



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-15007

FROM: Harvard R. Fong, CIH
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Worker Health and Safety Branch
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(original signed by H. Fong)

DATE: December 18, 2015

SUBJECT: RESULTS FROM CONSULTATION WITH STANISLAUS CAC CONCERNING
PROPOSED CONSTRUCTION OF FUMIGATION CHAMBERS WITHIN A
NUT STORAGE WAREHOUSE

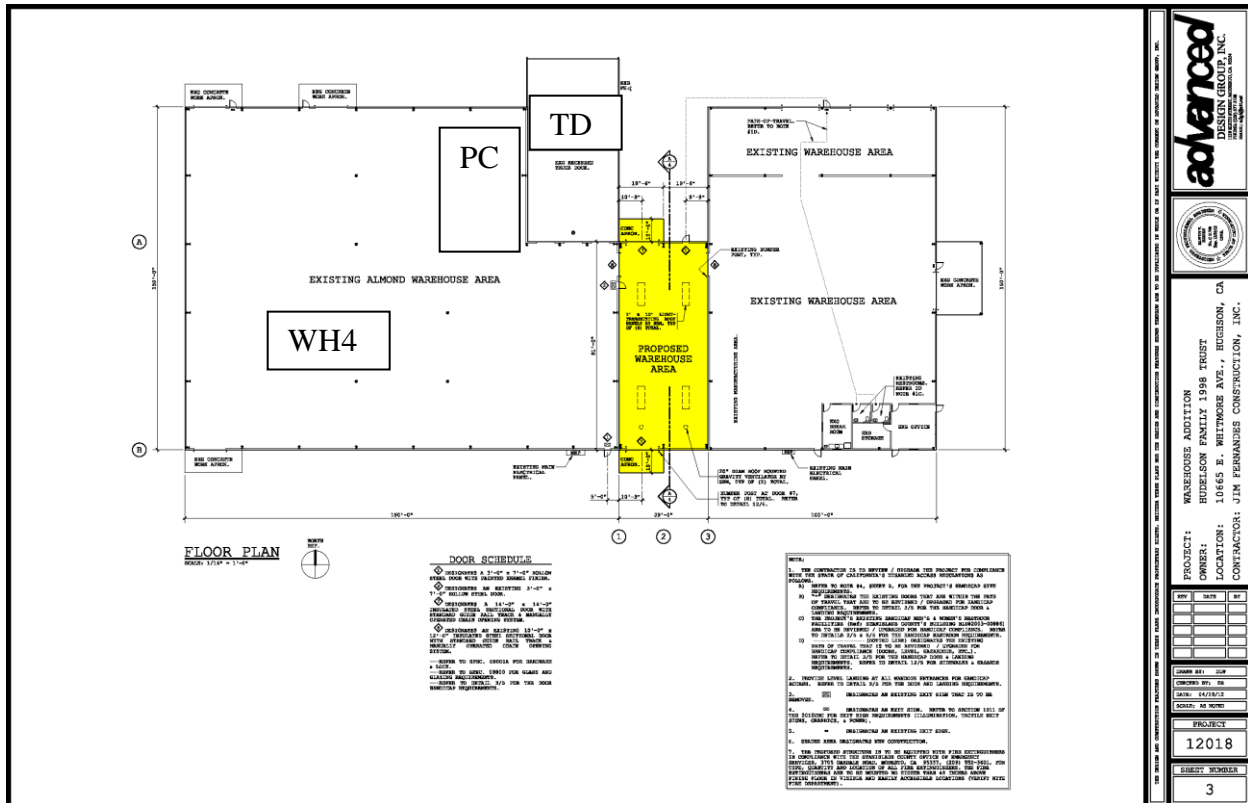
On December 7th, 2015, Environmental Scientist Emma Wilson and I traveled to the Hudelson Nut Company facility in Hughson, Stanislaus County on request from the Stanislaus County Agricultural Commissioner's (CAC) office. The purpose was to evaluate the plans for proposed fumigation chambers construction within a present warehouse enclosure of the facility.

There is an existing steel structure designated for almond warehousing ("Existing Almond Warehouse Area" in Figure One, marked "WH4"). It connects to an adjoining warehouse area through large forklift doors. Within the almond warehousing structure three fumigation chambers are proposed to be constructed in the upper right corner, abutting the truck docking area (marked "TD") and the outer wall. The site of the proposed chambers is marked "PC". The chambers are to be elongated structures, not unlike an intermodal trailer. The entrances to the three individual chambers will open into the enclosed storage area (to prevent rain and other environmental variables affecting the fumigated commodity). The proposed doors are to be guillotine rollup style. Each chamber will be served by its own aeration fan.

Normally, such a set-up for fumigation chambers would be non-compliant with **Condition 4: Enclosed Areas** set forth in the **1994 Reference Manual for Methyl Bromide Commodity Fumigation** (RefManMBr). Specifically, page 24 of RefManMBr: "The fumigation is prohibited if it is done in an enclosed area which has a gas-confining roof and walls."

This requirement does not apply to structures that are considered "partially enclosed areas". Usually this applies to structures like pole-barns, three sided structures or structures with several loading dock doors close to the chambers that can be left open during fumigation and initial aeration. However, none of these conditions apply. There are dock doors nearby the proposed chamber site, but there are no dock doors nearby on the opposite wall to allow cross-flow ventilation. This leaves a large area where contaminated, uncirculated air could stagnate and build up detectable levels of fumigant.





NOTE; VERIFY WITH STANISLAUS COUNTY'S APPROVED PROJECT'S DRAWINGS.

Figure One: Facility layout

However, several engineering controls and operation procedures are proposed as mitigation measures for this non-compliance:

- The individual chambers are to be enclosed by a gas-tight secondary structure. This enclosure includes walls and ceiling.
- The secondary enclosure will be actively ventilated during fumigation and initial aeration (i.e. first 4 hours of aeration or minimum time required by label, whichever is longer). This will entrain and remove any fugitive emissions from the chambers. Consultation with a ventilation engineer is advised to ensure adequate air movement is attained to maintain adequate gas clearance (<1 ppm) within the secondary enclosure.
- The venting stack for the secondary enclosure should be as high as the venting stack for the chambers. Recommended fan capacity should be sufficient to ensure at least 10 air exchanges per hour.

- Make-up air intake should be situated such that that air flow from intake to exhaust encompasses the entire secondary enclosure's air parcel. Make-up air intake should be from outside the warehouse structure. Intake vent should be louvered so that when air flow ceases, vents close. Avoid creating stagnant air zones.
- Aeration fans are to be left on during off-loading of the chambers to ensure fresh air for the forklift drivers.
- During the first 3 fumigations of each chamber, hourly monitoring at the 10 foot buffer zone surrounding the fumigation chamber enclosure will be done. This can be as many as 9 separate times (each chamber is used exclusively per fumigation) or as few as 3 separate times (all three chambers are used simultaneously, three times). This test for gas tightness must be done at least annually and any time structural changes (either intentional or accidental) are made to either the inner chambers or the secondary enclosure. Use of steel bollards to protect the secondary enclosure is strongly recommended.
- Monitoring to be conducted using a real-time monitoring device, such as a Spectros Explor-IR, Interscan GF 1900 or M.A.C. 2640 CLIRcheck SF Monitor.
- All other requirements for chamber construction and buffer zones as outlined in RefManMBr should be followed (e.g. control room location, buffer zone size, etc.)

Additionally, Hudelson Nut sent a list of procedures and specifications that they believe would also prevent worker exposure to gas during fumigation. This was made into an attachment at the end of this document. These procedures and specifications should also be incorporated into the development and construction of the fumigation facility.

cc: Deana Guerrero, Agricultural/Weights and Measures Inspector II, Stanislaus County
Agricultural Commissioner's Office
Karen Francone, Environmental Program Manager I, Enforcement, Central Regional Office
Emma Wilson, Environmental Scientist, Worker Health and Safety Branch

ATTACHMENT

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Hudelson Nut Company, Inc.
Fumigation Chambers
12/9/2015

- 1) There will be three fumigation chambers at the facility, inside our warehouse. They will sit side by side and all have guillotine type doors to keep a tight seal, all being surrounded by a secondary enclosure, with another set of guillotine doors to prevent any leakage. There will be a fan system inside the secondary enclosure area that will run at all times when fumigation or exhausting is going on, that will create a negative pressure, to keep any fumigants that could escape from any of the three chambers exhausted to the outside air thru a stack mounted on the roof of the structure that is a minimum of ten feet higher than any structure on our property.
- 2.) We will use the fumigation chambers for fumigating finished product before they get shipped overseas.
- 3.) We will have a ten foot barrier painted on the floor outside the secondary enclosure area that employees will stay back from, and nothing will be stored in, as a third protective layer of protection
- 4.) Each chamber will have enough room to hold product to fill one overseas container.
- 5.) Product will be stacked inside the chambers two pallets high.
- 6.) Product will be put directly into the overseas containers after it has been fumigated.
- 7.) All 3 chambers will always be operated together. They will be under fumigation together, exhausted together and loaded together. At no time will they be operated independently.
- 8.) All fumigant will be stored in a fenced in area on the outside of the fumigation chambers, with no chemical being stored inside at any time.
- 9.) All employees operating the fumigation chamber will be trained extensively on all operating procedures and safety procedures.
- 10.) We will follow all of Stanislaus counties regulations regarding these fumigants and any other requirements they may have.