



HYGIENETECH

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June 15, 2010

State of California
Board of Equalization
450 N Street
Sacramento, California 94279

Document No. 21006001.1

Attention: David Gau

Regarding: Exposure Potential Monitoring for Volatile Organic Compounds
1st Floor and Garage Areas

Dear Mr. Gau:

On June 8 and 9, 2010, industrial hygienists with Hygiene Technologies International, Inc. (HygieneTech) conducted a limited industrial hygiene survey on the 1st Floor and garage areas of the State of California Board of Equalization (BOE) building located at the above address. The survey was performed following the application of Neogard[®] brand urethane deck coating on the ground surface of the southeastern portion of the garage 2nd Floor from which odor complaints arose involving employees working in the 1st Floor Cafeteria and Kitchen. Volatile organic components (VOCs) of that deck coating included light aromatic solvent naphtha, 1,2,4-trimethylbenzene, xylene, and toluene diisocyanate.

With the use of a direct-reading photoionization detector, VOCs were recorded on June 8, 2010 in the 1st Floor western lobby, Cafeteria, Kitchen, and Kitchen Hallway areas as well as in the garage and garage stairwells using a RAE Systems, Inc. Mini-RAE 2000 photoionization detector, which is capable of detecting a wide variety of unsaturated hydrocarbons at airborne concentrations ranging from 0.1 to 10,000 parts per million (ppm). Prior to the survey, this instrument was calibrated using a 100-ppm isobutylene gas standard. The resultant data with supporting information appear in Table 21006001-17.

On June 9, 2010, area samples for 1,2,4-trimethylbenzene and xylene were collected in the Kitchen and Cafeteria using SKC personal air sampling pumps equipped with charcoal tubes. Pump flow rates were established and verified using a BIOS DryCal DC-Lite primary flow meter. Those samples were collected and analyzed along with a blank (identical sampling media through which no air was drawn) at a laboratory accredited by the American Industrial Hygiene Association (AIHA) through successful participation in the National Institute for Occupational Safety and Health (NIOSH) Proficiency Analytical Testing Program. The VOCs were analyzed by gas chromatography with flame ionization detection and the resultant data with supporting information appear in Table 21006001-10. Also included in the table for comparison purposes are the applicable State of California, Department of Industrial Relations, Division of Occupational Safety and Health (Cal-OSHA) permissible exposure limits (PELs) as defined in Title 8 of the California Code of Regulations, Section 5155 (T8, CCR § 5155).



With the use of a direct-reading photoionization detector, VOCs in the sampled locations ranged from not detected at or above the instrument detection limit of 0.1 ppm to 9.6 ppm, with the peak level in the garage immediately adjacent to the urethane application at the southeastern portion of the garage 2nd Floor. The peak level indoors was detected in the hallway adjacent to the southern kitchen entrance door. Note that all indoor VOC levels had dissipated to a non detectable level by 3:10 pm on June 8, 2010. Additionally, no VOC odors were evident at that time inside the building.

The VOC sample data collected on June 9, 2010 indicated that 1,2,4-trimethylbenzene and xylene were not detected at or above their respective analytical detection limits. Because these data were recorded at approximate breathing zone height, the results are expected to represent building occupant *exposure* potentials for those persons occupying or passing through the areas monitored. Collectively, the data recorded on both days were well below the Cal-OSHA 8-hour TWA PELs of 25 ppm for 1,2,4-trimethylbenzene and 100 ppm for xylene.

Based on the survey data and our site observations, we offer the following conclusions.

- The data contained in this report would indicate that the employees working in the 1st Floor Cafeteria and surrounding areas were not exposed to the subject compounds at airborne levels that exceeded the applicable Cal-OSHA PELs.
- Be advised that the data provided with this correspondence only represent exposure potentials to the named contaminants under the conditions that existed at the time the survey was performed. Exposure potentials may change due to changes in operations and/or environmental conditions, use of mechanical systems, or other factors.

Based on our survey findings, the following recommendations are offered.

- An accurate record of all air monitoring results should be maintained in accordance with Cal-OSHA regulation T8, CCR § 3204. All affected employees should be informed that the exposure data in this report exist and that they, or their representative, have a right to access relevant exposure data and medical records.
- In order to prevent employee discomfort and unnecessary exposures to VOCs, urethane deck coating applications and other similar operations in the future should only be performed when employees are not present in the building.

If you have any comments or questions regarding the information contained in this correspondence, or if you require additional health and safety services, please do not hesitate to contact our offices directly at (310) 370-8370.

Sincerely,

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

Kenny K. Hsi, CIH
Technical Director

HYGIENE TECHNOLOGIES INTERNATIONAL, INC.

APPENDIX A



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TABLE 21006001-17
DIRECT-READING RESULTS
1ST FLOOR
SACRAMENTO, CALIFORNIA
JUNE 8, 2010

LOCATION/SITE ACTIVITIES	SAMPLE TIME	CONTAMINANT	RESULTS (ppm)	COMMENTS
1 st Floor; Lobby, Cafeteria, Kitchen, and Kitchen Hallway areas; approximately five feet above floor/Normal building activities	11:05/11:11	Volatile organic compounds	Average: 1.1 Peak: 4.1	Peak levels were found at southern Kitchen entrance door
Northwestern portion of parking garage 2 nd and 3 rd Floors and northern garage stairwell; approximately five feet above floor/Normal garage activities	11:12/11:19	Volatile organic compounds	Average: 0.1 Peak: 1.8	Peak Levels were found on 2 nd Floor at northern portion of garage
1 st Floor; Lobby, Cafeteria, Kitchen, and Kitchen Hallway areas; approximately five feet above floor/Normal building activities	14:33/14:38	Volatile organic compounds	Average: 0.3 Peak: 0.8	Levels were fairly consistent throughout sampled areas
Northwestern and southeastern portions of parking garage 2 nd and 3 rd Floors and southern garage stairwell; approximately five feet above floor/ Normal garage activities	13:45/14:26	Volatile organic compounds	Average: 1.4 Peak: 9.6	Peak levels were found adjacent to Urethane application source at the eastern portion of the garage 2 nd Floor
1 st Floor; Lobby, Cafeteria, Kitchen, and Kitchen Hallway areas; approximately five feet above floor/Normal building activities	15:05/15:10	Volatile organic compounds	ND<0.1	No VOC odors detected
Northwestern and southeastern portion of garage 2 nd and 3 rd Floors along with northern and southern garage stairwells; approximately five feet above floor/ Normal garage activities	14:58/15:03	Volatile organic compounds	Average: 0.2 Peak: 0.9	Minimal odors remain near Urethane application source at the eastern portion of the garage 2 nd Floor

LEGEND

ND: Not detected
<: Less than

N/A: Not applicable
ppm: Parts per million

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TABLE 21006001-10
VOLATILE ORGANIC COMPOUNDS
1ST FLOOR
SACRAMENTO, CALIFORNIA
JUNE 9, 2010

NAME/ REFERENCE	LOCATION/ ACTIVITIES	PPE USED	SAMPLE NUMBER	START/ STOP	SAMPLE TIME	CONTAMINANT	RESULTS (ppm)	PEL (ppm)
Area Sample	Kitchen; southern entry door area along southern partition wall; about two feet west of entry door; approximately five feet above floor/Normal Kitchen activities	N/A	21006001-10 VOC01	9:40/ 15:26	346 minutes	1,2,4 –Trimethylbenzene Xylene	<0.03 <0.10	25 100
Area Sample	Cafeteria, Café service area; southwestern corner; approximately five feet above floor/Normal Cafeteria activities	N/A	21006001-10 VOC02	9:44/ 15:28	344 minutes	1,2,4 –Trimethylbenzene Xylene	<0.03 <0.10	25 100
Blank	N/A	N/A	21006001-10 VOC03BLANK	N/A	N/A	1,2,4 –Trimethylbenzene Xylene	All data blank corrected	N/A

LEGEND

PPE: Personal protective equipment
N/A: Not applicable
PEL: Cal-OSHA 8-hour time-weighted average permissible exposure limit

<: Less than
ppm: Parts per million