



Industrial Hygiene Air Sample Results

Summary for Week of 01/18/02-01/25/02

Attached is a summary of the laboratory results completed during the week of January 18, 2002 to January 25, 2002. The air samples were collected by ATC associates at the World Trade Center site.

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

- A Diesel exhaust fume concentration of 110% of the shift adjusted OEL on a Tarps Removal Operator on Pier 25 and,
- Two quartz concentrations at 138 % and 125% of the shift adjusted OEL on a Spotter in depression between Tower #1 and Tower #2 and a Laborer by a boring machine South slurry wall, respectively.

In addition, the following results are at or above 50% of the shift adjusted OEL (but below 100% of the shift adjusted OEL) and represent operations that should be sampled again to verify airborne concentrations:

- Diesel exhaust fume concentrations of 87%, 61%, 50% and 50% of the shift adjusted OEL on a Grappler Operator in depression 4 WTC, a Spotter in Tower #2 depression, a Truck Washer on Pier 25 and a Lull Loader Operator in the Surface Shop area, respectively,
- A quartz concentration of 92 % of the shift adjusted OEL on a Superintendent by drilling on South slurry wall,
- An asbestos concentration of 86% of the shift adjusted OEL on a Spotter in Tower # 1 depression and,
- An iron concentration at 66% of the shift adjusted OEL and an arsenic concentration at 65% of the shift adjusted OEL on a Torch Cutter on a Vesey Street scaffold.

Some of the columns in the attached summary may require explanation:

Analyte 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 Analysis - This is the number of individual analyses performed. If only one analysis is performed 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.

Silica: Respirable dust, quartz, and cristobalite.

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

OEL - Occupational Exposure Limit is the lower of the OSHA PEL or ACGIH TLV.



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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 % 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.

Shift Adjusted OEL - The OEL reduced to compensate for the reduced recovery time and longer exposure time posed by a 7 day per week, 12 hour shift work schedule.

Highest % of Shift Adjusted OEL - This is the percentage of shift adjusted OEL that the highest result represents.

#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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