

AIR QUALITY ASSESSMENT SURVEY

for the property located at:

**252 LORRAINE STREET
BROOKLYN, NY**

within the:

BASEMENT TO ROOF

prepared for:

**FIRE DEPARTMENT NEW YORK
9 METROTECH CENTER
BROOKLYN, NY 11201**

prepared by:

**GCI ENVIRONMENTAL ADVISORY, INC.
655 THIRD AVENUE
NEW YORK, NY 10017**

MARCH 19, 2003

*Letter to
FK / ASSISTANT
MAKING*

*4/14-15/03
SAFETY Planning*

AIR QUALITY ASSESSMENT SURVEY

prepared for:

**FIRE DEPARTMENT NEW YORK
252 LORRAINE STREET
BROOKLYN, NY 11231**

I. EXECUTIVE SUMMARY

An Air Quality Assessment Survey was re-conducted within the building identified as 252 Lorraine Street (Engine 279/Ladder 131), Brooklyn, NY 11231 during March 15 - 16, 2003. The re-survey was in response to recommendations made during a previous survey. The survey included collecting Volatile Organic Compounds (VOCs) from the same areas surveyed during the March 7 -8, 2003 Air Quality Assessment and included the Basement Weight Room, the Second (2nd) Floor Kitchen, Bunk and Rest Rooms, the Third (3rd) Floor Locker Room and the outside air at the Roof Level. The survey was conducted by GCI Environmental Advisory, Inc. Certified Industrial Hygienist, Mr. James Grond.

The detected indoor air levels of Volatile Organic Compounds (VOCs) were within the low parts per billion range with the levels of the chemical 1,4-Dichlorobenzene identified as being elevated in a previous survey being significantly reduced to more acceptable levels. The following table illustrates the analytical results of the March 7 - 8 and March 15 - 16, 2003 Surveys:

CHEMICAL (All reported results are in Parts Per Billion)	Roof 3/7 / 3/15	3 rd LR 3/7 / 3/15	2 nd Kit 3/7 / 3/15	2 nd Bunk 3/7 / 3/15	2 nd RR 3/7 / 3/15	Bsmt WR 3/7 / 3/15
1,1-Dichloroethane		/ 2.30				
1,2,4-Trimethylbenzene	3.30 / 5.70	21.0 / ND	80 / 21.7	18 / 6.90	9.0 / 12.5	18.5 / 5.00
1,2-Dichlorobenzene				1.65 / ND	2.87 / ND	
1,3,5-Trimethylbenzene		6.00 / ND	20 / 6.0	5.5 / ND	2.65 / ND	5.5 / 1.70
1,4-Dichlorobenzene	/ 44.9	214 / ND	141 / 123	379 / 6.11	1278 / ND	30.0 / 24.5
Acetaldehyde	/ 45.4				/ 11.5	
Acetone	/ 39.8	10.60 / ND	/ 13.2		/ 45.1	12.60
Benzene	3.57 / 7.93	7.80 / ND	12.0 / 11.8	8.1 / 9.50	5.20 / 7.28	11.7 / 8.19
Dichlorodifluoromethane			/ 3.27	3.57		5.0
Ethylbenzene		5.3 / ND	10.2 / 7.86	4.9 / 3.31	2.87 / ND	6.2 / 3.14

CHEMICAL (All reported results are in Parts Per Billion)	Roof 3/7 / 3/15	3 rd LR 3/7 / 3/15	2 nd Kit 3/7 / 3/15	2 nd Bunk 3/7 / 3/15	2 nd RR 3/7 / 3/15	Bsmt WR 3/7 / 3/15
Freon 113					14.0	
Methyl Ethyl Ketone	/ 6.98					
n-Hexane	/ 5.04	1.2 / ND	/ 13.0	5.01 / 11.9	/ 3.94	11.1 / 21.1
o-xylene	1.81	6.6 / ND	16.3 / 10.5	6.6 / 3.31	3.6 / 2.30	8.4 / 3.27
p- & m xylenes	2.08 / 2.25	9.3 / ND	18.1 / 13.8	8.4 /4.73	4.9 / 6.18	10.6 / 4.64
Styrene	/ 2.99	1.4 / ND	/ 4.00	2.25 / ND	1.56 / ND	1.34 / 4.94
Tetrachloroethylene		3.3 / ND	8.3	2.4 / 7.66	/ 12.4	2.55 / ND
Toluene	11.1 / 9.77	33 / ND	46 / 42.5	32 / 21.8	21.1 / 4.52	38.3 / 22.2
Trichloroethylene		/ 43.8			/ 3.77	

The Volatile Organic Compounds (VOCs) levels detected in the outside air are those generally associated with operation and exhaust of internal combustion engines and based upon the activity surrounding the Fire House do not appear excessively elevated over ambient conditions. The levels of detected Volatile Organic Compounds (VOCs) within the fire house were slightly elevated above outdoor levels, but again are compounds associated with the operation and exhaust of internal combustion engines.

The lower and non-detected levels of 1,4-Dichlorobenzene can be attributed to the removal of rest room products which contained 1,4-Dichlorobenzene. The slightly elevated level recorded within the Kitchen may be the result of a fumigation or exterminator product which has 1,4-Dichlorobenzene as an ingredient.

The balance of the detected Volatile Organic Compounds (VOCs) are the result of these chemicals being part of the mixture of products being utilized within the Fire House.

II. INTRODUCTION

The purpose of this survey was to perform selected "air quality" tests following a previous Indoor Air Quality Survey conducted during March 7 - 8, 2003 within the Fire House located at 252 Lorraine Street (Engine 279/Ladder 131), Brooklyn, NY 11231. The previous Volatile Organic Compounds (VOCs) survey, conducted within the Basement Weight Room, the Second (2nd) Floor Kitchen, Bunk and Rest Rooms, the Third (3rd) Floor Locker Room and the outside air at the Roof Level indicated the presence of elevated levels of various organic compounds. The test was performed utilizing Summa evacuated sampling canisters and sampling for an approximate twenty-four (24) hour period. One of the recommendations made within the March 2003 report called for removing all sources of 1,4-Dichlorobenzene, cleaning each area and collecting additional samples from the same areas as the March 7 - 8, 2003 survey.

III. SAMPLING AND ANALYTICAL METHODOLOGY

The sampling and inspection strategy utilized included:

- a. Visually inspecting each area to determine general ambient and logistic parameters;
- b. Reviewing with facilities management all present tenant processes to determine potential sampling locations and sampling parameters;
- c. Selecting representative sampling areas for Volatile Organic Compounds (VOCs) to include typical occupant air for generally occupied floors and areas (i.e. Locker Room, Kitchen, Bunk, Weight Rooms) and the ambient outside "fresh" air;
- d. Recording the analytical findings and noting any visual or olfactory observations.

The analytical results and sampling locations for all parameters tested can be found in their appropriate sections.

Volatile Organic Compounds (VOCs) samples were collected utilizing evacuated Summa Canisters set to collect an approximate twenty-four (24) hour sample.

A tygon tube was attached to the Summa Canister and carefully raised to approximate breathing zone height to eliminate potential interferences. Samples were delivered to an accredited laboratory for analysis utilizing Gas Chromatography/Mass Spectrometry for identification via the Environmental Protection Agency (EPA) Standard Method TO15 with additional analysis for Tentatively Identified Compounds (TICs) of all major peaks not identified within the TO15 method.

IV. OBSERVATIONS

The following visual and olfactory observations were made during the survey:

A. Outside Roof Level

The roof sample was collected along the Northwest section of the roof with the winds primarily out of the West. The abutting building to the South of the Fire House is a smoke house with visible smoke observed but no smell of smoke detected. The elevated Gowanus Expressway is within two (2) blocks.

B. Second Floor - Kitchen

The kitchen area occupies the Southern half of the floor while a Locker Room occupies the Northern half. The kitchen was in limited operation during the sampling period due to the limited occupancy of the Fire House. The kitchen had normal smell of cleaners, past cooking, etc.

C. Second Floor - Bunk Room

The Bunk Room occupies the Eastern half of the floor with the Rest Room located along the Southern portion. The room was not occupied during the sampling period due to the limited occupancy of the Fire House. All window air conditioners had been replaced and the room had normal smell of cleaners, soap smells, etc.

D. Second Floor - Rest Room

The Rest Room is located along the Southern portion of the Bunk Room. The room had normal smell of cleaners, soap, toilet bowl disinfectants, etc.

E. Third Floor Locker Room

The Third Floor Locker Room occupies the Western half of the floor with an open recreational area located along the Eastern Section. The room was not occupied during the sampling period due to the limited occupancy of the Fire House. The room had normal smell of cleaners, soap smells, etc.

F. Basement Weight Room

The Basement Weight Room occupies the Southeastern half of Eastern Section of the Building. The Northern section of the area contains the building boiler and an aboveground fuel oil tank. The room is filled with weights and exercise equipment.

V. DISCUSSION AND ANALYTICAL RESULTS

The detected indoor air levels of Volatile Organic Compounds (VOCs) were within the low parts per billion range with the levels of the chemical 1,4-Dichlorobenzene identified as being elevated in a previous survey being significantly reduced to more acceptable levels. The Volatile Organic Compounds (VOCs) levels detected in the outside air are those generally associated with operation and exhaust of internal combustion engines and based upon the activity surrounding the Fire House do not appear excessively elevated over ambient conditions. The levels of detected Volatile Organic Compounds (VOCs) within the fire house were slightly elevated above outdoor levels, but again are compounds associated with the operation and exhaust of internal combustion engines.

The balance of the detected Volatile Organic Compounds (VOCs) are the result of these chemicals being part of the mixture of products being utilized within the Fire House.

VI. CONCLUSIONS AND RECOMMENDATIONS

The detected indoor air levels of Volatile Organic Compounds (VOCs) were within the low parts per billion range and the levels of 1,4-Dichlorobenzene were reduced to acceptable levels.

The Volatile Organic Compounds (VOCs) levels detected are those generally associated with operation and exhaust of internal combustion engines and based upon the activity surrounding the Fire House do not appear excessively elevated over ambient conditions. The balance of the detected Volatile Organic Compounds (VOCs) are the result of these chemicals being part of the mixture of products being utilized within the Fire House.

The remaining detected levels of 1,4-Dichlorobenzene can be attributed to the use of fumigants or exterminating products or other products which may contain this chemical.

The health effects associated with the low levels of detected Volatile Organic Compounds (VOCs), should, in the opinion of the hygienist not adversely affect the Fire House personnel. However, actual health effects should be determined by a properly trained, licensed and experienced health professional.

In addition, all products used within the Fire House should be reviewed to ensure that only low Volatile Organic Compounds (VOCs) are utilized, proper ventilation is implemented and all personnel follow the manufacturers and the Material Safety Data Sheets instructions.