



# Department of Pesticide Regulation



Brian R. Leahy  
Director

## MEMORANDUM

Edmund G. Brown Jr.  
Governor

TO: Saturnino Yanga  
Environmental Program Manager I  
Worker Health and Safety Branch

**HSM-15005**

FROM: Harvard R. Fong, CIH  
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*(original signed by H. Fong)*

DATE: November 2, 2015

SUBJECT: RESULTS FROM CONSULTATION WITH SUTTER CAC CONCERNING  
WAREHOUSE FUMIGATIONS ADJACENT TO A PROCESSING AREA AT A  
WALNUT PROCESSING PLANT

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On October 23<sup>rd</sup>, 2015, Environmental Scientist Leslie Crowl and I traveled to the Sacramento Valley Walnut Grower's facility in Sutter County on request from the Sutter County Agricultural Commissioner's (CAC) office. The purpose was to evaluate a proposed fumigation site at the facility. The proposed fumigation site was a 528,000 cubic foot bulk storage facility constructed of concrete. This structure was adjacent to a processing/storage facility in which workers would possibly be present during fumigation and aeration of the bulk storage. Additionally, the area where the two structures (bulk storage and processing/storage) were adjacent is fully enclosed, forming a high-ceilinged passageway, with doors at each end (Photo One).



Photo One: Passageway view, both ends.

In Photo One, the smooth wall is the bulk storage; the corrugated wall is the processing/storage. The proposed commodity fumigation will use the bulk storage structure as an enclosure for the gas. The bulk storage structure wall in the passageway appears, on cursory examination, to be a sheer wall, with no obvious penetrations. The facility stated that the joints and other potential points of fumigant gas leakage have been properly sealed. However, imperfections in the wall



structures, the sealing procedures and other unknown integrity breaches could lead to fumigant gas accumulation in the passageway.

The worker Health and Safety Branch, Industrial Hygiene Services has the following recommendations for mitigating potentially hazardous conditions caused by fugitive emissions from the bulk storage structure during fumigation, aeration and post-aeration:

1. During the fumigation period, the label required aeration period, and for 48 hours post-aeration period, continuous aeration of the passageway should be performed. This can be accomplished by either two portable fans (capable of at least 12,000 cfm) located at each doorway in the passageway or by structurally-incorporated ventilators (equal in air moving ability to the portable fans) built into the wall-panels above the doors. A push-pull set-up of the fans should be used, directing air from the north end of the passageway to the south end. The north-end fan should bring in fresh air; the south end fan should be exhausting potentially contaminated passageway air. If portable fans positioned in the doorways are used, it is strongly recommended, to maximize air exchange efficiency, that wooden shrouds be fabricated to fit in the doorways, to act as hoods for the fans (see example Photo Two).



Photo Two: Example of Door Fan Shroud

2. During the first two fumigations, monitoring equipment, as mentioned in the ProFume label, should be used to detect any leakage into the storage/processing area adjoining the passageway. If detection above 1 ppm is noted in storage/processing, employees must be evacuated from the storage area and cannot return until levels drop below 1 ppm in

storage/processing. Before the next fumigation is conducted, the walls and other structural members of the passageway will need to be closely inspected to identify and seal the point(s) of leakage.

3. If no leakage is detected during the first two fumigations, then only annual rechecking in the storage/processing area will be subsequently required. However, if any structural modifications are made affecting the structural integrity of the passageway (i.e. penetrations through either of the walls for conduit, damage caused by forklift mishap, bolting of electrical boxes to walls, etc.), another round of two tests will be required to establish gas tightness and adequate passageway aeration.
4. During periods of passageway aeration, no employee may enter the passageway unless the passageway is tested with equipment as mentioned in the ProFume label. Fans may be deactivated during this time, but monitoring must continue until the employee exits the passageway and the fans are reactivated.
5. Because label-required aeration may not address degassing of the nuts over time, it is *advised* that aeration be extended as long as feasible beyond label-required aeration. Worker Health and Safety suggests that a one hour aeration be conducted at the beginning of every work shift (or at least once per day), to exhaust any fumigant gas that may have degassed from the nuts. This is *advised* to continue until no “rebound” gas is detected within the bulk storage structure. This will also help address the potential for degassing nuts to release gas during processing and thus reduce potential exposure of processing workers.

cc: Scott Bowden, Ag Biologist, Sutter County Agricultural Commissioner’s Office  
Ken Everett, Environmental Program Manager I, Enforcement, Northern Regional Office, DPR