



# Department of Pesticide Regulation



Paul E. Helliker  
Director

## MEMORANDUM

Gray Davis  
Governor  
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Secretary, California  
Environmental  
Protection Agency

TO: Sue Edmiston  
Program Supervisor  
Worker Health and Safety Branch  
HSM-02017

FROM: Harvard R. Fong, CIH [original signed by H.R. Fong, CIH]  
Senior Industrial Hygienist  
445-4211

DATE: May 24, 2002

SUBJECT: Worksite Inspection of Sanfilippo Facility Associated with 28-MER-02

On May 17<sup>th</sup>, 2002, Frank Schneider and I met with Merced County staff and Regional Enforcement Staff from Fresno at the John B. Sanfilippo & Sons packing/warehouse facility in Gustine. We were there to perform a worksite evaluation in response to a Priority Illness Episode involving 11 employees of the facility. We toured the packing and warehouse areas where the fogging operation associated with the illnesses was performed. We also interviewed the safety coordinator for the facility, in particular asking her for answers to the questions I had composed in my May 13<sup>th</sup> memorandum to you. A modified version of that memorandum is attached, containing the answers gleaned from the meeting with government and company staff.

The part of the facility where the illnesses were located was the processing area, where employees conduct sorting and packing activities. This area is separated from the warehouse and shelling areas by both walls and plastic strip-doors. All three areas were treated on the evening of May 4<sup>th</sup>, with the warehouse area treated in two locations because of its size. The material used was reported as CARD-O-VAP 8, an 8% dichlorvos liquid, applied by a non-thermal fogging device. The device has two application outlets that aerosolize material in opposite directions. The material is drawn directly from a five-gallon service container by means of two plastic tubes that pass through a cap fabricated with a hole. The container is on a handcart, with the fogging device mounted above. This cart is used to move the fogger and pesticide among treatment areas. During the application in question this device was left in the processing room. When it was moved by an untrained employee, a small spill occurred. While this spill may not have contributed significantly to the worker's exposure this procedure was completed when employees were in the room.

During the worksite walkthrough, it was noted that even though the processing area seems to be adequately serviced by air conditioning units, there are no identifiable air exhaust systems, nor did the safety coordinator know if the AC system had the capability to introduce outside make-up air. The use of the AC to deliver outside make-up air is problematic, however, since the cooling units and their associated ducting are located right next to Butler storage tanks that are used for methyl bromide fumigation. The only way to ventilate the processing area appears to be by opening the exit doors. For the air mass contained within the processing area (10,485 m<sup>3</sup>), this may not be an adequate method to aerate this part of the facility after dichlorvos treatment. Both



the warehouse and the shelling areas have large truck bay doors, which could potentially provide adequate aeration for those parts of the plant.

Other than the lack of any observable exhaust ventilation, there were no other apparent factors that would have contributed to the worker's illnesses. The location of the fogging unit was sufficient distant from the workstations to preclude direct liquid deposition (fogger throw distance was stated to be 15 to 20 feet, while the nearest workstation of affected workers was 40 feet away).

The application rate of the fogger was supposedly 48 ounces, delivered over the course of 10 minutes. The device was checked by maintenance and reported to be functioning properly. This application rate is equivalent to 3.84 ounces of dichlorvos active ingredient (a.i.). It is not clear, however, if this is fluid or avoirdupois, which makes calculation of the potential maximum airborne levels difficult. However, the CARD-O-VAP 8 label suggests a minimum application rate of 0.5 ounces of liquid per 1,000 ft<sup>3</sup>; or 1 to 2 grams of dichlorvos a.i. per 1,000 ft<sup>3</sup>. The maximum application rate, in grams, would yield an airborne concentration of dichlorvos a.i. of 71 mg/m<sup>3</sup>, whereas using the liquid application rate directions would yield a range from 185 ounces (0.5 ounce application rate) to 370 ounces (1 ounce application rate). This is equivalent to a dichlorvos a.i. level between 14.8 ounces and 29.6 ounces. It is worth noting that the application rate claimed by the company is almost four times less than the label suggested minimal rate. Calculating the air levels at the time of application, using either fluid ounces or avoirdupois ounces, suggests air level concentrations of either 0.1 mg/m<sup>3</sup> or 12 mg/m<sup>3</sup>, respectively. The Cal/OSHA Permissible Exposure Level is 1 mg/m<sup>3</sup>; the ACGIH Threshold Limit Value is 0.1 mg/m<sup>3</sup> (both as of May, 2002). This is not to suggest that workers were actually exposed to these levels of dichlorvos, since building leakage and material degradation (estimated half-life of 2 days, *from Illustrated Handbook of Physical-Chemical Properties and Environmental Fate, Vol. 5 Pesticide Chemicals*) would reduce air levels over the course of the 30+ hours between application and first worker exposure (0600 hours on May 6).

On reviewing the information gathered from the site, the Industrial Hygiene Program has the following suggestions:

In regards to the Gustine facility:

1. The plant manager should contract with a ventilation engineer or other ventilation specialist to design an air exhaust system for the facility if Sanfilippo is planning on continuing the use of foggers for pest control. We understand that a substitute pyrethroid material is now in use and dichlorvos has been discontinued. However, given the lack of an active mechanical air exhaust system, material substitution may not prevent a repeat of a pesticide exposure incident. Pyrethroids are also associated with pesticide illness, though of a different nature. If a pesticide material is fogged in the facility and not adequately removed by exhaust ventilation before workers arrive, conditions could result

in another priority pesticide episode. Additionally, the exhaust ventilation system should be designed such that ventilation commences automatically 24 hours after the fogging application is complete, but at least 6 hours before workers enter the treated portions of the facility. This would remove a source of error (personnel intervention) for ventilating the facility. The length of time that the ventilation runs should be determined by the ventilation engineer or other ventilation specialist, but must be adequate to reduce airborne pesticide residue to safe (i.e. negligible or undetectable) levels.

2. As required by law, the employees who are responsible for the fogger applications, and any other pesticide applications, be appropriately trained as pesticide handlers. Furthermore, all employees of the facility should receive appropriate hazard communication (HAZCOM) training on par with the HAZCOM requirement of Title 3, Section 6761.
3. Only specific, trained personnel move the fogging equipment, and if the equipment is ever again accidentally left in the employee's worksite, that all employees evacuate the immediate area until the fogger, or other pesticide application device, is removed by the appropriate personnel.
4. Develop a written hazardous materials (HAZMAT) response plan to deal with accidental release of pesticide materials, as required in Title 3, Section 6724 (b) (7). Do practice drills annually to confirm the appropriateness of the plan. Update as needed.

In events such as this incident:

1. Rapid response by DPR could have allowed actual collection of airborne dichlorvos. It is suggested that in cases of industrial type facilities, where airborne pesticide exposure is strongly suspected, that WH&S be contacted immediately, even before a formal Episode Transmittal has been made. Samples collected as soon as possible would allow for better assessment of the role of pesticide exposure in cases of employee illness.
2. To assist county and state enforcement personnel in recognizing and responding to these types of events, where volatile pesticides (methyl bromide, phosphine, chlorine, dichlorvos, etc.) are causing illness or injury in enclosed facilities, training in the application of industrial hygiene principals is recommended. This would further augment the PWEF industrial hygiene training some of the counties have already received. Additionally, inasmuch as county biologists are conducting essentially equivalent activities to Cal/OSHA compliance inspectors, such training will help sharpen their ability to assess hazardous conditions in the workplace that may not be specifically addressed in regulation.

May 13<sup>th</sup> memorandum (answers obtained on May 17<sup>th</sup> interview are in ***bold italic***):

TO: Sue Edmiston  
Program Supervisor  
Worker Health and Safety Branch

FROM: Harvard R. Fong, CIH  
Senior Industrial Hygienist  
445-4211

DATE: May 13, 2002

SUBJECT: Questions concerning Merced Priority Incident 28-MER-02

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After reviewing Pesticide Episode Transmittal Report 28-MER-02 from Dan Lynch dated May 10, 2002, I have the following questions for this incident:

1. Is the applicator/employee an employee of John B. Sanfilippo & Son, Inc. (***Yes, he is an employee of John B. Sanfilippo & Son, Inc***)
2. Does the applicator/employee have training as a pest control operator and is this employee licensed to apply pesticides under these conditions? (***He is trained to use the machine but does not appear to have documented training concerning pesticide applications***)
3. Is it normal for the application to commence as 10:30 PM? (***Yes***)
4. Was the fogging device placed in its customary position? Was it positioned appropriately? (***According to the applicator, both answers are yes***)
5. Did the fogging device function properly throughout its application cycle? Is there any way of verifying this? (***Post-episode check of the device indicated proper function***)
6. How long does the fogging application cycle last? (***In this part of the facility: 10 minutes***)
7. How long is the fogger supposed to remain in position after the application cycle has terminated? (***Machine is left in place overnight since this is the last application station***)
8. Is there an REI that affects how long the fogger must be in place? (***24 hours w/o PPE***)

9. Is it normal for unapplied material to be left in the fogger after the application cycle? If so, how much and why? ***(Yes, fogger draws from a 5 gallon container of material)***
10. If it is normal for material to still be in the fogger after the application cycle, was the amount in the fogger the normal residual? ***(Yes)***
11. If the residual amount is greater than normal, are there any indications that the fogger was actually activated? ***(Not applicable)***
12. If the fogger was activated, are there any indications that it prematurely ceased the application cycle? ***(Cannot be ascertained)***
13. Is the employee normally responsible for the removal of the device the same employee/applicator who started the device? If not, then who and why? ***(Yes, same employee is authorized to move it, though no pesticide training)***
14. Why was the fogger not removed before the sorters entered the facility? ***(Apparent error)***
15. Was the employee who removed the fogger authorized and trained to do so? ***(Authorized: Yes, Trained: No)***
16. How much material spilled out of the fogger when it was moved? Was there any material left in the fogger after the spill? ***(Possibly less than an ounce, difficult to verify; material was left in fogger)***
17. How was the spill cleaned up and by whom? ***(Employee, using a paper towel on her foot)***
18. Were sorter-employees present when the material spilled? Did any have direct contact with the spilled material? How close were they to the spill? ***(Yes, sorters present; no direct contact and they were approximately 40 feet away)***
19. Was any unusual odor, especially one that could be associated with DDVP, noted by any employees on entrance into the part of the facility that the fogger was? ***(Yes, stronger than the usual smell encountered after an application)***
20. What type of ventilation is normally used after a fogger application and was it used in this instance? ***(None other than opening doors. AC system does not appear to have an exhaust function)***
21. After the spill was cleaned up, where was the cleaning waste placed? Was it sealed in a plastic bag or some other airtight container? ***(Not known at this time)***

22. Is this waste storage container within the facility, specifically near the workstations of the sorters? (*Not known at this time*)
23. Were employees at their workstations during the removal /spill event? (*Yes*)