On June 1, 2004, Frank Schneider, Associate Industrial Hygienist, and I met with Wendy Hahn of Stanislaus County Agricultural Commissioner (CAC) to review procedures used by Sun Valley Nut in their applications of phosphine-containing pesticides. Initially, we were going to deploy the new phosphine detector and take air samples during phosphine applications. However, attempts to calibrate the detector on May 28 proved fruitless and the detector has been returned to the manufacturer for warranty repair.

Though we did not have the detector available for sampling, we did view the application procedure used by Sun Valley when applying aluminum phosphide tablets (Gastoxin®). This application procedure, placing tablets within the plastic bag holding bulk product, seems to be an industry standard. The applicator places the tablets into a coffee filter that is placed on the bulk product. The bag confining the bulk product within the bin is then twisted and sealed with a plastic tie. Finally, the applicator inspects the bag for any punctures or tears and seals those with duct tape. Before processing the commodity, the spent residue dust must be removed. This step is not required when using phosphine gas. Of note during the application was that the worker was wearing a short-sleeved shirt while handling the tablets. The Gastoxin® label requires a “…loose fitting, long-sleeved shirt…” Eye protection was worn, as were the required dry cotton gloves.

The facility operator also showed us both the storage unit for the aluminum phosphide and the Draeger® tubes used in measuring air concentrations. The operator stated that he periodically monitors the storage area with these colorimetric tubes. Unfortunately, on close inspection of the tubes, it was noted that their expiration date was 1998. This was brought to the attention of the facility manager and the CAC staff member. Expired tubes are not considered valid for regulatory purposes.

The final location reviewed was the storage area for the pallet of ECO2FUME® gas cylinders. These were located within the facility, in the same area as processing workers. We advised them that such storage is not recommended on either the label, applicator’s manual, or the Material Safety Data Sheets (MSDS) and that a well-ventilated remote storage would be more protective.
of workers. The facility manager stated that all fumigation, both with tablets and gas, is done outside and that the treated commodity stays outside for approximately three days. Such a protocol would alleviate most concerns over the use of ECO2FUME®. The least capital intensive method of ensuring worker safety from the use of this material would be outdoor application and storage. It was also noted that ECO2FUME® applicators are to be monitored by appropriate gas detection devices, i.e. phosphine detectors. Sun Valley did not possess any on this day (as noted earlier, their colorimetric tubes were expired).

The CAC staff member observed that not all bins that were under fumigation were placarded as such. The facility manager explained that only the first bins fronting a stack were labeled as under fumigation, with the bins behind it assumed to be. The CAC staff informed him that this was an unacceptable method and that all fumigated bins should be so labeled.