



## MEMORANDUM

TO: George Farnsworth  
Environmental Program Manager I  
Worker Health and Safety Branch

**HSM-12001**

FROM: Harvard R. Fong, CIH  
Senior Industrial Hygienist  
916-445-4211

*(original sign by H. Fong)*

DATE: January 30, 2012

SUBJECT: HEALTH AND SAFETY CONCERNS OF AERATION DUCT PLACEMENT  
WHEN USING THE CALIFORNIA AERATION PLAN

---

I have reviewed the information presented in the November 16<sup>th</sup>, 2011 memorandum from Nan Gorder, Enforcement Branch. That memorandum discussed four cases where there were concerns as to the placement of the aeration tube outlet. The California Aeration Plan (CAP) requires the following for the placement of the aeration ducting:

*“The ducting must be of sufficient length to extend from the attached fan inside the fumigated space, through tarpaulins, to the first story roofline or at least 10’ above ground level for higher rooflines, and discharge vertically outside of the fumigated space. Do not exhaust fumigant directly toward sensitive areas such as occupied structures.”*

In all cases the photos presented showed that the height requirement had been satisfied. The directionality of the exhaust in Attachments 3 and 4 appear to conform to the sensitive area requirement; Attachments 1 and 2 are less definitive in the photographic evidence. In no case did there appear to be any indication that the exhaust was specifically directed toward the adjoining occupied structure.

Inasmuch as the actions of the fumigation companies appeared to conform to the requirements of CAP, it would seem that any fault would lie in the wording of CAP. If the issue is that the aeration ducts are too close to sensitive areas, it would seem that the Department would need to clarify and quantify what “too close” is, and increase the examples of what constitutes a sensitive area.

There are not many options available for “fixing” this situation. Prohibition of placement of aeration tubing in the area between structures may be the simplest approach. However, the supposed reason that fumigation companies started locating the tubing between structures was to obscure the status of the structure, i.e. it is under aeration and potentially safe to enter. This is allegedly an indication to certain criminal elements that the house is unoccupied, unsecured (see CAP: PREPARATION FOR FUMIGATION: EXTERNAL OPENINGS: Open at least one operable window at least 3 inches for each room...) and available for burgling. Moving the tubing to the side is a logical business adaptation to reduce such signaling.



At this point, two potential solutions that still allow side placement are evident. Solution One, would be to allow side placement but require extension of the aeration ducting toward the center of the structure's roof. This would require additional ducting to be attached so that it could "snake" to the center of the roof, but would remove the aeration exhaust flow from the sensitive areas. However, at most only two more 10 foot duct lengths could be added before static pressure losses may reduce the exhaust velocity to levels insufficient to project the aerated gasses away from the structure.

Solution Two, would be the addition of a charcoal filter in the aeration tube to trap sulfuryl fluoride as it is exhausted, removing it from the exhaust flow and thus protecting sensitive areas. Such a solution would require preliminary testing to establish the proper charcoal bed thickness to be used for a given sulfuryl fluoride dose rate. It would also require modification of the ducting to accept the charcoal filter insert. Finally, the use of a filter may not alleviate the concerns of persons in sensitive areas. They may not believe the filter is adequate or effective. Or they may not even know a filter is in use.

More involved solutions may include the placement of guards at sites where there are concerns over theft or the use of portable burglar alarms (wireless, portable motion sensors, as for example [www.sensaphone.com](http://www.sensaphone.com)) that can alert a set of predetermined responders.

It should be noted that some preliminary work on this issue has been done, monitoring for sulfuryl fluoride in a room on the second story of a house that was next door to a fumigation. Though the aeration exhaust opening was much further away (approximately 30 feet), the monitoring, using an ExplorIR-300, indicated no sulfuryl fluoride penetrated into the room (minimum detectable level 1 ppm).