



U.S. ENVIRONMENTAL PROTECTION AGENCY

OFFICE OF INSPECTOR GENERAL

Chemical Safety

Additional Measures Can Be Taken to Prevent Deaths and Serious Injuries From Residential Fumigations

Report No. 17-P-0053

December 12, 2016



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Abbreviations

EPA	U.S. Environmental Protection Agency
FIFRA	Federal Insecticide, Fungicide, and Rodenticide Act
FY	Fiscal Year
OCSP	Office of Chemical Safety and Pollution Prevention
OECA	Office of Enforcement and Compliance Assurance
OIG	Office of Inspector General
OPP	Office of Pesticide Programs
ppm	parts-per-million
PRDA	Puerto Rico Department of Agriculture

Cover photo: A residence in Florida is fumigated with sulfuryl fluoride to combat drywood termites. (EPA OIG photo)

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At a Glance

Why We Did This Review

The U.S. Environmental Protection Agency's (EPA's) Office of Inspector General (OIG) conducted this review to determine the extent and nature of adverse impacts caused by structural fumigation. We also sought to determine whether regulatory, program execution (e.g., training, funding, inspections, enforcement, etc.), or other factors are associated with adverse impacts.

The focus of our review was sulfuryl fluoride, the primary pesticide used in residential fumigation, and one that is highly toxic to humans. Residential fumigation involves filling a home with sulfuryl fluoride and placing a tarp or tent over the home to trap gas inside. This review focused on EPA Regions 2, 4 and 9, as they oversee states that conduct the most residential fumigations.

This report addresses the following EPA goals or cross-agency strategies:

- *Ensuring the safety of chemicals and preventing pollution.*
- *Protecting human health and the environment by enforcing laws and assuring compliance.*

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Additional Measures Can Be Taken to Prevent Deaths and Serious Injuries From Residential Fumigations

What We Found

Since 2002, at least 11 deaths and two serious injuries occurred during residential fumigations in the two U.S. states with the most fumigation treatments—California and Florida. Compliance with current pesticide use requirements does not always prevent adverse impacts.

The EPA can better prevent deaths and serious injuries caused during residential fumigations by amending sulfuryl fluoride labels and monitoring compliance.

We identified multiple factors that contributed to these adverse impacts, including: (1) no requirement to secure tenting around structures undergoing fumigation, (2) ineffective devices used to detect pesticide levels inside of structures, and (3) failure to attend mandatory training for residential pesticide applicators who conduct fumigations.

In addition, we identified other program control risks that, if addressed, could reduce the risk of future deaths and serious injuries:

- The EPA could designate residential fumigation as a priority area for enforcement, with special emphasis placed on locations such as Puerto Rico, which has a high demand for residential fumigations but lacks information to effectively oversee such fumigations. Data on sales and use of sulfuryl fluoride in Puerto Rico are not reported and are unknown.
- The EPA could require site-specific residential fumigation management plans. Such plans can prevent accidents, identify appropriate emergency procedures, and demonstrate compliance with requirements.
- The EPA could complete work to develop a comprehensive national pesticide incident database to monitor residential fumigation risks. The EPA has an ongoing pesticide incident database initiative to collect data, but there is no scheduled completion date.

Recommendations and Planned Agency Corrective Actions

We recommend that the EPA implement a process to evaluate label changes for all three brands of sulfuryl fluoride to require secured tenting and fumigation management plans, clearly define the criteria for meeting the applicator stewardship training requirement, conduct an assessment of clearance devices to validate their effectiveness, and establish milestone dates for the pesticide incident database initiative. We also recommend that EPA Region 2 incorporate into the cooperative agreement with the Puerto Rico Department of Agriculture, an investigation and evaluation of sulfuryl fluoride usage to determine whether misuse has occurred, and then the EPA should provide assistance to Puerto Rico as needed. The agency provided acceptable corrective actions and milestone dates for six of the seven recommendations. Six recommendations are resolved. One recommendation is unresolved with resolution efforts in progress.



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

THE INSPECTOR GENERAL

December 12, 2016

MEMORANDUM

SUBJECT: Additional Measures Can Be Taken to Prevent Deaths and Serious Injuries
From Residential Fumigations
Report No. 17-P-0053

FROM:

Arthur A. Elkins Jr.

A handwritten signature in black ink, appearing to read "Arthur A. Elkins Jr.", is written over the printed name.

TO:

Cynthia Giles, Assistant Administrator
Office of Enforcement and Compliance Assurance

Jim Jones, Assistant Administrator
Office of Chemical Safety and Pollution Prevention

Judith Enck, Regional Administrator
EPA Region 2

This is our report on the subject evaluation conducted by the Office of Inspector General (OIG) of the U.S. Environmental Protection Agency (EPA). The project number for this evaluation was OPE-FY16-0004. This report contains findings that describe the problems the OIG has identified and corrective actions the OIG recommends. This report represents the opinion of the OIG and does not necessarily represent the final EPA position. Final determinations on matters in this report will be made by EPA managers in accordance with established audit resolution procedures.

The offices responsible for issues evaluated in this report are the Office of Pesticide Programs, within the Office of Chemical Safety and Pollution Prevention; the Office of Compliance, within the Office of Enforcement and Compliance Assurance; and EPA Region 2, which has primary responsibility for issues pertaining to the Commonwealth of Puerto Rico.

Action Required

One OIG recommendation in this final report is unresolved. In accordance with EPA Manual 2750, we are requesting a meeting of action officials from EPA Region 2 and the OIG's Office of Program Evaluation to start the resolution process. If resolution is not reached within 30 days of the date of the report, agency action officials are required to complete and submit a dispute-resolution request to the EPA's Chief Financial Officer.

We will post this report to our website at www.epa.gov/oig.

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Chapter 1

Introduction

Purpose

The U.S. Environmental Protection Agency's (EPA's) Office of Inspector General (OIG) conducted this evaluation to determine the extent and nature of adverse impacts caused by structural fumigants.¹ We also sought to determine whether regulatory, program execution (e.g., training, funding, inspections, enforcement, etc.), or other factors are associated with adverse impacts.

Background

In 2015, there were two high profile incidents of serious and permanent injury to two families in the United States due to improper residential fumigation practices:

- In March 2015, a family vacationing on St. John in the U.S. Virgin Islands fell ill after a suspected pesticide exposure. Methyl bromide was used to fumigate the adjacent condominium where the family was staying, even though the EPA had banned methyl bromide for residential structure use in 1984.²
- In August 2015, members of a family of five fell ill after the family home in Palm City, Florida, was fumigated using sulfuryl fluoride.³ The family returned to the home after it had been cleared for reentry after 2 days. The Commissioner of Agriculture found that the pesticide applicators committed violations including the company's certified operator not participating in a training program required for the chemical used in the fumigation, and using defective clearance devices to confirm the air inside the home was safe.⁴

In 2015, the EPA's Office of the Administrator established an agencywide workgroup to recommend actions that the EPA could take to help prevent a

¹ In the course of the evaluation, the agency recommended that the term "structural fumigation" be replaced by "residential fumigation." For the purposes of this report, the term "residential fumigation" covers fumigations of both residences and commercial buildings.

² On March 29, 2016, Terminix International Company LP, and its U.S. Virgin Islands operation, Terminix International USVI LLC, pleaded guilty to criminal charges for illegally applying fumigants containing methyl bromide in multiple residential locations in the U.S. Virgin Islands, in violation of the Federal Insecticide, Fungicide, and Rodenticide Act.

³ The Florida Department of Health concluded that sulfuryl fluoride exposure was the most likely cause of illness for the three family members who received medical care.

⁴ In March 2016, the owner and an employee of the subcontracted company that fumigated the Palm City home pleaded guilty to a charge of using the pesticide improperly.

reoccurrence of methyl bromide misuse. Our report is not focused on methyl bromide misuse.

Residential Fumigation

Residential fumigation is a pest control method that involves filling the airspace within a residence with a toxic gas. A tarp, or tent, is used over the structure to trap gas inside. The gas penetrates the cracks, crevices and pores in wood to eliminate pests such as drywood termites and bed bugs. Sulfuryl fluoride is the primary pesticide ingredient used as a residential fumigant, and is classified by the EPA as a “Restricted Use Pesticide” due to its high toxicity to humans. The large majority of residential fumigations in the United States are performed in southern Florida, southern California, Hawaii, Puerto Rico and the U.S. Virgin Islands. There are close to 200,000 residential fumigations performed annually in California and Florida.

Residential Fumigation Process

The residential fumigation process includes three phases: pre-fumigation, fumigation and post-fumigation (Table 1). The pre-fumigation phase occurs on the day of the residential fumigation, and involves prepping the home for



Fumigation of a home in California. (EPA OIG photo)

fumigation. The pest control crew covers the structure with a series of tarps, with seams rolled together and held in place with clamps to provide a seal sufficient to retain fumigant inside the “tent.”

Before the pesticide may be released into a home, the certified operator performs a final walk-through to ensure that all preparations for residential fumigation requirements are met as directed by the label. Requirements directed by the label include, but are not limited to, ensuring that no human or animal life is within the fumigation zone; doors, windows and all entrances are properly secured; air conditioning and heating units are off; secondary locks are in place; and proper warning signs are posted.

Table 1: Residential fumigation process

Fumigation phase	Description
Pre-Fumigation	A fumigation tent is set up and secured, and a walk-through of the interior and exterior of the home is performed to ensure compliance with label requirements.
Fumigation	The fumigant is administered, and the home is secured and remains secured for the duration of the fumigation.
Post-Fumigation	The tent is dismantled, the home is aerated and, eventually, cleared for occupancy.

Source: The Florida Department of Agriculture and Consumer Services, OIG.



Chloropicrin in a pan.
(EPA OIG photo)

Once the pre-fumigation requirements are met, a warning agent (chloropicrin) is released within the home, because the pesticide used for fumigation, sulfuryl fluoride, is an odorless gas. Chloropicrin causes eye, nose, throat and upper respiratory irritation, prompting an individual to leave the home. After the release of the warning agent, the pesticide is released into the residence. Certified operators are the only individuals authorized to administer the pesticide.

The home remains secured for approximately 18 to 24 hours.

After the residential fumigation period has elapsed, the pest control business will remove the tent and begin the aeration of the home. The pest control crews remove the tarps, leaving in place the secondary locks on exterior doors, placing warning signs on doors and allowing the structure to aerate for the required time.

The final step of the aeration process is to test the air and ensure that the house is safe for reentry by taking multiple readings and measurements throughout the house. A residence is considered “cleared” after the certified operator has verified the pesticide has adequately dissipated. The certified operator will post clearance notices at all entry points and notify the resident that the home is clear to reenter.



Clearance device. (EPA OIG photo)

Regulatory Inspections

Section 26 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) sets forth the conditions for state enforcement authority for pesticide use violations.⁵ Currently, all states have primacy with the exception of Wyoming. The EPA provides oversight to ensure the adequacy of the overall state program and an equal level of protection of human health across the country.⁶ Anyone applying pesticides (such as residential fumigants) must comply with federal and state laws. In general, states have primary authority for compliance monitoring and enforcing proper pesticide use. State inspections determine whether:

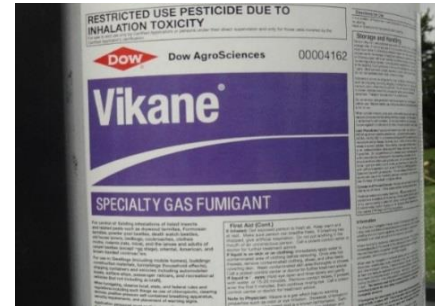
- Residential fumigation crews used proper preparation techniques and proper safety equipment, signs were posted at all entrances and on all sides of the tent’s exterior, and secondary locks were used.

⁵ FIFRA defines “state” to include the District of Columbia and U.S. territories.

⁶ EPA issued two Federal Register notices governing how the agency oversees the states with respect to primacy and rescission of primacy through the “FIFRA State Primacy Enforcement Responsibilities: Final Interpretive Rule,” and “Procedures Governing the Rescission of State Primary Enforcement Responsibility for Pesticide Use Violations.” Within the parameters of Sections 26 and 27 of FIFRA, the interpretive rule on primacy, and the rule on the procedures governing rescission, the EPA may conduct compliance monitoring inspections and initiate enforcement actions for pesticide use violations.

- The level of safety to the public while the residential fumigation was occurring was adequate. For example, inspectors check to see that there are no visible tears in the tenting.
- The certified applicator aerated the residence properly and followed proper clearance procedures, which include the use of properly functioning and calibrated clearance devices.

The EPA’s Office of Chemical Safety and Pollution Prevention (OCSPP), Office of Pesticide Programs (OPP), requires extensive scientific data on the potential health and environmental effects of a pesticide before granting a registration, which is a license to market that product in the United States. The EPA evaluates the data and ensures that the label translates the results of those evaluations into a set of conditions, directions and precautions that define who may use a pesticide, as well as where, how, how much, and how often it may be used. The overall intent of the label is to provide clear directions for effective product performance while minimizing risks to human health and the environment.



Example of a sulfuryl fluoride product label. (EPA OIG photo)

Pesticide product labels provide critical information about how to safely and legally handle and use pesticide products. The EPA’s Office of Enforcement and Compliance Assurance (OECA) provides funds to states to support compliance and enforcement activities, such as compliance assistance, compliance monitoring, case development and enforcement.⁷

Responsible Offices

The EPA offices with primary responsibility for the issues discussed in this report include:

- OPP, within OCSPP.
- The Office of Compliance, within OECA.
- EPA Region 2, which has primary responsibility for issues pertaining to the Commonwealth of Puerto Rico.

⁷ Unlike most other types of product labels, pesticide labels are legally enforceable, and all carry the statement: “It is a violation of Federal law to use this product in a manner inconsistent with its labeling.” In other words, the label is the law.

Scope and Methodology

We conducted this performance audit in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based upon our audit objectives. We conducted this audit from October 2015 to July 2016.

We reviewed relevant materials, including laws, regulations, procedures and guidance, such as the Joint OPP/OECA fiscal year (FY) 2015–2017 FIFRA Cooperative Agreement Guidance, the 2013 FIFRA Inspection Manual, and FY 2016–2017 OCSPP and OECA National Program Manager Guidance documents.

We selected three regional offices (EPA Regions 2, 4 and 9) as the focus of our evaluation. These EPA regions were selected based on the high number of residential fumigations conducted in their states. We judgmentally chose to review states within those regions—specifically, the states of Florida and Georgia in Region 4, California and Hawaii in Region 9, and the territory of Puerto Rico in Region 2. We reviewed individual investigative residential fumigation incident case files involving deaths and serious injuries in California from 2003 through 2014, and in Florida from 2002 through 2007 and 2014 through 2015. These two states conduct the most residential fumigation treatments in the United States.

We interviewed OPP and OECA staff and managers at EPA headquarters, EPA regional pesticide and enforcement managers, and regional project officers. We interviewed state pesticide program managers and staff from state departments of agriculture on the residential fumigation inspection and enforcement programs within their respective states. We also observed residential fumigation inspections that took place in Florida and California. We interviewed the Inspector General of the Florida Department of Agriculture and Consumer Services about their evaluation of the structural fumigation process in Florida.

An OIG project staff member attended the University of Florida’s School of Structural Fumigation in November 2015 to gain technical knowledge—through classroom instruction and field demonstrations—of the residential fumigation process. Additionally, to gain the perspectives of industry and nongovernmental organizations, we interviewed officials from Beyond Pesticides, the National Pest Management Association, Douglas Products (manufacturer of Vikane) and Spectros Instruments.

We reviewed residential fumigation incident data from OPP's Incident Data System,⁸ the National Pesticide Information Center, the National Institute for Occupational Safety and Health/Sentinel Event Notification System for Occupational Risks, the California Pesticide Illness Query, the Florida Department of Health, and the American Association of Poison Control Centers. We also spoke to EPA representatives about the agency's Pesticide Incidents Workgroup.

⁸ Per FIFRA Section 6(a)(2), pesticide registrants are required to report to the EPA information concerning unreasonable adverse effects on the environment caused by their products.

Chapter 2

Factors Contributing to Human Deaths Associated With Residential Fumigation Need to Be Addressed

Since 2002, at least 11 deaths and two serious injuries⁹ occurred during residential fumigations in California and Florida. We identified multiple factors that contributed to the adverse impacts, including:

- No requirement to secure or prevent access to tenting around homes undergoing fumigation.
- Ineffective devices used to detect pesticide levels inside of structures.
- Failure to attend mandatory training for applicators conducting residential fumigations.

We also found that there is no comprehensive national pesticide incident database that the EPA could use to monitor residential fumigation-related risks. The EPA has an ongoing pesticide incident database initiative to collect these data, but has no scheduled completion date. Further, Puerto Rico, a high-volume fumigation territory, lacks information to effectively oversee residential fumigations.

Extent of Adverse Impacts in California and Florida

To gain an understanding about the extent of adverse impacts caused by residential fumigation, we reviewed pesticide incident follow-up reports involving death and serious injuries from the two states with the most residential fumigation treatments in the United States. We found that in California, between 2005 and 2014, there were at least seven deaths and one serious injury. In Florida, in 2002,¹⁰ there were two deaths, and between 2012 and 2015 there were two deaths and one serious injury.

Our review of incident reports for the 11 fatalities revealed that one death was reported as an alleged burglary that occurred after the introduction of sulfuryl fluoride but prior to clearance. One death was reportedly caused by a pesticide applicator's negligence, because the applicator did not fully clear all persons out of an apartment prior to fumigation. Two deaths were ruled as suicides. For the remaining seven deaths, the incident reports did not contain a definitive reason as to why the people entered homes after the introduction of sulfuryl fluoride but prior to clearance.

⁹ We define "serious injury" as patients exhibiting signs or symptoms as a result of exposures that were life threatening or resulted in significant residual disability or disfigurement.

¹⁰ A separate review of the Florida Department of Agriculture Bureau Chief's personal fumigation incident datasheet showed two fatalities due to residential fumigation exposure in 2002.

Review of the two instances of serious injury revealed that one instance involved injuries to an alleged burglar, with the injuries occurring after the introduction of sulfuryl fluoride to a home but prior to clearance. The other instance of injury occurred due to improper clearance by applicators, who used defective clearance devices; the applicators also lacked required training.

Table 2: Analysis of incident reports from California and Florida (exposure to sulfuryl fluoride)

State	Date	Incident	Summary
CA	3/7/2005	Death	Pest control operators heard someone calling for help and attempting to exit the tarped structure. The crew pulled a woman out from under the tarps and contacted 911. The woman was transported to the hospital, where she died. The fumigation company was found to not have cleared all persons before fumigating.
CA	6/2/2007	Serious Injury	When the pest control operator returned to aerate a house fumigated 3 days earlier, the operator found a man asleep on the couch; he had broken into and ransacked the house.
CA	12/19/2008	Death	Pest control operator found a tarp seam and back door open and a woman inside a fumigated home. Police took custody of the woman, but she collapsed and was pronounced dead soon after arriving at a hospital.
CA	6/11/2010	Death	A man was found dead on a carport sofa one day after fumigation. The deceased (who had Alzheimer's disease) was last seen near a treatment site, which was also his residence.
CA	1/17/2011	Death	A man was found dead in the fumigated home. The police report indicated the man was a tenant at a nearby sober living center who attempted earlier to enter the center drunk and after curfew.
CA	11/24/2011	Death	A man collapsed and died after a suspected burglary of a fumigated home (several large tears on the tarp and a broken window indicated an illegal entry to the home).
CA	4/22/2014	Death	When a pest control operator arrived to begin aeration on a fumigated home, he found a deceased man on the patio under the fumigation tarp. The man was not a resident of the home.
CA	12/29/2014	Death	When a pest control operator was checking the pesticide levels to certify the house for reentry, a man's body was found in a bathroom. The victim may have formerly lived at the residence; however, the property owner told police the home was vacant at the time of fumigation.
FL	1/9/2002	Death	A tenant was found dead in the fumigated apartment complex. The authorities concluded the man committed suicide.
FL	10/10/2002	Death	A tenant purposefully evaded detection during the final fumigation inspection walk-through. The tenant left a suicide note.
FL	12/17/2014	Death	A woman was found ill in an alley after entering a fumigated home. She was taken to a hospital, where she died.
FL	1/16/2015	Death	A fumigator found the body of a deceased woman who used a chair to enter the fumigated house through a window.
FL	8/16/2015	Serious Injury	A family of five was exposed to sulfuryl fluoride after entering their recently fumigated home that was cleared for re-occupancy. The pest control operator did not have working clearance devices, and had not attended mandatory stewardship training.

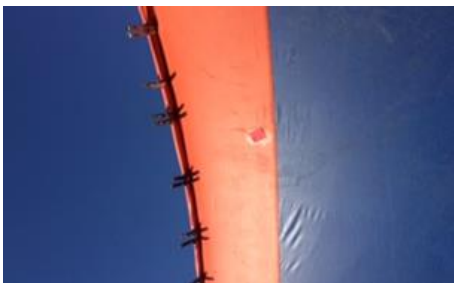
Sources: California Department of Pesticide Regulation, and Florida Department of Agriculture and Consumer Services.

Labels Lack Requirement to Secure Tenting and Deaths Result

Over 70 percent (eight of 11) of the deaths detailed in Table 2 occurred when people entered unsecured tenting during the fumigation process. Only one of the deaths occurred as a result of a label or state law violation on the part of the pesticide applicators. Currently, sulfuryl fluoride labels do not require applicators to secure fumigation tents. There are label requirements for securing homes with secondary locks, posting warning signs, and using a warning agent. However, these requirements have not prevented deaths at fumigated homes and businesses.



Example of warning sign and secondary lock with a door handle removed to prevent entry. (EPA OIG photo)



Fumigation tenting held together with clips. (EPA OIG photo)

In terms of securing tents, the labels only require that the seams be sealed (most often by using clamps), and that sand and soil weights be used for the lower seams.

A Florida bureau chief said that secondary locks have generally eliminated issues with tenants reentering fumigated structures for one reason or another (e.g., forgotten items, etc.). An industry representative stated that the larger problem with early reentry is with criminal behavior, including attempted burglary.

Opening the tenting (either by unclipping seams, moving sand and soil weights, or tearing) and entering a fumigated structure have resulted in eight deaths since 2002, and only one of the deaths was due to an attempted burglary. Regardless of the motives for entry into fumigated homes, human deaths occur from entering unsecured tents. According to the University of Florida Fumigation Manual,¹¹ an average of two deaths per year occur in the United States as a result of illegal entry or incomplete evacuation.

EPA Needs to Ensure the Efficacy of Clearance Devices

Before a resident can safely return home, the home must be cleared of the fumigant. Sulfuryl fluoride labels require that calibrated clearance devices be used for readings throughout the structure to ensure that any residual fumigant is within acceptable levels for occupancy. The ability to detect residual sulfuryl fluoride accurately is a critical phase of the fumigation process.

Currently, the concentration of sulfuryl fluoride must be under the level of 1 part-per-million (ppm) to be considered safe for persons to reenter.¹² Sulfuryl fluoride labels require that an “approved” clearance device be used. OPP staff stated that they are not responsible for reviewing or approving clearance devices, and did not

¹¹ Rudolf H. Scheffrahn, Brian J. Cabrera and William H. Kern, Jr., University of Florida, Fort Lauderdale Research and Education Center. 2005 Florida Fumigation Manual.

¹² Since the 1980s, the EPA has modified the threshold clearance twice, from 10 ppm to 5 ppm, and then to 1 ppm.

know who was. The EPA lacks assurance that devices currently marketed and in use as residential fumigation clearance devices are effective for determining whether fumigant concentrations are at the mandated safe level for reentry.

In the 2015 Palm City, Florida, fumigation exposure incident, the investigation discovered that the applicators' clearance devices were not retrofitted to the current reading requirement of 1 ppm. The clearance devices were also defective and had not been calibrated. As a result, family members were allowed to enter their home prematurely, which resulted in serious harm to a family member.

OPP staff stated that they do not conduct independent testing of devices, and they do not currently collect or review efficacy data from manufacturers. OPP staff stated that their office relies on self-regulation by the device industry. The selection of clearance devices is left up to registrants. Registrants propose language for the label, and the EPA reviews and approves.

In October 1997, while the concentration level for safe reentry for sulfuryl fluoride was still at the 5 ppm clearance level, OPP conducted a review of an industry study of two designated clearance devices that had been specified on the fumigant label. That review resulted in OPP requiring calibration within a month prior to use of a device that had been used since the 1980s.¹³ The calibration requirement was added to the label in 2003, and it is still a current requirement. OPP is not aware of any similar review of these devices since the clearance threshold for safe reentry was reduced to 1 ppm in 2004.

States and Territories Do Not Ensure That the Label Requirement for Stewardship Training Is Met

The use of sulfuryl fluoride for residential fumigation can result in deadly or significant health consequences if the chemical is not used in accordance with safety requirements on label instructions, and operators are not properly trained. Sulfuryl fluoride labels include requirements, such as, "application personnel must participate in [manufacturer] Sulfuryl Fluoride Training and Stewardship Plan/Program."

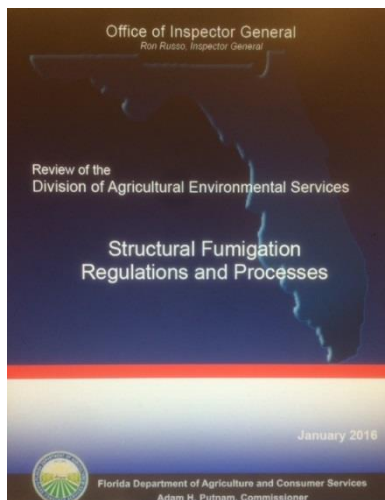
Even though the labels require stewardship training before an operator can purchase and use sulfuryl fluoride, we found that untrained operators could and did purchase sulfuryl fluoride. The state pesticide agencies we contacted in California, Florida, Georgia and Hawaii did not have controls in place to inspect for and ensure that required training was completed.

In the 2015 Palm City, Florida, incident, the applicators had not taken the required stewardship training. EPA inspections for methyl bromide misuse in the

¹³The testing revealed that after approximately 28 days, the device differed from calibration gases by as much as 80 percent.

Caribbean following the U.S. Virgin Islands incident showed that a fumigator illegally used methyl bromide for residential purposes 41 times in Puerto Rico. This particular fumigator had not been trained in the use of the fumigant as required.

We found that the training requirement for sulfuryl fluoride is not being tracked or verified in the states included in our review. Representatives from the pesticide agencies we spoke to in California and Georgia stated that they were not responsible for ensuring that the certified applicator attended stewardship training. The representatives believed that it was the responsibility of the dealer to verify that the operator had all the credentials to purchase and use sulfuryl fluoride. We



Cover of Florida Department of Agriculture and Consumer Services' OIG's January 2016 report.

verified with OECA's Office of Civil Enforcement that stewardship training compliance is mandatory. According to OECA, any condition on the label is required for legal use of that product. As a result, failure to comply with that provision would be considered a violation of FIFRA Section 12(a)(2)(G), which states that it is "unlawful for any person to use any registered pesticide in a manner inconsistent with its labeling."

The Florida Department of Agriculture and Consumer Services' OIG stated in its January 2016 report¹⁴ that controls need to be developed regarding stewardship training. The report recommended specifying the frequency of stewardship training, and requiring proof of training completion prior to licensing fumigators. The 2016 report found that the state division responsible for overseeing fumigations does not require completion of a stewardship program for pesticide applicators to obtain a license.

Residential Fumigation Is Not an Enforcement Priority Area

Residential fumigation is not an enforcement priority area for the EPA. The Joint OPP/OECA Cooperative Agreement Guidance for FYs 2011 through 2013 instructed states to place emphasis on structural pest control misuse investigations. Our discussions with EPA staff in Regions 2, 4 and 9 revealed that regional staff recalled that soil fumigations were the priority rather than residential fumigations. According to regional staff, residential fumigation is not currently a priority area of focus in the cooperative agreement between EPA regions and relevant states and territories.

An increase in oversight occurs when an issue area is designated as "required" (i.e., an area of particular importance at a national level) or "pick list" (i.e., programs that support OPP and OECA goals) in the Cooperative Agreement Guidance between EPA regions and states and territories.

¹⁴ Florida Department of Agriculture and Consumer Services' OIG, *Review of the Division of Agricultural Environmental Services: Structural Fumigation Regulations and Processes*. January 2016.

EPA Does Not Require Residential Fumigation Management Plans

Soil and commodity fumigant¹⁵ labels require users to prepare a site-specific fumigation management plan before the application begins. This includes the documentation and retention of key information regarding each fumigation. However, there is no current EPA requirement to have a residential fumigation management plan. The agency justifies management plans for soil fumigants based in part on the best practice of related industries' use of health and safety plans. In its re-registration document for a soil fumigant, the agency stated:

Information from various sources shows that health and safety plans, fumigation management plans in this context, typically reduce workplace injuries and accidents by prescribing a series of operational requirements and criteria. In fact plans like these are widely implemented in a variety of industries and are recommended as standard approaches for occupational health and safety management by groups such as American Industrial Hygiene Association (i.e., through "Administrative" and "Workplace" controls).

Management plans ensure thorough planning, prevent accidents, identify appropriate emergency procedures, and demonstrate compliance with label requirements. Soil and commodity fumigators must prepare a written, site-specific plan before fumigation begins, and a certified applicator supervising the application must verify that the plan is accurate.

In the absence of an EPA requirement for a residential fumigation management plan, the state of California has taken action. California uses a standard fumigation log to annotate property description, key dates during the fumigation process, trade name and amount of fumigant used, amount of warning agent used, and the trade name of the clearance device used, among other matters.

The EPA is currently re-evaluating¹⁶ structural fumigants. The intent of the EPA's re-evaluation is to add the fumigation management plan requirement to all fumigants (including residential fumigants) going through the re-evaluation process. The National Pest Management Association is working to develop an industrywide standard for the EPA's consideration. OPP expects to publish for comment the re-evaluation results during 2018.

¹⁵ Soil fumigants are pesticides that, when applied to soil, form a gas to control pests that live in the soil and can disrupt plant growth and crop production. Commodity fumigation uses chemical, gas or other treatment to eliminate pests within the commodities and/or structures and containers normally used to contain them. The term "commodity" refers to an economic product (i.e., of agricultural or mining) that is shipped from one place to another.

¹⁶ The EPA periodically reviews existing registered pesticides to ensure that they can be used safely and without unreasonable risks to human health and the environment. The registration review program is intended to make sure that, as the ability to assess risk evolves and as policies and practices change, all registered pesticides continue to meet the statutory standard of no unreasonable adverse effects.

Puerto Rico Lacks Information and Processes for Proper Oversight

The Puerto Rico Department of Agriculture (PRDA) needs better information and processes to conduct oversight of residential fumigation activity within the Commonwealth of Puerto Rico. The EPA's investigation of the 2015 U.S. Virgin Islands incident showed widespread misuse of methyl bromide in Puerto Rico, as well as the U.S. Virgin Islands.

Methyl bromide is a restricted use pesticide that can be used only in very limited situations, mainly for fumigation of soil and commodities. Methyl bromide is not authorized for use in residential dwellings under any circumstances, and has been banned for occupied structural use since 1984. The EPA's investigation found that fumigators in Puerto Rico used methyl bromide as a residential fumigant, and identified hundreds of cases of illegal structural use. These instances included fumigation of multiple residences, a school and a nursing home.

In light of the misuse of methyl bromide in Puerto Rico, we requested information from PRDA regarding residential fumigation and the use of sulfuryl fluoride on the island. PRDA was not able to provide adequate responses to OIG requests for information. PRDA could not provide annual residential fumigation totals, the annual amount of sulfuryl fluoride sold, or the annual number of PRDA residential fumigation inspections performed. PRDA stated that they do not have a fumigation notification requirement; therefore, they do not know when residential fumigations take place.

While FIFRA and its implementing regulations do not require State Lead Agencies to track the size of the industry, volume of fumigants sold, the number of fumigation inspections conducted, or have a fumigation notification requirement, the lack of information prevents PRDA from having the opportunity to inspect fumigations as they are in process, and detect and enforce violations where they occur. We believe this impedes deterrence from illegal or unsafe residential fumigation activity on Puerto Rico.

California, Florida and Georgia advised that notification in advance of planned residential fumigations (while not required by FIFRA and its implementing regulations) was a key component in their oversight. The advance notification provided these states the opportunity to observe all aspects of the residential fumigation process as it occurs. According to these states, the likelihood of an inspection or surveillance activity provides a significant deterrent from failure to follow proper procedures.¹⁷

EPA Region 2 currently conducts numerous activities in Puerto Rico to ensure that methyl bromide is used properly. Region 2 informed us that after its work with methyl bromide is completed, it will work with PRDA to identify the

¹⁷ These states have chosen to implement regulations that are more stringent or broader in scope than the federal requirements by requiring a fumigation notification requirement.

fumigants (including sulfuryl fluoride) that were in common use for residential and commercial establishments, evaluate whether misuse occurred, and develop recommendations for regulatory changes that PRDA might implement to enhance oversight and improve compliance.

EPA Does Not Have a Comprehensive Database Available to Track Potential Pesticide Poisoning

There is no comprehensive database that maintains national pesticide incident data. OPP receives pesticide incident data from a wide variety of sources, including:

- Required reporting (from registrants under FIFRA Section 6(a)(2)).
- Voluntary reports, from sources that include:
 - National Pesticide Information Center.
 - American Association of Poison Control Centers.
 - National Institute for Occupational Safety and Health/Sentinel Event Notification System for Occupational Risk.
 - Canada's Pest Management Regulatory Agency.
 - State and local governments.
 - Other federal agencies (e.g., the U.S. Fish and Wildlife Service, and the National Oceanic and Atmospheric Administration).
 - Other EPA offices (e.g., OECA) and EPA regions.
 - The public (e.g., beekeepers).

While the above-listed sources provide stand-alone databases, they do not interface with one another. Different sources collect different sorts of data and information in different database formats. The EPA lacks a consolidated incident database that allows the OPP to conduct oversight of incidents, analyze incident trends, and make necessary recommendations to address identified issues.

The OPP Incidents Workgroup was established in 2014. The OPP workgroup developed the framework and asked that a Pesticide Program Dialogue Committee Workgroup be established to provide advice throughout the development process. The Pesticide Program Dialogue Committee¹⁸ Incidents Workgroup was formed in 2015 to help the EPA meet its long-term goal of creating a publicly available framework for pesticide incident reporting. The framework would improve the reporting, quality and efficient use of pesticide incident data to ensure high-quality, science-based pesticide decisions. The workgroup told the OIG that it plans to develop a central, publicly available database for national pesticide incident data. However, at this time, the workgroup has no timeline for accomplishing this task.

¹⁸ The Pesticide Program Dialogue Committee provides feedback to OPP on various pesticide regulatory, policy and program implementation issues. The committee includes environmental and public interest groups, pesticide manufacturers and trade associations, user and commodity groups, public health and academic institutions, and federal and state agencies.

Conclusion

Deaths and serious injuries occur during residential fumigations. Most fatal incidents that we identified occurred because tented homes were vulnerable to premature entry. Regardless of the motive of those seeking entry, fatalities occurred. Other factors contributing to deaths and major illnesses from residential fumigations we reviewed include a lack of training on the part of applicators, and the use of outdated clearance devices. Working with industry and states, the EPA can take steps to reduce the risk of death and severe injuries from residential fumigations through amendments to existing sulfuryl fluoride labels, better and more complete data on residential fumigation treatments, tracking the number of and reasons for adverse events, and the increased attention and prioritization of residential fumigation activity.

Recommendations

We recommend that the Assistant Administrator for Chemical Safety and Pollution Prevention:

1. Implement a process to evaluate label changes for all three brands of sulfuryl fluoride, including requirements to:
 - Create a barrier to access, use detection mechanisms, or require similar measures designed to prevent access into fumigation tents.
 - Prepare a site-specific residential fumigation management plan before application.
2. Provide label language that clearly defines the criteria for meeting the applicator stewardship training requirement for sulfuryl fluoride, including the frequency of training.
3. Conduct an assessment of clearance devices to validate their effectiveness in detecting required clearance levels, as part of the Office of Pesticide Programs' ongoing re-evaluation of structural fumigants.
4. Establish milestone completion date(s) for the pesticide incident database initiative.

We recommend that the Assistant Administrator for Enforcement and Compliance Assurance:

5. Assess whether structural fumigation and fumigant product compliance and associated applicator certification and training should be included as focus areas in the FIFRA Cooperative Agreement Guidance, and include them in the guidance as appropriate.

We recommend that the Regional Administrator, Region 2:

6. Include in the FIFRA cooperative agreement with the Puerto Rico Department of Agriculture, an investigation and evaluation of sulfuranyl fluoride usage to determine whether misuse has occurred.
7. Based on the Puerto Rico Department of Agriculture's investigation and evaluation, provide assistance to Puerto Rico to develop recommendations for any appropriate changes to Puerto Rico regulations, such as requiring the reporting of sales and use of sulfuranyl fluoride, and require advance notification of planned residential fumigations.

Agency Response and OIG Evaluation

The EPA generally agreed with six of the seven OIG recommendations. The agency provided acceptable corrective actions and milestone dates for six of the recommendations that are resolved. One recommendation is unresolved with resolution efforts in progress. The agency's complete response and OIG comments are found in Appendix A.

Status of Recommendations and Potential Monetary Benefits

RECOMMENDATIONS

Rec. No.	Page No.	Subject	Status ¹	Action Official	Planned Completion Date	Potential Monetary Benefits (in \$000s)
1	15	Implement a process to evaluate label changes for all three brands of sulfuryl fluoride, including requirements to: <ul style="list-style-type: none"> • Create a barrier to access, use detection mechanisms, or require similar measures designed to prevent access into fumigation tents. • Prepare a site-specific residential fumigation management plan before application. 	O	Assistant Administrator for Chemical Safety and Pollution Prevention	11/30/17	
2	15	Provide label language that clearly defines the criteria for meeting the applicator stewardship training requirement for sulfuryl fluoride, including the frequency of training.	O	Assistant Administrator for Chemical Safety and Pollution Prevention	11/30/17	
3	15	Conduct an assessment of clearance devices to validate their effectiveness in detecting required clearance levels, as part of the Office of Pesticide Programs' ongoing re-evaluation of structural fumigants.	O	Assistant Administrator for Chemical Safety and Pollution Prevention	11/30/17	
4	15	Establish milestone completion date(s) for the pesticide incident database initiative.	O	Assistant Administrator for Chemical Safety and Pollution Prevention	11/30/17	
5	15	Assess whether structural fumigation and fumigant product compliance and associated applicator certification and training should be included as focus areas in the FIFRA Cooperative Agreement Guidance, and include them in the guidance as appropriate.	O	Assistant Administrator for Enforcement and Compliance Assurance	4/30/17	
6	16	Include in the FIFRA cooperative agreement with the Puerto Rico Department of Agriculture, an investigation and evaluation of sulfuryl fluoride usage to determine whether misuse has occurred.	U	Regional Administrator, Region 2		
7	16	Based on the Puerto Rico Department of Agriculture's investigation and evaluation, provide assistance to Puerto Rico to develop recommendations for any appropriate changes to Puerto Rico regulations, such as requiring the reporting of sales and use of sulfuryl fluoride, and require advance notification of planned residential fumigations.	O	Regional Administrator, Region 2	9/30/17	

¹ O = Recommendation is open with agreed-to corrective actions pending.
 C = Recommendation is closed with all agreed-to actions completed.
 U = Recommendation is unresolved with resolution efforts in progress.

Agency Response to Draft Report and OIG Comments



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
WASHINGTON, D.C. 20460

[August 29, 2016]

OFFICE OF CHEMICAL SAFETY
AND POLLUTION PREVENTION

MEMORANDUM

SUBJECT: Comments on the OIG Draft Report: “EPA Can Take Actions to Prevent Deaths and Serious Injuries from Residential Fumigations.”
Project No. OPE-FY16-0004

FROM: James J. Jones, Assistant Administrator
Office of Chemical Safety and Pollution Prevention

Cynthia Giles, Assistant Administrator
Office of Enforcement and Compliance Assurance

Judith Enck, Regional Administrator
Region 2

TO: Arthur A. Elkins, Jr.
Inspector General

This memorandum is in response to the Office of Inspector General (OIG) Draft Report entitled, “EPA Can Take Actions to Prevent Deaths and Serious Injuries from Residential Fumigations.” The Office of Chemical Safety and Pollution Prevention (OCSPP), the Office of Enforcement and Compliance Assurance (OECA), and Region 2 appreciate the OIG’s effort in evaluating sulfuryl fluoride products. The EPA strongly agrees that protecting the public and the environment from improper application of residential fumigants is critical, and will take action as detailed below to address the OIG concerns and recommendations.

While the EPA agrees with the OIG on the importance of this issue, and will be taking action in this area, the basic conclusion of the Draft Report as embodied in the title “EPA Can Take Actions to Prevent Deaths and Serious Injuries from Residential Fumigations” is not

supported by the documentation presented. The factors the Draft Report identifies as contributing to the human deaths and serious injuries associated with residential fumigation are misleading, and the related recommendations overstate the ability of the EPA to actually reduce most of the deaths and serious injuries identified by the OIG. In particular, the data presented in Chapter 2, Table 2, which presents deaths and serious injuries in California and Florida associated with exposure to sulfuryl fluoride, demonstrate that factors such as home break-ins, illegal trespass, and suicides play a significant role in the majority of deaths and serious injuries identified by the OIG. It is unclear how label changes (even those potentially requiring enhanced access barriers), revised applicator training requirements, or designating this issue as an EPA and state pesticides program priority, could prevent or deter future efforts by individuals determined to trespass or commit suicide. Mischaracterizing the adverse impacts associated with residential fumigation, and the ability of the Agency to address those adverse impacts, could send an alarming message to the public, as there are over 900,000 certified applicators nationwide that make hundreds of thousands of applications annually. We therefore request that the OIG reassess the underlying data for this report, and revise the narrative and titles accordingly. We are available to discuss our response and the attached Technical Corrections with the OIG.

OIG Response: This assignment was conducted in accordance with generally accepted government auditing standards. Those standards require that all findings, conclusions and recommendations be supported. Regardless of motive for entry, we identified a vulnerability in the current label language that allows for entry to occur. While it may be unclear whether label changes will prevent future deaths, our recommendation is that this issue be seriously considered. Otherwise, deaths will continue to occur. Understanding that the agency’s key role with residential fumigation is tied to the ability to evaluate label language, we focused our recommendations to reflect that role and ability. We edited the report title as follows: “Additional Measures Can Be Taken to Prevent Deaths and Serious Injuries From Residential Fumigations.”

I. Background and General Comments on the Report

The OIG Draft Report correctly states that Section 26 of the Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA) sets forth the conditions for state enforcement authority for pesticide use violations.¹⁹ Under this statutory framework, in general, states have primary authority for compliance monitoring and enforcing proper pesticide use. The EPA provides oversight to ensure the adequacy of the overall state program and an equal level of protection of human health across the country. Accordingly, the application of pesticides (such as fumigants in residential settings), requires compliance with both federal and state laws. Currently, all states have primacy with the exception of Wyoming.

Because of this statutory framework, EPA’s enforcement authority is limited. As a result, inspections by State Lead Agencies (SLAs) determine issues such as the following:

- Whether a residential fumigation crew used proper preparation techniques and proper safety equipment, if signs were appropriately posted at all entrances and on all sides of the tent’s exterior, and whether secondary locks were used.

¹⁹ FIFRA defines “state” to include the District of Columbia and U.S. territories.

- Whether the level of safety to the public while a residential fumigation was occurring was adequate. For example, inspectors check to see that there are no visible tears in the tenting.
- Whether a certified applicator aerated the residence properly and followed proper clearance procedures, such as the use of properly functioning and calibrated clearance devices.

To avoid misleading the public, and creating the misperception that the Agency could engage in this type of activity in lieu of the states, the Report should note these types of limitations on EPA's actions due to the statutory framework under FIFRA. In addition, the recommendations should be revised to reflect these statutory limitations on EPA activities.

OIG Response: We incorporated in the recommendations Region 2's suggested changes regarding their oversight authority.

The Draft Report makes several comparisons related to notification, tracking, inspection, or reporting of sulfuryl fluoride fumigations that are implemented by some states. The Report should more clearly explain that FIFRA does not require many of these activities, and some states have chosen to implement regulations that are more stringent or broader in scope than the federal requirements. If the intent of the OIG was to identify and highlight some state best practices, and to encourage other states to implement such practices, the Report should explicitly do so.

OIG Response: Footnote 16 details this information. We also added an additional footnote (footnote 17).

The Agency is submitting its remaining additional comments as Technical Corrections, in the form of a redline/strikeout mark-up of the Draft Report.

II. OCSPP's Response to the Recommendations

The OCSPP generally agrees with the OIG's recommendations.

Recommendation 1: Implement a process to evaluate label changes for all three brands of sulfuryl fluoride, including requirements to:

- Create a barrier to access, or use detection mechanisms, to prevent access into fumigation tents.
- Prepare site-specific residential fumigation management plans before application.

OCSPP Response and Proposed Corrective Action: Generally, the OCSPP considers a barrier to be anything that restrains or prevents human access to the fumigation site, and creates this condition on a temporary basis for the duration of the fumigation. The OCSPP will assess the

viability of a number of options to revise current guidance and policy to evaluate label changes for all three brands of sulfuryl fluoride, including but not limited to:

- Evaluating the need for label changes for all three brands of sulfuryl fluoride.
- Investigating the use of additional temporary fencing structures and other secondary barriers to surround the area being fumigated for the specified period of time until reentry is permissible.
- Investigating the viability of the use of security personnel to protect the fumigation site, to prevent members of the public from entering the site during treatment.
- Re-assessing the need for additional guidance.
- Incorporating public and stakeholder participation throughout the guidance revision process.
- Consider removing the provision in the Restricted Use Statement: "...or persons under the Supervision of a Certified Applicator" thus requiring everyone that is involved in the fumigation be Certified.

Timeframe: OCSPP will revise Agency guidance or policy with updated mitigation options within one year of the OIG's Final Report, by November 30, 2017. Within two years of the Final Report, by November 30, 2018, OCSPP will begin implementing the revised guidance (e.g., label changes and getting labels to the field).

OIG Response: We agree and consider this recommendation resolved and open with corrective action pending.

OIG Recommendation 2: Provide label language that clearly defines the criteria for meeting the applicator stewardship training requirement, including the frequency of training.

OCSPP Response and Proposed Corrective Action: OCSPP will reevaluate the label language and guidance for meeting the applicator stewardship training requirement, including the frequency of training for sulfuryl fluoride products used as residential fumigants. Currently, EPA has a robust soil fumigant program which includes: requirements to develop soil fumigant management plans, buffer zone safety requirements (with EPA calculators to determine buffer zone areas), guidance on tarps and tarp usage, required soil fumigant training, emergency preparedness and response requirements, as well as a Community Outreach and Education on Soil Fumigants Program. OCSPP will use the experience gained in the soil fumigant program to inform a solution for structural fumigation. EPA is also actively finalizing the rule revisions to 40 CFR 171, Pesticide: Certification of Pesticide Applicators. The revisions to 40 CFR 171 are a comprehensive regulatory update to the rule, which when final, will provide a more robust regulation for non-soil fumigant applicators, such as residential fumigant applicators.

In the interim, until the rule becomes final, and the new regulation is implemented, OCSPP will:

- Review existing policy and guidance for the soil fumigants program and applicator certification and training program, to assess whether some existing policies and

guidance can be modified and implemented to address label language that clearly defines the criteria for meeting the applicator stewardship training requirement, including the frequency of training.

Timeframe: Within one year of the final OIG report, by November 30, 2017, OCSPP will create additional (interim) guidance language which clarifies the criteria for meeting the applicator stewardship training requirement, including the frequency of training.

OIG Response: We agree and consider this recommendation resolved and open with corrective action pending.

OIG Recommendation 3: Conduct an assessment of clearance devices to validate their effectiveness in detecting required clearance levels, as part of the Office of Pesticide Programs' ongoing re-evaluation of structural fumigants.

OCSPP Response and Proposed Corrective Action: OCSPP will conduct an assessment of clearance devices to validate their effectiveness in detecting required clearance levels, as part of the Office of Pesticide Programs' ongoing re-evaluation of structural fumigants. The assessment may include:

- Convening an agency workgroup with internal and external stakeholders to investigate the current characteristics, including the instrumentation sensitivity, of clearance devices.
- An accounting of the clearance devices currently used.
- An evaluation of the applicability and ease of use of devices currently on the market.
- Reassessing the need to develop a method to ensure current clearance devices available can detect concentrations of sulfuryl fluoride at the 1 ppm level.
- Evaluating the need for additional guidance (other than the manufacturers') for the safe and proper use of clearance devices.

Timeframe: Within one year of the final OIG report, by November 30, 2017, OCSPP will develop a strategy to assess the effectiveness of devices to detect required clearance levels. Within two years of the final report, by November 30, 2018, OCSPP will validate and implement new device clearance guidance.

OIG Response: We agree and consider this recommendation resolved and open with corrective action pending.

OIG Recommendation 4: Establish milestone completion date(s) for the pesticide incident database initiative.

OCSPP Response and Proposed Corrective Action: The OPP Pesticide Incident Workgroup is in the process of developing detailed milestones for the pesticide incident database initiative.

Timeframe: Within one year of the final OIG report, by November 30, 2017, OCSPP will provide a table of milestones and anticipated completion dates for the pesticide incident database initiative.

OIG Response: We agree and consider this recommendation resolved and open with corrective action pending.

III. OECA's Response to the Recommendations

OECA recommends that Recommendation 5 be deleted and Recommendation 6 be revised as described below.

OIG Recommendation 5: Develop a strategy to monitor compliance and enforcement of the revised (based on Office of Inspector General recommendations) sulfuryl fluoride labels.

OECA Response and Proposed Corrective Action: OECA takes a holistic approach in developing compliance monitoring and enforcement strategies. Instead of focusing on specific labeling requirements, of which there are many, OECA takes into consideration a range of factors and focuses on identifying major program areas of interest where we believe EPA and the states can have the most significant impact on human health and the environment. The most effective mechanism for communicating the major program areas of interest is the Cooperative Agreement Guidance (CAG). Accordingly, we recommend that Recommendation 5 be deleted as the concept can be addressed via Recommendation 6 which focuses on the CAG.

OIG Response: We deleted Recommendation 5 based on our review of the agency's reasoning for deletion.

OIG Recommendation 6: Designate structural fumigation as a focus area in the FIFRA CAG for EPA regions with the highest frequency of residential fumigation treatments.

OECA Response and Proposed Corrective Action: We agree that structural fumigation is an important issue. However, we believe that this issue should be expanded to include the issues of fumigant product compliance and associated applicator certification and training in order to effectively address public health and environmental concerns. In addition, we believe that the efforts in this area should not be limited to just those regions and states with the highest frequency of residential fumigations since structural fumigations can occur throughout the United States. Therefore, we propose that the recommendation be revised as follows:

”Assess whether structural fumigation and fumigant product compliance and associated applicator certification and training should be included as focus areas in the FY18-20 Cooperative Agreement Guidance (CAG), and include them in the CAG as appropriate.”

OECA will assess whether structural fumigation and fumigant product compliance and associated applicator certification and training should be included as focus areas in the FY 18-20 Cooperative Agreement Guidance (CAG), and will include them as appropriate. Timeframe: Preliminary planning has begun for this document, and these areas of interest have been part of the early discussions. This action will be completed with the issuance of the FY 18-20 CAG by April 30, 2017.

OIG Response: We agree and consider this recommendation resolved and open with corrective action pending.

IV. Region 2's Response to the Recommendations

With respect to the two recommendations directed to Region 2, the Region is in agreement that additional attention should be given to the evaluation of fumigants, including sulfuryl fluoride. However, under FIFRA, the State Lead Agencies (SLAs) have primary responsibility for the implementation of the pesticides program. As a result, EPA Region 2 cannot unilaterally implement some of the changes or additional evaluations noted by the OIG. To implement the recommendations within its existing statutory authority, Region 2 will use its oversight authority to encourage states and territories to make short term and long term regulatory changes and to better monitor sales, distribution, and use of fumigants within their jurisdictions. Region 2 has already had detailed discussions with the state and territorial pesticide agencies in its jurisdiction. EPA intends to send the OIG Report and recommendations to all states and territories, to raise their awareness of and attention to the issues of concern and best practices the OIG has identified.

OIG Recommendation 7: Investigate and evaluate sulfuryl fluoride usage in Puerto Rico and determine whether misuse has occurred.

Region 2 Response and Proposed Corrective Action: In light of the comments above, Region 2 suggests the following revisions to the recommendation: "EPA will encourage the Puerto Rico Department of Agriculture's efforts to investigate and evaluate sulfuryl fluoride usage and determine whether misuse has occurred."

Region 2 will encourage and support the SLA's efforts to investigate and evaluate sulfuryl fluoride usage and determine whether misuse has occurred.

Timeframe: 3rd Quarter FY 2017.

OIG Response: This recommendation is unresolved. We edited the recommendation as follows: "Include in the FIFRA cooperative agreement with the Puerto Rico Department of Agriculture, an investigation and evaluation of sulfuryl fluoride usage to determine whether misuse has occurred."

OIG Recommendation 8: Based on Region 2's investigation and evaluation, develop recommendations for any appropriate changes to Puerto Rico regulations, such as requiring

the reporting of sales and use of sulfuryl fluoride, and require advance notification of planned residential fumigations.

Region 2 Response and Proposed Corrective Action: In light of the comments above, Region 2 suggests that the recommendation should be revised to “Based on SLA’s investigation and EPA’s evaluation, EPA will assist SLAs to develop recommendations for any appropriate changes to regulations, such as requiring the reporting of sales and use of sulfuryl fluoride, and require advance notification of planned residential fumigations.”

Region 2 will encourage SLAs to develop recommendations for changes to regulations, such as requiring the reporting of sales and use of sulfuryl fluoride, and require advance notification of planned residential fumigations.

Timeframe: 4th Quarter FY 2017.

OIG Response: We edited the recommendation as follows: “Based on Puerto Rico Department of Agriculture’s investigation and evaluation, provide assistance to Puerto Rico to develop recommendations for any appropriate changes to Puerto Rico regulations, such as requiring the reporting of sales and use of sulfuryl fluoride, and require advance notification of planned residential fumigations.”

V. Conclusion and Contact Information

Overall, the Agency is pleased that the Draft Report identifies additional measures to ensure the protection of human health and compliance with appropriate labels during the residential fumigation process using sulfuryl fluoride products.

If you have any technical questions regarding these responses, please contact Rick Keigwin, OCSPP/OPP, Keigwin.richard@epa.gov, or Elizabeth Vizard, OECA/OC at Vizard.elizabeth@epa.gov. If you have other questions, please contact Janet Weiner, OCSPP’s Audit Liaison, at Weiner.janet@epa.gov.

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