NYC 9/11 Public Portal Document

Liberty Mutual

# Industrial Hygiene Air Sample Results

Summary for Weeks of 11/25 and 12/2

Attached is a summary of the results of the samples collected by ATC associates at the World Trade Center site for the specified weeks.

Sampling for hydrogen sulfide around the area of the south bridge was begun during the week of 12/2. This area has been a source of frequent complaints about "rotten egg" odor. Out of the 8 samples collected in that area, one sample showed a concentration of 16 ppm, which is below the OSHA ceiling PEL of 20 ppm, but above the 8 hour TLV of 10 ppm. This was an area sample taken near a suspected odor source (a storm sewer opening) so it does not represent worker exposure. However, in response to this elevated result, we have included both personal and area samples for hydrogen sulfide in our sampling plan. The results of the other samples collected in the area were either very low or too low to be quantified.

The vast majority of the samples collected by ATC are "personal samples", meaning that the worker wore the sampling device. The vast majority of results have shown exposure levels to be below occupational exposure limits. The exceptions were:

A **lead** concentration of **2.3 times the PEL** on a grappler operator on 10/17
A **quartz** concentration of **5 times the PEL** on a laborer during concrete demolition on 11/16
A **quartz** concentration of **1.5 times the PEL** on concrete mixer operator on 11/19

Following is an explanation of the columns in the attached summary:

**Agent Class** - This column includes general category of the agents (substances) which were sampled.

**# of Samples** - This indicates how many individual samples were collected for the agent class listed.

**# of Analytes** - This is the number of individual analysis performed. If only one analyze is determined on each sample, then the number of analytes will equal the number of samples. However, most samples are analyzed for more than one agent as follows:

**Metals:** Aluminum, antimony, arsenic, barium, beryllium, cadmium, calcium, chromium, cobalt, copper, iron, lead, magnesium, manganese, nickel, selenium, silver, thallium, tin, titanium, vanadium, and zinc. Metal samples are sometimes also analyzed for total particulate.

**PAHs:** Acenaphthene, acenaphthylene, anthracene, benz(a)anthracene, benz(b)fluoranthene, benzo(a)pyrene, benzo(ghi)perylene, benzo(k)fluoranthene, chrysene, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene and pyrene.

**Aromatics:** Benzene, ethyl benzene, toluene, and xylene.

**Silica:** Respirable dust, quartz, and cristobalite.

**Aldehydes:** Acetaldehyde, acrolein, benzaldehyde, formaldehyde, n-butyraldehyde, propionaldehyde, and valeraldehyde.

**Acids:** Hydrobromic acid, hydrochloric acid, hydrofluoric acid, nitric acid, phosphoric acid and sulfuric acid



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**Highest Analyte** - The analyte found in the highest concentration with respect to its occupational exposure limit.

**Highest Result** - The concentration of the highest analyte.

**OSHA PEL** - This is the Permissible Exposure Limit (PEL) for the highest analyte. PELs are established by an OSHA rule-making process and are the legal occupational exposure standards.

**ACGIH TLV** - This is the Threshold Limit Value (TLV) for the highest analyte. TLVs are voluntary guidelines for occupational exposure which are established by the American Conference of Governmental Industrial Hygienists, a private professional organization.

**Highest Result / % of OEL** - This is the percentage of the occupational exposure limit (OEL) that the highest result represents. This is the value in the "Highest Result" column divided by the lower of either the PEL or TLV and converted to a percentage.

**#of NQs** - This is the number of analyses that reported that concentration as "not quantifiable" (NQ).

**% of NQ** - This is the percent of the total analyses which were reported as "not quantifiable".

If you have any questions concerning this information or would like further details about these results, feel free to contact the Liberty Mutual Industrial Hygienist on duty @ 917-566-2576.

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