



# Department of Pesticide Regulation



Brian R. Leahy  
Director

## MEMORANDUM

Edmund G. Brown Jr.  
Governor

TO: Robert Ford, CIH, CSP **HSM-17005**  
 Environmental Program Manager I **(No. assigned after issuance of memo)**  
 Worker Health and Safety Branch

FROM: Harvard R. Fong, CIH *[Original signed by H. Fong]*  
 Senior Industrial Hygienist  
 Worker Health and Safety Branch  
 (916) 445-4211

DATE: March 28, 2017

SUBJECT: RECOMMENDATIONS CONCERNING THE CONSTRUCTION OF  
 COMMODITY STORAGE/PROCESSING FACILITY

---

On March 13, Associate Industrial Hygienist Emma Wilson and I traveled to Tehama County to consult on a proposed storage/processing structure to be built on the property of Andersen and Sons Shelling Incorporated. This facility is located in Vina, California. At the site were representatives of the facility, the construction company, a fumigation management company and a member of the Tehama County Agricultural Commissioner's office.

The issue under consideration was the construction of both an additional bulk storage building adjunct to an existing one and a new warehouse/processing building next to these structures (see Figure One).

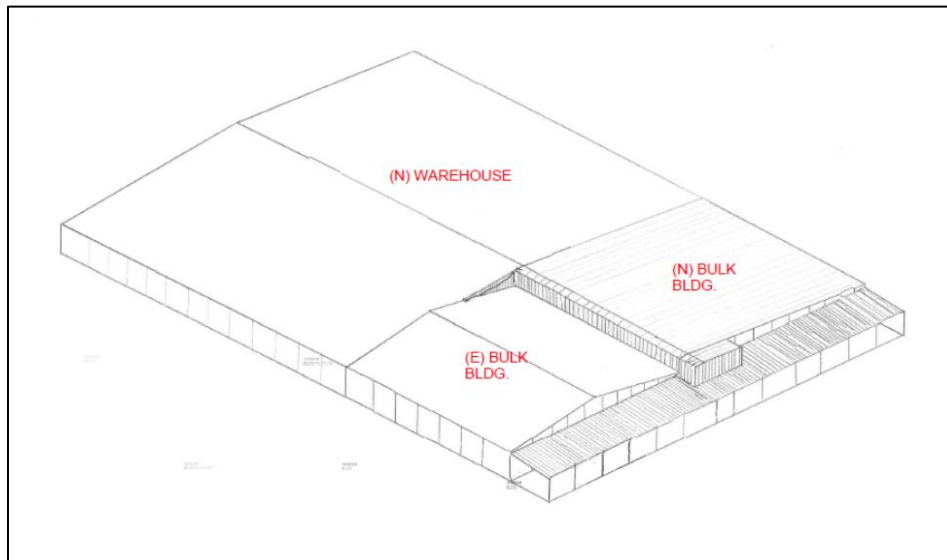


Figure One: Building layout. (N) new structure, (E) existing structure

Presently there is a bulk storage building, designated “(E) BULK BLDG” in Figure One, that stores loose commodity waiting for processing. It is a concrete exterior building within which individual bulk storage compartments are formed with steel wall construction. Though each storage compartment is formed with 4 walls (one wall having a large, closeable entryway), there is no ceiling on the compartments. Thus if one compartment is fumigated, the entire structure must be considered under fumigation. The proposed new bulk storage (“(N) BULK BLDG”) will purportedly add a ceiling to each internal compartment.

Also proposed is a warehouse/processing structure that would be to the south of the bulk storage units. The warehouse/processing building would share the concrete wall with the bulk storage structures. A steel separating wall would be constructed approximately 30 feet away from the bulk storage wall. Within confines of these two walls an underground conveyer system is located. This system is located under steel plates that are fitted into trenches in the floor (Figure Two).



Figure Two: Steel plate conveyer trench covers

The area between the bulk storage wall and the warehouse/processing wall will be enclosed with a roof and there will be walls at each end. This enclosed space (“breezeway”) may be susceptible to fumigant infiltration from both any unknown or inadequately sealed penetrations in the bulk storage walls and from leakage from difficult to seal conveyer and conveyer raceway that runs under the bulk storage. This applies to the existing and proposed building, see Figure Three.

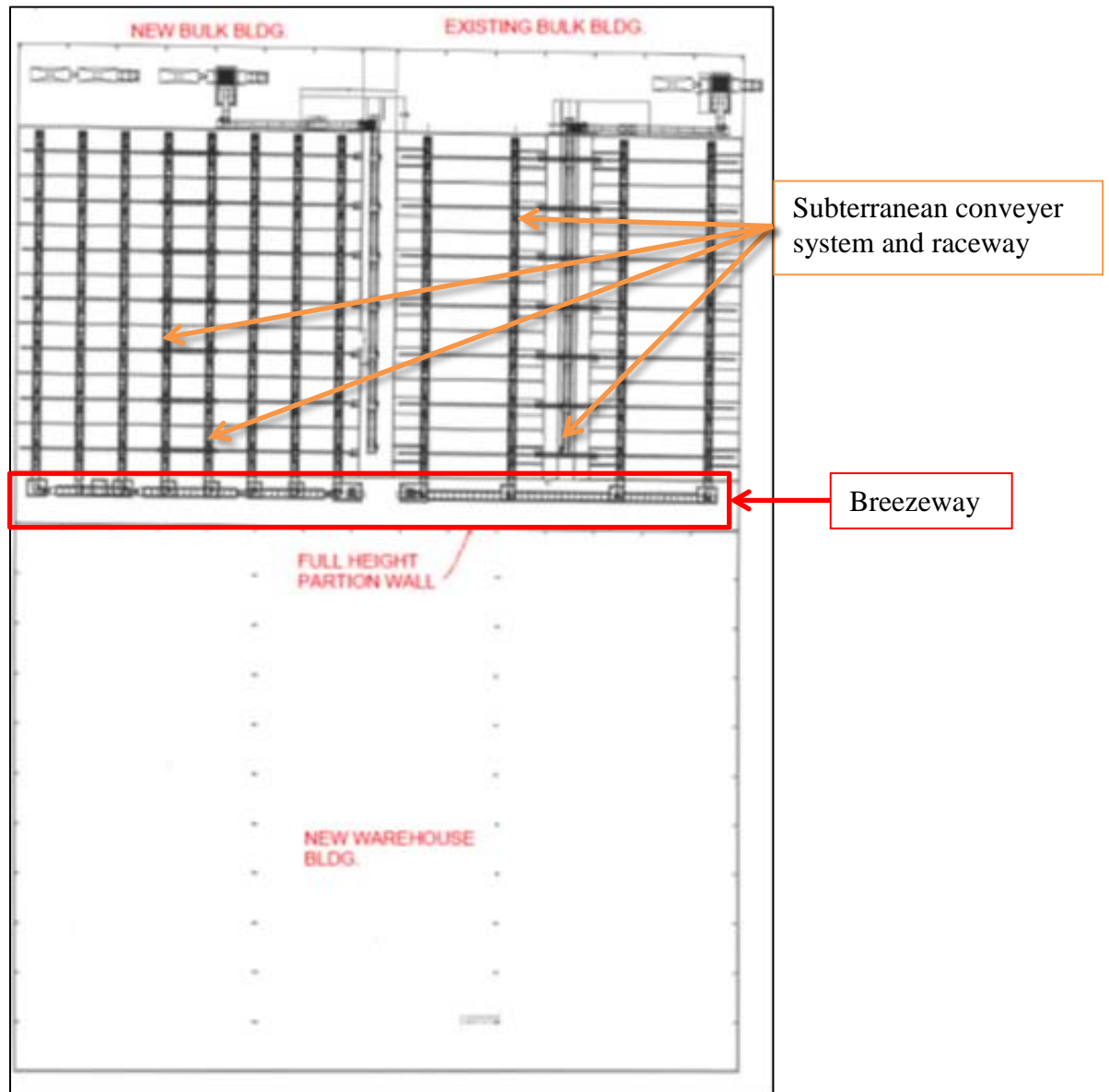


Figure Three: Conveyer layout

Depending on the magnitude of the fumigant infiltration, the breezeway could experience a gas buildup to non-compliant concentrations (sulfuryl fluoride label limit that triggers SCBA use is 1 ppm; Cal/OSHA Permissible Exposure Limit is 5 ppm TWA).

I would suggest the following recommendations be considered to mitigate potential exposure hazards from fumigant exposure:

1. The breezeway between the bulk storages and the warehouse/processing must be adequately ventilated with a system that draws air from one end of the long axis of the space and expels it out the other end. Essentially there should be a laminar flow along the breezeway. This flow should entrain and remove any fugitive emissions from the underground conveyer system or from any leaks from the bulk storage. The ventilation system must be active during any fumigation phase and for at least the first hour of an aeration phase. The air flow rate should be sufficient to remove emissions but not as great as to act as a suction to draw fumigant out of the bulk storage building via the conveyer raceways. Either a single powerful exhaust fan (with make-up air vents at the opposite end) or a push-pull ventilation (intake fan on one end, exhaust fan on other, potentially less likely to draw fumigant gas from conveyer area) would fulfill this recommendation.
2. An appropriately sized occupational buffer zone should be established around the perimeter of the bulk storage structure. This can be identified by painted lines, painted areas, bollards, warning tape stretched from stanchions or other such marking system. Only fumigation handler access to this area should be permitted during fumigation and the first hour of aeration.
3. Once the breezeway has been completed, during the first two fumigations of each bulk storage area, close monitoring within the warehouse/processing structure during the active fumigation phase should be performed by the fumigator or other handler staff, with special attention paid to any access-doors/dock-doors.
4. After the initial warehouse/processing building tightness testing and confirmation, retesting should be done on an annual basis or any time the structure experiences damage (i.e., forklift strikes doors).
5. Height and location of the aeration stack and the establishment of environmental/non-occupational buffer zones should be discussed with the Environmental Monitoring Branch of DPR and their recommendation followed. This does not apply to the breezeway ventilation system, though it is suggested that the exhaust fan be 10 feet above grade.

cc: Mr. Rick Gurrola, Agricultural Commissioner, Tehama County  
Mr. Ken Everett, Environmental Program Manager I, Enforcement Branch, NRO  
Ms. Emma Wilson, Associate Industrial Hygienist, Worker Health and Safety Branch