
¹ Teerlink, J., J Hernandez, R Budd. 2017. Fipronil washoff to municipal wastewater from dogs treated with spot-on products. *Sci Total Environ* 599-600: 960-966.

² Teerlink, J., J Hernandez, R Budd. 2017. Fipronil washoff to municipal wastewater from dogs treated with spot-on products. *Sci Total Environ* 599-600: 960-966.

³ Litchfield et al., “Safety Evaluation of Permethrin and Indoxacarb in Dogs Topically Exposed to Activyl® Tick Plus,” *J Veterinar Sci Technology* 2015, 6:2 <http://dx.doi.org/10.4172/2157-7579.1000218>. (enclosed)

consisted of petting the dog forward and back along its back and sides, while avoiding the application site, for five minutes while wearing a 100% cotton glove.” The cotton glove samples were collected at days 0, 1, 2, 3, 7, 14, 21, 28, and 35. While the results showed that the largest mass of indoxacarb was transported within the first week, there continued to be measurable transfer to the gloves, even at day 21. The study did not measure indoxacarb degradates, which likely formed during the study period.

Figure 2. (from Litchfield et. al. 2015) Indoxacarb concentrations in gloves after petting dogs who had application of indoxacarb (“Activyl Tick Plus”) spot-on flea control (µg/L)



- *Spot-on treatment product to glove (hands) pathway:* A 2012 study by Bigelow Dyk et al. presents additional evidence of transport of a pet flea control products onto human hands and through homes.⁴ In the study, researchers monitored transfer of fipronil (from a commercially available spot-on product) onto pet owners’ hands and within their homes over a four-week period following spot treatment application. Participants used cotton gloves to pet their dog or cat for 2 minutes at a time at specific intervals after the application (24 hours, 1 week, 2 weeks, 3 weeks, and 4 weeks). Participants also wore cotton socks for 2 hours a night for 7 nights in a row, for four consecutive weeks following application. The gloves, socks, and brushed pet hair were subsequently analyzed for fipronil and its degradates. Bigelow Dyk and colleagues also incorporated a fluorescent dye into the spot treatment to provide photographic evidence of spot-on pesticide transfer. The photographic results shown in the paper illustrate the transfer from the application location to other areas of the pet’s fur and onto the pet owners’ hands.

⁴ Bigelow Dyk, M., et al. (2012) Fate and distribution of fipronil on companion animals and in their indoor residences following spot-on flea treatments, *Journal of Environmental Science and Health, Part B: Pesticides, Food Contaminants, and Agricultural Wastes*, **47**(10): 913-924

Based on the data from these studies characterizing topical flea control active ingredient transfer to owners' hands⁵ and per capita pet population data, owner hand washing as well as washing of clothing and mopping of floors could be a significant source of pesticides to POTWs.⁶

Evidence from Collection Systems

CDPR is in the process of completing a collection system ("sewershed") study within the City of Palo Alto's Regional Water Quality Control Plant.⁷ The study involved twenty-four hour time weighted composite samples (influent, effluent, and ten sites in the collection system). Samples were collected from several discharge-specific sites with potential for relatively large mass flux of pesticides (i.e., discharges from pet grooming operation, pest control operator, and a laundromat). The samples were analyzed for a suite of pesticides. Preliminary results from the pet-grooming site provide evidence that pet washing is a pathway for pesticide discharges to sewer systems.

We encourage OPP to obtain the final results of this study, which should be available within the timeframe of OPP's exploration of mitigation strategies for indoxacarb.

POTW Influent and Effluent

Lastly, further insights regarding transport of indoor flea control products to POTWs comes from a study of fipronil and imidacloprid at eight POTWs that was recently conducted by the San Francisco Bay Regional Monitoring Program in collaboration with BACWA, CDPR and Arizona State University.⁸ The study monitored imidacloprid and fipronil, as well as its degradates, in the influent and effluent of eight urban California POTWs. The results indicated that fipronil, its degradates, and imidacloprid were ubiquitous in the influent sewage and final treated effluent of all eight participating POTWs, and – based on a detailed analysis of the sewer discharge sources of these two chemicals, which have relatively little indoor use other than pet flea control – provide compelling evidence that pet flea control products may be the primary source of both chemicals in wastewater.

⁵ Bigelow Dyk, M., et al. (2012) Fate and distribution of fipronil on companion animals and in their indoor residences following spot-on flea treatments, *Journal of Environmental Science and Health, Part B: Pesticides, Food Contaminants, and Agricultural Wastes*, **47**(10): 913-924

⁶ Sadaria, A.M., Sutton, R., Moran, K.D., Teerlink, J., Brown, J.V., Halden, R.U., 2017. Passage of fiproles and imidacloprid from urban pest control uses through wastewater treatment plants in northern California, USA. *Environ. Toxicol. Chem.* 36:6 1473-1482.

⁷ See http://www.cdpr.ca.gov/docs/emon/surfwttr/presentations/presentation_130_targeted.pdf

⁸ Sadaria, A.M., Sutton, R., Moran, K.D., Teerlink, J., Brown, J.V., Halden, R.U., 2017. Passage of fiproles and imidacloprid from urban pest control uses through wastewater treatment plants in northern California, USA. *Environ. Toxicol. Chem.* 36:6 1473-1482.

Appendix 2

Pet Flea Control Products: Alternatives Analysis

Alternatives and Mitigation

BACWA requests that U.S. EPA, in coordination with CDPR (which has extensive relevant information and expertise), veterinarians, and registrants, develop mitigation strategies for pet flea control products, including spot-ons and collars. Two specific topics are discussed below, as an effort to provide insight regarding mitigation options for flea control:

- Alternatives: oral medications and integrated pest management appear effective
- Optimization of application rates of pet flea control products

Alternatives: Integrated Pest Management and Oral Medications

Mechanical controls (e.g., vacuuming) appear to be key to avoiding a flea infestation in a home. Further, since the previous registration, there is now an opportunity provided by oral treatments that have come on the market in recent years (available for both dogs and cats) that could avoid the on-pet use of not only indoxacarb, but also alternatives that are problematic from the water quality perspective (e.g., fipronil, pyrethroids, and imidacloprid).

The fleas found on a pet are estimated to represent only 1-5% of the flea cycle in a home; the other 95% are found as eggs, larvae, pupae, and adult fleas throughout the home and surrounding environment.⁹ It takes about 18 days for a flea egg to grow into an adult flea, but in cool weather immature fleas can lay dormant in a pupal cocoon for up to 1 year. Adult fleas can live on a pet for 30 to 40 days. Fleas lay 20 to 50 eggs each day; consequently flea problems in residential settings can get out of control quickly.

Therefore, to avoid repeat infestations, one must address all stages of this flea cycle including flea eggs, larvae and pupae.¹⁰ One way to do so is via non-pesticide mechanical controls, including frequent indoor vacuuming, washing of pet bedding, and use of a pet flea comb.¹¹ In particular, vacuuming needs to be both thorough and frequent. It should include the pet sleeping area, floors, furniture and all upholstered or carpeted surfaces, including under cushions, furniture and in other hard to reach places. Regarding frequency, it turns out that during the pupal stage, the flea is encased in a shell that is not penetrated by pesticides. The act of vacuuming can speed up the process. Specific guidance from one study notes the following:

*"The vibration also stimulates adult fleas to emerge from their cocoons so that they can be collected in the vacuum machine. Therefore frequent vacuuming, during a flea infestation, can reduce the overall flea burden in the home. It should be ensured that vacuum bags are disposed of properly, to prevent recolonization of the home with flea stages previously removed by vacuuming."*¹²

Although spot-on pet flea control products currently dominate the pet flea control market, new

⁹ Halos, L., et al. (2014). Flea Control Failure? Myths and Realities. Trends in Parasitology, 30:5 228-233.

¹⁰ Ibid, 228-233.(enclosed)

¹¹ American Veterinary Medical Association (2009). External Parasites.

¹² "Biology, Treatment, and Control of Flea and Tick Infestations," Blagburn, B., and Dryden, M., Vet Clin Small Anim, 2009, Vol 39, pp 1173-1200. (enclosed)

oral medications have recently become available. The table on the following page summarizes the current state of available oral medications for pets. The new pills, which are registered by U.S. FDA rather than U.S. EPA, appear to eliminate aquatic (and human) exposure pathways and should be equally or more convenient for pet owners, once they have obtained a prescription from a veterinarian. The involvement of the veterinarian has the added benefit of providing pet-specific guidance on flea control approach and safe dosage. Some studies indicate that oral medications may be more effective than topical spot treatments possibly because there is less reliance on proper application by the owner.¹³

Optimization of Application Rates of Pet Flea Control Products

Another consideration for pet flea control products is that of application rate. Given that these household and pet flea control products have a transport pathway to the sewer, it would be of great interest to understand whether manufacturers have optimized the amounts applied. While spot-ons come in different doses based on pet weight, it is unclear whether that optimization was based solely on pet health or whether that is also the minimum dosage for effective insecticidal activity.

¹³ "Flea blood feeding patterns in cats treated with oral nitenpyram and the topical insecticides imidacloprid, fipronil and selamectin," McCoy, c., et al., *Veterinary Parasitology*, Vol. 156, pp 293-301, 2008.

List of Currently Available Oral Pet Treatments for Fleas (Alphabetical)

Active Ingredient	Example Product Names and Manufacturers	Dogs, Cats or Both?	Flea, Tick, Both	Dose Schedule	Adulticide?	Insect Growth Regulator?	Chemical Family	Year Registered
Afoxolaner	Nexgard (Merial)	Dogs only	Both	1 month	X	No	Isoxazoline ¹⁴	2013
Fluralaner	Bravecto (Merck)	Dogs only	Both	2-3 months	X	No	Isoxazoline	2014
Lufenuron	Program (Novartis) and Sentinel (that also includes a heartworm pharma)	Both	Flea eggs, as well as hookworms, roundworms	1 month	No	X	Benzoylurea	1995 (for dogs)
Nitenpyram	Capstar (Novartis), Capguard (Sentry)	Both	Flea	A few hours only (meant for immediate infestation control)	X	No	Neonicotinoid	2000
Sarolaner	Simparica (Zoetis, a subsidiary of Pfizer)	Dogs only	Both	1 month	X	No	Isoxazoline	2016
Spinosad	Comfortis and Trifexis (Elanco)	Both	Flea	1 month	X	No	Spinosyn, macrocyclic lactone	2007 (approx)

¹⁴ Flea products from the isoxazoline chemical family are new to the marketplace; therefore pet health insights are largely limited to the studies conducted by the manufacturers and the packaging text required by the FDA. There appears to be no published information about health and safety beyond the manufacturer guidance in the MSDS. Due to the application method (pill), human exposure is likely small, though no data are available to verify this assumption.

Appendix 3

Suggested Indoxacarb Product Label Improvement – Pet Flea Control Products

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In this attachment, BACWA respectfully submits suggested concepts and goals for upgrades to the existing indoxacarb pet flea control product labels (e.g., U.S. EPA Registration Numbers 773- 93, 773- 94, and 773- 95). Our suggestion comes from our expertise as environmental scientists and engineers. As we are not pest control experts, we are not intending to provide specific label language, and recognize that our suggestion should be vetted by pesticide regulators and users.

Example of Current Label Language (excerpt from current labels)

RESTRICTIONS

►DO NOT ALLOW CHILDREN TO APPLY PRODUCT. ►TO PREVENT HARM TO YOU AND YOUR DOG, READ ENTIRE LABEL AND DIRECTIONS BEFORE EACH USE. ►FOLLOW ALL DIRECTIONS AND PRECAUTIONARY STATEMENTS CAREFULLY. ►USE ON DOGS ONLY. ►DO NOT USE ON DOGS (MALE OR FEMALE) INTENDED FOR BREEDING, OR ON DOGS THAT ARE PREGNANT OR NURSING. ►DO NOT USE ON CATS OR OTHER ANIMALS. ►DO NOT APPLY MORE THAN ONCE PER MONTH. ►DO NOT HAVE CONTACT OR ALLOW CHILDREN TO HAVE CONTACT WITH TREATED AREA UNTIL IT IS COMPLETELY DRY. ►DO NOT ALLOW YOUR DOG TO INGEST THIS PRODUCT.

Suggested change: Add language to restrictions section to dissuade owners from washing their pets for at least 2 weeks after treatment.