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Date: 3/15/02 4:18PM
Subject: Re: Next conference call for the indoor Taskforce COC/Benchmarks Committee

Mark and I had a discussion this morning that is worth revisiting with the COC group. There were two issues; one is focused on the potential use of "surrogates" and the other on criteria for selection of COC's. This email is for discussion purposes for the Monday call.

Surrogates

With regard to surrogates, the question is: Can a chemical or fiber indicate the presence of WTC related dust? If a surrogate exists can it be used to identify those apartments that are contaminated with WTC dust? Also, can a surrogate be used to identify when apartments are appropriately cleaned by only sampling for the surrogate versus all the individual chemicals that may be present? Since the purpose of post-cleaning sampling is to determine the effectiveness of clean-up, perhaps only the surrogate needs to be monitored.

Two potential surrogates exist, pH and fibrous glass (see the email below on the fibrous glass as a surrogate). These materials are related to building construction. The pulverized dust that was spread around the city after the collapse appears to have a high pH (due to cement and other bldg. materials) and significant levels of fiberglass (see below). PH has the potential advantage of being measured in the field and fiberglass is a simple and inexpensive PLM analysis. Background levels would be used to determine the clean-up guidelines for these surrogates.

COC Selection

There is a concern that we not be viewed as being arbitrary in selecting/de-selecting materials for the COC list. We need to decide on objective, scientifically defensible criteria to either add or remove materials from the list. Once the criteria are derived they are applied to determine the COC's. Also, a thorough explanation as to why the chosen material meets the criteria would be developed. This will allow the scientific peer review panel (that the Task Force is setting up) and the public to judge the justification and selection of COCs. Also the public needs to be assured that we are trying to address their concerns regarding irritation and respiratory effects of dust in residences with the COC list.

As a "strawman" I would suggest the following:

1. The main criteria for selection of COC's is the public's need to feel assured that indoor spaces do not contain WTC dust which may cause respiratory irritation or other respiratory effects. Additionally the public is concerned about long-term health effects (which assumes a long-term exposure to the dust in residences). The available environmental data from the city and toxicity/existing guidelines should be used to make these decisions (the EPA air dataset is the most comprehensive and probably should be the priority dataset).

a. WTC Building Materials Criteria: COC's selected for this group include pulverized building materials that were released in large quantities over a large area from the collapse of WTC. To address the concern of irritation, chemicals with known potential to cause irritation should be included as a COC. However, of all the possible building materials, only those found consistently in dust and air should be included. These could be pH, fibrous glass, asbestos (not an irritant), etc. These materials may be the predominant players in the "how clean is clean" assessment. Criteria could focus on degree of known irritancy/other health effects and degree of prevalence.

b. Fire Related Chemicals: COC's selected for this group would be those chemicals released from the fire that have irritancy/other health effects that were present at levels in air of potential concern and that accumulated in dust over time. The EPA air dataset would be used to determine if the chemicals were at potential levels of concern (to the maximum extent possible). One approach would be develop or choose an existing level of concern in air for a chemical and use existing air data to define an area that was impacted at this air level. If the area does not extend beyond ground-zero (or any area we define) exclude the chemical from the list of COC's. Another approach would be to use exposure/risk assessment techniques to define a level of concern of the chemical in dust (keep in mind the uncertainty here). Then use a simple but conservative air deposition model to back-calculate the air concentration of the chemical that would result in this dust concentration. This air concentration would then be used to define an area of impact using the EPA dataset. If the area does not extend beyond ground-zero (or other area) drop the chemical from the list.

This approach is a suggested approach for discussion.

----- Forwarded by Robert L. Chinery/DEHA/CEH/OPH/DOH on 03/15/02 02:26 PM -----

Robert L. Chinery
03/12/02 01:45 PM

To: Maddaloni.Mark@epamail.epa.gov
cc: kcarlino@health.nyc.gov, njeffery@health.nyc.gov
Subject: Re: Next conference call for the indoor Taskforce COC/Benchmarks Committee(Document link: Robert L. Chinery)

Hi Mark,

I wanted to discuss with you some thoughts and data related to the choice of materials that may be specific markers for WTC dust. I think the data is indicating that fiberglass may be the best and least equivocal material that is an indicator of the presence of WTC demolition related dust. The following findings appear to indicate this.

1. The ATSDR/NYC indoor study sampled for many building related materials and minerals the only consistent finding in most residences around WTC (even after cleaning) was fiberglass in dust. In 43 of 98 samples (indoor and out) contained fiberglass. The hits ranged from 2-72% in dust by volume. The background samples were limited but no fiberglass was found in these samples.
2. The NIEHS summary we discussed yesterday indicated that UMDNJ (probably Paul Lioy) found 40-50% fiberglass in dust in three dust samples taken 1-week post collapse.
3. Our microscopist Dr. Jim Webber, who wrote the methods used to identify asbestos by TEM and PLM, has been analyzing air/bulk dust samples from WTC provided by DEC and states he commonly sees fiberglass in the PLM analysis. The fibers tend to be thicker and longer than the asbestos fibers.
4. Dr. Eric Chatfield, a consultant to the "Ground Zero" Elected Officials Task Force sampled dust about a week after the collapse. He analyzed it for metals, dioxins and asbestos. Jim Webber has spoken with Dr. Chatfield and he has stated that he was also seeing fiberglass in these samples. As an additional note, Chatfield stated in the report that the dioxins/furans and metals levels in the bulk and wipe samples were indistinguishable from background. These were indoor dust (bulk and wipe) samples from a "high exposure location" on South end Ave. and a "low-exposure location" on Warren Street.

It would seem that if we wanted a good indicator of WTC related dust fiberglass may be the answer. It appears that the background may be between ND (approx. 2%) to 5% by volume according to Jim Webber and ATSDR. All 8 background ATSDR/NYC study samples were ND.

One potential problem is that there is no generally accepted and validated method for the analysis of fiberglass. The current method used is a variation of a method written by Jim Webber for asbestos and would be considered "semi-quantitative". This is because it requires an operators estimate of the volume of fiberglass compared to the volume of the rest if the material on the slide (a 2-dimensional view).

However, given this caveat, fiberglass appears to be a much better indicator of the presence of WTC material than many of the other material on our list. For example:

Dioxin has cost and background issues and may not have been significantly emitted from the source.

PCBs may not have been significantly emitted from the source.

PM has sampling methodology issues, there are significant sources of PM in residences and the PM standards are based on and applied to outdoor airshed-type monitoring results.

Lead, PAHs and Chromium have background issues and may not have been significantly emitted from the source.

I may request that Jim Webber analyze some bulk dust samples we took at ground zero a week after the accident for fiberglass levels.

CC: "Randi J. Walker" <rjw03@notes.health.state.ny.us>