Appendix C

World Trade Center Indoor Air Assessment Peer Review Meeting

Observer Comments

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(Received October 11, 2002)
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Charge Question #3 - Please address the scientific basis for excluding asbestos fibers shorter than 5 microns from risk assessment. Given that WTC dust may contain higher levels than normal of pulverized asbestos fibers (< 5 microns), isn't it possible that PCM-equivalent measurement may underestimate health risk? (See for example, Granger, et al, Preliminary Health Hazard Assessment: World Trade Center, October 2, 2001.)

Charge Question #3 - Why does the COPC document exclude toxic substances that may be of concern without having the necessary representative sampling of indoor contaminants? We know from the measurements done so far that WTC particulates are heterogeneous in composition; toxic substances are highly unevenly distributed. Lioy's research, with only three outdoor samples of settled dust, found dozens of toxic substances. The accumulation of toxic substances indoors is different, due to particle size, building penetration rates, chemical composition and reservoirs (eg fabrics, porous surfaces, HVACs). are necessary for exclusion of toxic substances of concern.

Charge Question #3 - Why were neurotoxins like PBDEs, excluded from consideration?

Charge Question #3 - Why was Lioy's research only cited for lead and PAHs and not other toxic substances found? In the light of Lioy's findings (Characterization of the Dust/Smoke Aerosol that Settled East of the World Trade Center in Lower Manhattan after the Collapse of the WTC 11 September 2001), what is the scientific basis for limiting evaluation of contaminants of potential concern to only 14 substances (plus mold)?

Charge Question #3 - Please provide specific citations in the scientific or regulatory literature for the screening criteria contained in Table 1 of Appendix B.

Charge Question #4 - Appendix C addresses technical difficulties in detection at a risk level of 10-6 due to risk of overload or clogging of filters. Given that most tests will occur after of Scope of Work A cleanup or Scope of Work B abatement, i.e., will be clearance tests subsequent to cleaning or abatement, isn't it unrealistic to anticipate overload or clogging? If filter overload or clogging occurs while conducting post-cleanup clearance testing, isn't this an indication of a need for additional cleaning? If post-cleanup overload or clogging should not occur, are there any remaining technical obstacles to clearance sampling to detection at a risk level of 10-6?

Charge Question #4 - On what basis has the COPC committee determined that a 10-4 risk level

should be applied to contaminants other than asbestos? Are there similar problems with filter overload or clogging when testing for dioxin, PCB, mercury, lead, cadmium, fibrous glass? If not, please explain the basis for exclusion.

Charge Question #5b & #6b - Why are thresholds not developed for adverse respiratory irritant health effects?

Charge Question #9 - In light of aerial and satellite photographs showing the plume moving outside of EPA's designated cleanup zone, what is the scientific basis for limiting cleanup to Manhattan south of Canal and Pike Streets?

Marcy Benstock
(Received October 11, 2002)
Clean Air Campaign, Inc.

Charge Question #1 – What is the basis for excluding particulate matter re-suspended from paper, carpet etc. and/or entering from HVAC systems, building facades etc.?

Marjorie Clarke
(Received October 4, 2002)
Lehman College

One question I do have at this time, is that purview of this peer review should be expanded to include the EPA protocols for monitoring and cleanup that were written pursuant to this document that is under review.

(received October 22, 2002)

Problems with EP A's Scopes of Work for Remediation of WTC Contamination

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Statement endorsed by:
LMTC (Lower Manhattan Tenants Coalition) and
9/11 Environmental Action: www.911ea.org

October 22, 2002

(These comments are in response to the scopes of work for cleaning and monitoring contractors, which were developed by EPA as an outgrowth of the document TERA is peer reviewing.)

In addition to being a tragedy of global proportions, as an environmental disaster, the collapse of the three World Trade Center buildings and subsequent fires from all eight buildings produced uncontrolled emissions equivalent to dozens of asbestos factories, incinerators and crematoria as well as a volcano.

The collapse itself and the burning of the buildings' contents created an unprecedented quantity and combination of dozens of toxic and carcinogenic substances, including organic compounds (e.g. dioxin and furans, PCBs, benzene, PAHs), heavy metals (e.g., lead, mercury, cadmium and others), fiberglass, and asbestos. Individually, these substances have been shown to cause permanent and serious illnesses, such as mesothelioma as well as other cancers, asbestosis, brain damage, learning disabilities, asthma and other respiratory difficulties. Studies have indicated that combinations of pollutants acting synergistically can result in toxic effects many times higher. Some of these compounds were released in gaseous form, but much was released as particulate matter, some of it so fine that it eludes one's coughing mechanism and can accumulate in the lungs, exposing many to toxics and carcinogenic substances for decades.

These toxic and carcinogenic substances were dispersed over a large area for several months. At different times people could smell the plume in upper Manhattan, Brooklyn and parts of New Jersey; materials recognizable from the WTC landed in Brooklyn. US Geological Survey aerial maps in late September, 200 I show asbestos contamination in Manhattan miles from the WTC.

These substances did not just contaminate the outdoor air, as USEPA has held, but it also infiltrated buildings, even when windows were closed. There are no natural cleaning mechanisms inside buildings as there are for outside air (i.e. wind and rain), so particulate matter builds up, particularly in carpets, upholstery, clothing, and draperies. These "reservoirs" can continue to be sources of contaminants for

many years. Mold is also a problem in places due to inattention to containing the buildings after they were contaminated (both to prevent spread oftoxics and infiltration of water).

EPA's Scopes of Work for remediation do not take all the above facts into account. EPA's scopes and standards for abatement have not been peer reviewed by the scientific community at large. Below are some of the most substantial problems with the proposed remediation.

Where Cleaning is to take place

The boundary for EPA's remediation program is still Canal, Allen and Pike. (EPA told us it was an arbitrary boundary based on FEMA's unscientific suggestion.) EPA has taken FEMA's recommendation to limit its remediation program just to apartment buildings, assuming that all commercial buildings have insurance that will pay for proper remediation and that the building owners will actually have proper abatements done. No schools or government buildings are included in this program, though the infiltration of contamination did not discriminate. There is no scientific basis for this.

Testing vs. Remediation

1. EPA has decided to give tenants the ability to have their apartments tested, but *not* remediated. This presumes that tenants understand the nature of the contamination and the long-term health risks, neither of which EPA has been providing in their educational outreach. Choice of testing can preclude later cleanup, since EP A will only test for the presence of asbestos. The program is still voluntary, depending on tenants to have knowledge of the program (and its pitfalls) and expertise to know if their apartment needs remediation. EPA's outreach has been limited to a website and a few individuals making personal appearances at apartment buildings. Worse, EPA's outreach materials withhold information about the types of WTC contamination that studies have found in apartments and they do not provide any information that would motivate people to register for the cleanup (e.g., health risks, diseases resulting from decades of exposure to the contaminants residing in dust reservoirs like carpets). The deadline has been extended to December 28,2002. But many residents are still not aware of the program or need for abatement. EPA must improve its public outreach to that people are adequately informed of the risks of the contaminants that may still be in their apartments. If this does not take place, many people may forego having their apartments cleaned in the false belief that they will be safe. The ultimate consequences to public health could be considerable.

2. "Owners and managers of residential buildings and coop boards can request to have their buildings' common areas and HV AC inspected and cleaned. If a tenant association makes this request, EP A will seek agreement by building owner or manager." (This will result in fewer buildings having HV AC inspections and abatement. HV AC systems that remain uncleaned pose the threat of recontaminating apartments that have been cleaned.)

3. "Regardless of whether a building owner or manager has requested the cleaning of all common areas, the EPA's Project Monitor will visually evaluate public common areas such as the building lobby, hallways, stairways and elevator interiors. If dust is visible, these areas will be cleaned". (What happens if dust, as in carpets, is not visible? Also, EP A is not clear about the quantity of visible dust that triggers a cleanup.)

4. Only if the building owner requests, the Project Monitor will inspect other common areas including laundry rooms, utility rooms, compactor rooms and elevator shafts. These areas will be cleaned "as

needed". This term is vague. Will the criteria here, too, be visual inspection?

5. "If a tenant or tenant association asks for testing or cleaning, EPA will contact building owner to secure permission to do cleaning of common areas and HVAC."

Type of Remediation

1. Common areas are still given just visual inspection to assess need for cleanup. The problem is that significantly elevated levels of asbestos have been found in areas that have been cleaned before and where there doesn't appear to be contamination on visual inspection.

2. "Curtains, fabric window treatments, upholstery and other materials that cannot be cleaned by wet wiping shall be HEPA vacuumed two times. Fabric covered furniture will be vacuumed using a stiff brush attachment" (HEP A vacuuming can vaporize any mercury on the particulate. This method is not effective in removing asbestos, as shown in tests at Brookdale, CT schools, where ultrasonication detected large amounts of asbestos, where microvac showed none.)

3. "Window air conditioners will be vacuumed then removed from their position and vacuumed internally. Filters will be HEPA vacuumed and reinstalled."

4. "Intake/discharge registers of HV AC systems (if present) will be removed/cleaned. Only the first foot of duct work will also be vacuumed, then the register will be reinstalled and covered with plastic." This will ensure that contamination can remain in HV AC ducts.

5. Only "[t]he first foot of all exhaust duct work (including stove, dryer and bathroom vents) will be vacuumed." Again, this is not a scientifically-derived or protective protocol, but one developed for convenience. The contamination that is left in these duct systems also constitutes a long-term reservoir.

6. "Baseboard heaters will be cleaned. Protective covers on finned radiant heaters and baseboard heaters will be removed to expose heat elements. Fins are to be brushed and vacuumed to remove dust." (My suggestion: wet cleaning, then wet wipe sampling)

7. No specific mention has been made of cleaning electronics, computers etc. that have internal fans that take in outside air, and are known reservoirs for dust.

8. "Cleaning clothing and accessories (handbags, shoes, etc.) is the responsibility of the resident. The Cleaning Contractor will not open and/or clean inside drawers, cabinets, breakfronts, etageres and similar enclosed storage and display spaces.' These will remain contaminated.

9 'As part of the Cleaning Program, the Scheduling Contractor will contact the New York City Department of Health (NYCDoH) if mold is observed in a residence or residential building. The NYCDoH will then contact the resident to provide recommendations on how to address the affected areas." (This leaves cleanup of mold to the resident!!!)

10. "If a HV AC system requires cleaning, then the Monitoring Contractor shall prepare a scope of work for the cleaning the HV AC system or portion thereof. The scope of work shall be provided to DEP and EPA within 2 business days of the completion of the HV AC system evaluation." (This will guarantee a hodge- podge, case-by-case methodology for cleaning HV AC.)

11. HEPA vacuuming may well volatilize any mercury bound up in particulate matter in dust. No mention is made of this possibility or how to ameliorate the impact.

Type of Testing

1. Testing is just for asbestos, and precludes cleanup if asbestos is not above EP A 's threshold (based on one in 10,000 cancer risk. EP A's usual health standards are based on one in one million cancer risk. (Other contaminants could be quite high, but testing would not show this, since only asbestos is measured.)

EPA says that it has chosen a one in 10,000 cancer risk over 30 years for NYC (rather than the usual lifetime one in a million risk) because excessive particulate matter in samples has clogged the filters on which they are trying to find asbestos. This finding should indicate that further cleaning is warranted with restesting based on a clearance standard equivalent to the lifetime one in one million risk, not that people should be exposed to a greater risk! If clogging of sampling filters is a problem, EP A should operate 3 samplers side-by-side for one-third the time.

2. For clearance testing, "Residents have a choice between two forms of airborne asbestos testing, modified-aggressive and aggressive" (as if they know the difference in results). EPA's fact sheet says: 'Modified- aggressive testing simulates the normal air movement you would expect in a room where a fan or air conditioner was running. In aggressive testing, a one-horsepower leaf blower is used to direct a jet of air into all corners of the residence before testing is begun. (The way this is written, a lay person would choose modified testing every time, regardless of the fact that aggressive testing is the method specified for proper asbestos abatements and would be more precautionary.)

3. "Wipe samples will be collected at 10 percent of the residences where sampling only has been requested, up to a maximum of 13 residences, as instructed by EPA. This sampling will consist of the collection of3 wipe samples each for dioxin and mercury ". Considering that thousands of buildings were contaminated, this tiny number of samples for dioxin and mercury is not scientifically valid. The locations of the wipe sampling are also not specified. Would any be inside of ductwork on horizontal surfaces? Would any be in other reservoirs for dust? Wipe samples are not suitable technique for sampling soft surfaces such as upholstery and carpets.

4. "Common spaces will be sampled without the use of forced air devices (fans, leaf blowers etc)." This ensures that common areas will have a less effective remediation than inside apartments. There is no scientific basis for this.

Transparency of Process

EPA has gone about the remediation reluctantly. It delegated collection of indoor data to NYCDEP, who delegated it to landlords, most of whom have not complied. It waited until February to even begin the process of determining which contaminants are a threat to public health. Thus far, it has crafted new standards without the usual peer review and public comment processes. Although a closed conference, under the auspices of TERA, occurred the end of October, the lack of input from interested informed scientists is also problematic. The TERA peer review does not include these protocols, which ostensibly were written subsequent to this document that justifies selection of contaminants of potential concern.

EPA has specified that all data shall be provided to EPA Indoor Air web database. Researchers need the data; methods can be devised so that the data can be shared without compromising residents' identities.)

We urge that EPA's scopes undergo careful, public review by independent scientists and that said scientists be invited to make a presentation on an alternative course of action, taking into account the Precautionary Principle, that in the face of partially quantified dangers, government must err on the side of caution in protecting the public health.

Barbara Einzig
(Received October 11, 2002)
911 Environmental Action / Displaced Resident

1. Precisely what sampling data formed the basis for this determination of COPCS? Did the people who are on the TERA panel have access to the NYC Monitoring Retrieval Database, which as a secure archive does not appear to be available to the general public? Did you receive Attachment 3 for "Special Investigate Audit #14: Environmental Data Trend Report for the World Trade Center Disaster DRAFT, October 29, 2001," [EPA Data Trend Report] which the document (p.2) states list four hundred analytes? This attachment was omitted from the document as provided to the public on TERA's website and has never been provided on the EPA website. Only Attachment 4 was provided: New York City Weather September 11-October 23." Do you feel you have seen data sufficient to justify the elimination of these 427 contaminants that have been determined to be of no concern to the Environmental Protection Agency in their clean-up of our homes?

Are you aware that the EPA website listed many samplings of sulfur dioxide in the WTC area in September and October? Have you seen the data on sulfur dioxide obtained by Joel Kupferman by FOIA from the EPA, indicating levels around the parking garage of my building (Gateway Plaza) that were just shy of those in one of the worst sulfur-dioxide releases in U.S. history? Given that this data exists and was obtained by the EPA, why does the EPA Data Trend Report state that "only one sampling/analysis event is available for each of these two compounds, both from September 22?" (p. 11)
With even a superficial review of the correlation of these "Contaminants of Concern" to the underlying data, there are a number of strange gaps that are immediately striking. For example, the Data Trend Report on p. 17 indicates that "Results for Benzopyrene, another toxic PAH, were not available for these samples," yet EPA documents on Gateway Plaza obtained by residents through FOIA indicate Benzopyrene was detected at Gateway Plaza (8500 ug/kg. in bulk dust, Sample 03814, on October 8, 2001). Please indicate how much data you have seen regarding the 427 Contaminants of No Concern, and please indicate if you feel comfortable with the sampling of the indoor air of approximately 30 buildings to serve as a scientific basis for not being concerned about these contaminants. Given that my building (Gateway Plaza) received dust that according to the FOIAed EPA bulk dust samples contained detectable levels of methynaphthalene, acenaphthene, aluminuim, anthracene, Aroclor 1254 and 1260, Arsenic, Asbestos, Barium, Benzoanthracene, Benzopyrene, Benzofluoranthene, Benzoperylene, Benzofluoranthene, Beryllium, Bisphthalate, Buylbenzylphthalate, Cadmium, Calcium, Carbazole, Chromium, Chrysene, Cobalt, Copper, Deibenzofuran, Di-n-butylphthalate, Di-n-octylphthalate, fluoranthene, fluorene, Indopyrene, Iron, Lead, Magnesium, Manganese, Mercury, Naphthalene, Nickel, PCBs, Penanthrene, Potassium, Pyrene, Sodium, Vanadium, and Zinc, are you comfortable with determining the contaminants of concern for my building on the basis of no indoor air sampling whatsoever or even preliminary assessment of any of these contaminants, with the exception of asbestos?

I am aware of a report by Marc Rutstein of Environmental Management Systems which the EPA has, indicating that asbestos was detected in 93% of the apartments in Gateway Plaza the day the building was opened. This report is sent to you with these comments by hard copy.

Has the EPA attempted to obtain the data from the Silverstein insurance companies on contaminants, which includes specifics on the toxic substances stored at the World Trade Center? In your professional opinion, does the fact that these materials were released in inhalable form for the most part preclude the necessity of cleaning them up?

Have you seen a list of the toxic substances that were released, which were submitted to public agencies on September 11 and 12? If not, have you asked for it?

2. The screening method is not really made clear in the EPA Contaminants of Concern report. When you state that the "other substances" (of no concern) were "routinely found at concentrations below the health-based screening criteria presented in Appendix B," what is meant by "routinely found?" Specifically, how many samples of each one of these "other substances" (p.5) were made for both ambient air and settled dust? How many were below this health-based screening? What were the levels for those above this health based screening? Does the fact that a substance that is essentially poisonous -- the contaminants of no concern--is not found more often than it is found in a neighborhood a sound scientific basis for protecting the public health?

World Trade Center Indoor Air Assessment: Concerns and Questions

<u>Concerns</u>

Selecting the Contaminants of Potential Concern (COPC)

1. Failure to List Arsenic. Arsenic, which has been found in the blood of neighborhood residents, is not listed as a COPC, nor is a rationale provided. A rationale for not listing nine other contaminants is provided.

2. Failure to Consider Contaminant Levels in Indoor Dust. In providing a rationale for not listing nine contaminants, only ambient (outdoor) air data is referred to for benzene, PCBs and particulate matter. No data is provided for indoor dust. For mercury, ambient air data and a leachability study of indoor and outdoor dust are discussed, but not the total content of contamination in dust. For chromium, cadmium, and manganese both ambient air data and the measurement of each contaminant in “settled dust” is discussed (although it is not clear whether this refers to indoor dust). The level of contamination in indoor dust is the most salient information for the screening of WTC contaminants, and should have been reviewed for each potential COPC. In the case of mercury, the total mercury content in dust is of concern, because dust can be directly inhaled or ingested.

3. Failure to Measure the Content of Particulate Matter in Indoor Dust. The Committee reports that their decision not to include particulate matter as a COPC is based on their belief that “there is no continuing concern” about particulate matter entering homes or offices due to the low levels of particulates measured through ambient air monitoring around the WTC since late October 2001. This fact fails to consider that the contamination of indoor spaces occurred the day of the buildings’ collapse, and resulted in large quantities of settled dust inside apartments

which has yet to be fully removed. The standard for whether to consider particulate matter should be current levels in indoor dust and the potential for re-suspension, not ambient air.

Setting Benchmarks for Contaminants of Potential Concern

1. "Aggressive" and "Diligent" Cleaning Not Defined. The report makes a distinction between a Tier I level of contamination, which warrants "aggressive cleanup action;" Tier II, which warrants "diligent cleaning;" and Tier III, in which the level of risk is "negligible" (p. 10). While the difference in contaminant level and risk at each level is substantial, no clear definition of the difference between "aggressive" and "diligent" cleaning is provided.

2. A Cancer Risk of One-in-Ten-Thousand is Not Acceptable. Cleanup standards are set so that a resident's lifetime risk of developing cancer from WTC-related contaminants will not exceed a one-in-ten-thousand probability (1×10^{-4}) above the resident's background risk (pp. 11-12). The Tier I screening level was chosen to not exceed a one-in-ten-thousand risk for a resident who is exposed to WTC contaminants for one year. The Tier III clearance level was chosen to not exceed a one-in-ten-thousand risk for a resident exposed for 30 years.

A 10^{-4} risk level is the upper bound of the risk range that is allowed to be considered under EPA's Superfund and Oil Spill cleanup programs, but the National Contingency Plan (NCP) makes it clear that a one-in-a-million (10^{-6}) risk level "shall be used as the point of departure for determining remediation goals" when applicable standards are not available, which is the case for indoor contamination by most of the WTC contaminants.[1] Furthermore, the New York State Superfund program requires that cleanup levels correspond to an excess lifetime cancer risk of 10^{-6} for Class A and Class B carcinogens, and 10^{-5} for Class C carcinogens.[2] Asbestos is a Class A carcinogen.

Determining the level of risk believed to be "acceptable" has long been recognized as a policy decision, not a scientific decision. The rationale provided by the COPC Committee for choosing a 10^{-4} risk level is that it would be practically impossible to increase the sensitivity of the sampling instrumentation or size of the sample taken to detect contamination levels that pose a 10^{-6} level of risk. However, the Tier levels of cleanup set for asbestos in indoor air (Tier I , 0.28 f/cc = a risk of 10^{-4} after one year; Tier III, 0.0009 f/cc = a risk of 10^{-4} after 30 years) are three orders of magnitude apart from each other. In addition, the Committee's discussion mentions background data that includes an arithmetic mean level of asbestos of 0.00003 f/cc, one order of magnitude cleaner that the Committee's Tier III level. If the argument against a risk level of 10^{-6} is only a practical one, or a desire to equal background, the cleanup level should be set at the most protective level that is practicable to measure, instead of at the upper bound of EPA's risk range.

3. A 30 Year Limit on Residency Is Questionable. The Committee's risk assessment utilizes 30 years as the upper bound of residency in one dwelling. The assumption that no person will

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[1] 40 CFR 300.430 (e)(2)(i)(A)(2). The NCP is the federal regulation that governs Superfund.

[2] New York State Department of Environmental Conservation, Division of Environmental Remediation, Technical and Administrative Guidance Memorandum No. 4046, January 24, 1994, pp.1-2.

live in one residence for more than 30 years seems questionable. We would be surprised if residency patterns in New York do not include residents who have been in residency more than 30 years. If any person will be in residence longer than 30 years, the Tier III cleanup level will not be protective.

4. A Non-Cancer Risk Level Which May Result in Adverse Effects is Unacceptable. For non-carcinogenic toxins, a Hazard Quotient of 1 is considered protective, and roughly equivalent to a cancer risk of 10^{-6}. As the Committee notes: "According to EPA guidelines, if the HQ is greater than one, there may be concern for potential health effects" (p. 12). The Committee set the Tier III cleanup level at an HQ of 1, but the Tier I screening level is an HQ of 10, where a concern for potential health effects would be high. The problem here is that it is not clear how aggressively Tier II contaminant levels will be addressed, to bring them down to a Tier III level of negligible risk. EPA's Superfund program makes it clear that for non-carcinogenic effects, the cleanup level must represent a level to which humans, including sensitive subpopulations, may be exposed "without adverse effect during a lifetime or part of a lifetime."[1] The Tier I screening level should be set at an HQ of 1.

5. Failure to Consider the Re-Suspension of Dust. In developing cleanup standards for settled dust, the Committee appears to fail to consider the potential for re-suspension into air for all chemicals except asbestos. Re-suspension is a critical issue which must be considered for each chemical (see pp.14 & 20).

6. Failure to Consider the Heightened Exposure and Sensitivity of Children. In developing cleanup standards for settled dust, the Committee does not take into consideration the increased exposure of children, particularly infants, or the increased susceptibility of infants due to less body weight and developing organ, neurological and immune systems. Instead, the standards are based on the behavior and weight (154 lbs) of an average adult (pp. 13-14). The Report discusses the decision not to consider children by explaining that the only chemicals for which surface contact was used to develop a cleanup standard (dioxin and PAHs) are carcinogens, where "the impact of a high-exposure period (i.e., early childhood) is diluted" by the assumption of continuous exposure over 30 years. This argument is questionable for at least two reasons. First, dioxin is a persistent and bioaccumulative chemical. A particularly high dose delivered in childhood has the potential to pose life-time effects, and increases the overall annual exposure of the person to the contaminant. Second, ingestion of soil by children is the most limiting pathway for a majority of Superfund chemicals when direct contact is considered. It is hard to believe that childhood exposure would not be the most limiting pathway here. At the least, the Committee should run the numbers and see.

7. Failure to Take Multiple Pathways and Multiple Chemicals into Account. The Committee states that the Tier cleanup standards are "pathway and chemical specific" and "do not account for multimedia and multiple chemical exposure" (p. 10). The overall exposure risk for a resident, however, is unlikely to be limited to that from a single chemical. This means that the level of actual risk experienced is likely to be more than 10^{-4} or an HQ of 10. The NCP states

[1] 40 CFR 300.430 (e)(2)(i)(A)(1).

that 10^{-6} is especially appropriate when multiple contaminants or multiple pathways of exposure are present at a site, all of which are present at the WTC.[1]

8. Failure to Address Asbestos Fibers Shorter than 5um. The cleanup standard for asbestos is based on fibers greater than 5um in length. As the report notes, there is concern regarding shorter fibers, with EPA actively engaged in an ongoing debate and refinement of their position on this issue. If uncertainty persists at the start of cleanup operations, then cleanups should conservatively address the risks posed by shorter fibers.

9. Failure to Consider Residential Behavior in Calculating Contact with Contaminated Surfaces. In calculating exposure to surface dust, the Committee makes numerous estimates regarding the amount of skin area exposed to contaminants, contact frequency, fraction transferred from skin to mouth, etc. For exposed skin surface, the Committee assumes the size of an adult-sized palm. For contact frequency, all available estimates are based on "professional judgment" (as compared to actual data) with the low end being one contact per day and the high being 24. The committee picked 16 based on professional judgment, commenting that 24 would "obviously involve a very physical job with frequent contact with walls and floor" (p. 3). The Committee seems to forget, throughout the discussion of how to calculate exposure to contaminated surfaces, that these are residences, not work places. Putting aside the obvious difference between infants and adults, it cannot be assumed that adults, and especially children through their teenage years, will not frequently sit or lie down on carpets or other flooring, lean against walls, etc. The difference between behavior in a residence compared to a workplace is not taken into account.

Questions

Selecting the Contaminants of Potential Concern (COPC)

1. How would you characterize the list of substances not selected as COPCs -- (benzene, PCBs, chromium, cadmium, manganese, mercury, particulate matter, and reftractory ceramic fibers, PLUS arsenic)? As combustion by-products? building materials? other? How would you characterize lead?

2. In making lead a COPC, both ambient air and settled dust were reviewed. Why was settled dust, including indoor dust, not reviewed for mercury (more than just leachability)? Why was it not reviewed for PCBs and particulate matter?

3. In providing a rationale for why lead was chosen as a COPC, the Committee notes that lead levels in exceedance of the National Ambient Air Quality Standard for lead were detected on 5 occasions (even though the standard is based on a three-month average, which has not been exceeded); but that lead levels also more commonly exceeded EPA's Integrated Exposure Uptake Biokinetic Model (IEUBM) for Lead in Children; and that lead was found in concentrations in settled dust that were not extraordinarily high, "but in combination with the

[1] 40 CFR 300.430 (e)(2)(i)(A)(2).

mass of material released from the collapse of the towers, it represents a potentially significant increase in the mass of lead deposited in lower Manhattan" (pp. 5-6). How does this compare with cadmium? Cadmium was detected twice at levels greater than EPA's screening level for ambient air, only three times less than lead. Is there an IEUBM for cadmium? Were measurements of lead in settled dust below EPA removal action guidelines? If yes, then why is cadmium treated so differently than lead? What was the range of measurements of cadmium in dust? What is the EPA's removal action level for cadmium? Does it apply specifically to dust or soil? Is the potential for a "significant mass" also present with cadmium? How about manganese, which was detected above EPA's screening level for ambient air on four occasions? What is the range of measurements of manganese in dust? What is EPA's removal action level for manganese?

4. Why was arsenic not considered as a COPC? Has arsenic been found during any testing? In residents' blood or urine?

Setting Benchmarks for Contaminants of Potential Concern

1. What is the difference between "aggressive clean-up action" and "diligent cleaning"? (p. 10) In the tables beginning on p. 15, it states that the "action" for Tier II is to "maintain recommended cleaning methods." What methods are these? Who is maintaining them? How will compliance with Tier III levels be tested and verified under each scenario? Why does the Committee state that "Tier 1 contaminant levels are not expected to persist"? (p. 14)

2. Will apartments be tested before they are cleaned up? Will they all be tested after?

3. How do the Tier I – III levels interact with the Scope of Work descriptions contained in separate documents? When does testing and "aggressive clean-up action" or "diligent cleaning" come into play?

4. Was the choice of a one-in-ten-thousand risk level based primarily on practicability? Why then were the standards not set to be as protective as practically possible? (As close to one-in-a-million as possible?) For example, data from a study cited in Appendix C indicates that asbestos concentrations as low as 0.00003 f/cc can be measured (and that was an arithmetic mean), while the Tier III cleanup level was set one order of magnitude higher, at 0.0009 f/cc.

5. Are you aware that New York State's Superfund program requires cleanup to 10^{-6} for known (Class A) and probable (Class B) human carcinogens?

6. The Report cites background levels as another consideration in setting the risk level at 10^{-4}. But it only provides information on asbestos, and notes that "the literature is limited in this regard" (Appendix C). Again, for asbestos, the arithmetic *mean* of background monitoring data ranged from 0.00003 –0.006 f/cc, while the standard for a 10^{-4} risk over 30 years from asbestos was 0.0009 f/cc, one order of magnitude higher than the lower end of the range.
7. On what data is EPA's upper-bound estimate for residency (at 30 years) based?

8. What does the Committee mean when it states that the Tier I screening level was chosen to be protective of a resident "who may have been exposed" to WTC-related contaminants for one year? (p. 11) In contrast, Tier III was chosen to be protective of a resident "who is exposed" to WTC-related contaminants for 30 years. Again, in Appendix B, the Committee states that the Tier 1 level was set at 1 year "to reflect an upper bound estimate for the length of time a resident may be potentially exposed to WTC-related contaminants" (pp. 1-2). How can this be assumed?

9. In setting the non-cancer risk at 10 HQ for Tier I, the Committee states that this is in accordance with the treatment of "sub-chronic exposure" in EPA's Hazard Evaluation Handbook. *Why* are Tier I levels "not expected to exceed 6 months to one year in duration" (p. 12 & Appendix B, p. 2)?

10. Was the potential for re-suspension considered in setting the standards for settled dust? (It does not appear to have been considered for any chemical other than asbestos in the document – see pp. 13 & 14 (paragraph 2 – this is hard to follow) & 20 –discussing asbestos)

11. In rejecting particulate matter as a COPC, the Committee states that "if this dust had not been able to settle or if there had remained a continuous source . . . being released . . . then there would have been a concern that hazardous dust could infiltrate nearby homes and offices" (Appendix A, p. 3). Elsewhere, in discussing why asbestos, fibrous glass and crystalline silica were listed at COPSCs, the Committee notes that "many of these substances were deposited in a large cloud from the collapse of the towers. Thus, the settled dust may serve as a reservoir for re-suspension and eventual inhalation exposure" (p. 6). Isn't the same true for particulate matter and other potential chemicals of concern?

12. Were actual calculations made for how the numbers would come out if infant (high exposure) behavior was included as part of the 30-year assessment of surface contact with indoor dust? How about child and teenage behavior, or even residential behavior, as compared to adult behavior in the workplace? Was the persistent and bioaccumulative nature of dioxin taken into account? Is it possible that early high exposure due to infant behavior could increase overall body burden for the remainder of a person's life and therefore increase cancer risk?

13. Why wasn't the surface contact methodology used to develop a clearance level for lead (a non-carcinogen)? If lead or another non-carcinogen were considered under this scenario, would the Committee re-do its contact assessment taking into account childhood exposure parameters?

14. Are you aware of research on PM 2.5 from power plants which shows that concentrations peak 19 miles away from the plant?[1] What considerations went into the delineation of the area for which cleaning was to be made available?

[1] Jonathan Levy, *et al*, May 2000, "Estimated Public Health Impacts of Emissions of Criteria Pollutants from the Salem Harbor and Brayton Point Power Plants," EPA Clean Air Task Force.

(Received on 10/22/02)

1. I am concerned about whether you have factored in home offices within your exposure/risk equations? Many New York downtown residents who run small businesses (such as myself) work out of their homes. Data is available through from the Ground Up and Mayor Bloomberg's office. Numbers are significant.
2. Have you factored in initial exposures during the disaster downfall in addition to your long-term exposures? Children were dropped off at P.S. 234, P.S. 89, I.S. 89, day care centers, and other schools within a five-block radius of the WTC shortly before the first plane hit. Resident parents then immediately returned to pick-up their children. On their way home or while being picked up, many were caught in the downfalls. Isn't there ample data that single exposures to contaminants involved can impact the parameters you are addressing? Particularly for children?
3. Have you looked at the EMS document I submitted yesterday? Gateway Plaza has already been cleaned in the same way the EPA proposes to clean. HVAC has not been cleaned. My apartment has therefore been recontaminated. This is why I have lost my home.
4. Schools are not being addressed in the EPA clean-up. Please ask yourselves how will you face the children down the road. They don't want to even report symptoms now.

Sudhir Jain
(Received October 9, 2002)
WTC Residents Coalition

We have a number of questions and concerns about the upcoming WTC Peer Review to be conducted by TERA:

1. What function does this peer review have under CERCLA and NCP (National Contingency Plan) which EPA claims to be operating under? Isn't it the EPA's responsibility to conduct a full PUBLIC review and keep an Administrative Record of all the data, methodology, risk assessments, etc.? The EPA NCP regulations are very explicit about requiring formal notice to the public, public comment, and a formal written, published response to all public comments on any cleanup action.

2. We met with NYC DOH and ATSDR (back in February) about their indoor testing and got agreement that no conclusion could be reached about any particular residence in Lower Manhattan beyond the 59 apartments involved in the study. (Please see email summary below of the meeting.) The FINE PRINT in the executive summary of the ATSDR/NYCDOH study confirms this: "Results from this investigation do not necessarily reflect conditions that would be found in other buildings, at other times just following the collapse, or after the sampling period. The measurements reflect conditions present at the time of the sampling (November 4-December 12, 2001) in the buildings and areas sampled."

Why is ATSDR data/study being used to determine COPC's?

3. The EPA has already acknowledged that based upon its OUTDOOR ambient air testing (for which there is much criticism), one can NOT conclude anything about INDOOR Air Quality. As you know, indoor spaces typically act as reservoirs for contaminants. So, why is this data being considered in eliminating COPC's?

4. Was there any representative sampling done on Mercury? To measure a handful of apartments can in no way be considered representative sampling!

5. Please clarify approximately what percentage of the data evaluated was obtained from the private sector as compared to data obtained by government agencies. Please indicate approximately what percentage of the data evaluated was obtained outdoors and what percentage indoors. Please clarify whether there were any significant disparities in results when comparing data from private and governmental sources, and from indoor and outdoor results.

6. Has any of the data gone through a public review process and been verified as valid by INDEPENDENT scientific experts? Which data should the public have any confidence in, if any?

****
Email referred to above

------Original Message-----
From: Sudhir Jain[SMTP:s_jain@ix.netcom.com]
Sent: Wednesday, March 20, 2002 9:38 PM
To: 'LMTC'; 'LMTC Partners'
Cc: 'Uday Singh'
Subject: FW: Indoor Air protocol

Attached below is the indoor air protocol from ATSDR/DOH - please review.

For those who missed the February 26th LMTC meeting where Roger Hayes of DOH and John Crellin and 2 others from ATSDR discussed the indoor testing, here are some points from the meeting:

1. 50 of the 59 apts had been cleaned (30 professionally, rest by residents)

2. These were NOT random apts - required approval of landlord and tenant, etc. There is NO statistical validity to generalizing the results.

3. ATSDR did not gather data whether the apts windows WERE open on 9/11 in the first place in any consistent manner - therefore DONT KNOW if there was ANY contamination in the apts.

4. ATSDR agreed with LMTC that no conclusion could be reached about any particular apt in Lower Manhattan. ATSDR agreed that only a comprehensive protocol of testing, remediation, restesting would be useful for residences in Lower Manhattan. In addition, due to recontamination issues, apts would have to be periodically tested and cleaned until there was no further recontamination.

5. ATSDR did not test for lead. ATSDR acknowledged that it would have been better to get inputs from the community and other technical experts before designing the protocol.

6. The only conclusion one might reach from this study is if apts are properly cleaned and tested, they are potentially safe but still subject to recontamination.

Regards,

Sudhir

Dave Newman

(Received October 2, 2002)

New York Committee for Occupational Safety and Health (NYCOSH)

Question #5A - Please clarify the basis on which it was decided to utilize (for asbestos in indoor air) the 1 in 10,000 risk estimate for a 1 year exposure, as contrasted to the 1 in a million "point of departure" criteria specified in the National Contigency Plan

Question #5B - Please comment on the potential of porous surfaces such as carpets, drapes, and upholstered furniture to act as reservouirs of embedded asbestos fibers in indoor environments. Are tests for asbestos in settled dust and in air sufficient to address the potential for asbestos fibers to be released from reserviours and reentrained in indoor air at a later time? Please comment on the feasibility of evaluating potential reserviours through microvac, sonication, or other methods.

Question #9 - It is understood that an extensive amount of environmental sampling results were available and utilized in the COPC selection process. Please clarify approximately what percentage of the data evaluated was obtained from the private sector as compared to data obtained by government agencies. Please indicate approximately what percentage of data evaluated was obtained outdoors and what percentage indoors. Please clarify whether there were any significant disparities in results when comparing data from private and governmental sources, from indoor and outdoor results.

EPA's cleanup protocols and scopes of monitoring and work for Lower Manhattan appear to be predicated upon the preliminary findings and recommendations of the COPC committee. Appendix B of the WTC Indoor AIr Assessment identifies 2 populations for evaluation, one of which is designated "residents" but is defined to include all workers located in Lower Manhattan with the exception of WTC site workers. Please explain why the contaminants of potential concern identified by the COPC committee, and particularly asbestos, are targeted for cleanup and/or monitoring in residences but not in workplaces. Is there any scientific basis for the inclusion of residences and the exclusion of workplaces in the Lower Manhattan clean up process?

Jenna Orkin

(Received October 14, 2002)
911 Environmental Action

1. One of the purposes of the WTC Indoor Air Assessment document is to "set health-based benchmarks." Have these benchmarks never been set before? Has EPA not previously encountered disasters in which it needed to determine levels of concern? Was it necessary to reinvent the wheel?

2. In reinventing the wheel, what is the medical foundation for the notion of 'averaging' which wipes out evidence of acute exposures to certain toxins? Experience teaches us that single exposures to certain viruses, bacteria and poisons can make people sick or kill them. When exposed to food-poisoning, the body doesn't say, "I'll average this out over the person's whole life and it'll be fine." People have been known to contract mesothelioma after exposure to working in the shipyards briefly during WW II and after working in an asbestos factory for one summer. Yet on page 14 the WTC document says, "[W}eighted over 30 years, the impact of a high-exposure [i.e early childhood] is diluted." What is the medical evidence for this theory?

3. The document has 'modified' a pre-supposed 30 year exposure to one year. Do the authors believe that everyone whose apartment is contaminated will have it cleaned within a year? It's already been more than a year and cleaning has only just begun. There is at least one contaminated apartment in Brooklyn where cleaning is not even a gleam in anyone's eye.

4. On page 9, the document says that since late October, levels of PM 10 and PM 2.5 have been below EPA's level of concern for ambient air. This was not true at Stuyvesant High School where levels of PM 2.5 were often higher than at Ground Zero.

5. Under "Refractory Ceramic Fibers" on page 3, we learn that settled dust samples taken indoors and out were analyzed for asbestos by PLM. Why was this method used when it is more appropriate for gross samples such as at the site itself? Why was TEM not used?

6. In Appendix C we learn that the reason we're being exposed to a hundred times the cancer risk of Superfund sites around the country is that the equipment needed for a lower risk would have to achieve flow rates of 500-1000 liters per minute. "The only equipment available to operate at such flow rates are large units that cannot be brought inside a residence." Then how were safer health benchmarks achieved in other disasters? EPA has consistently reassured Lower Manhattan that there's no problem or very little problem. Why, then, is it so hard to achieve the one in a million extra cancer risk which is the goal of most cleanups?

7. Why is EPA not doing ultrasonication which has been shown to reveal high levels of asbestos in instances where other tests have failed?

(Received October 22, 2002)

EMSL Analytical, Inc.
07 West 38th Street, New York, NY 10018
Phone: 212-290-0051 Fax: 2122900058 Email: manhattanlab@emsl.com

Attn: Jenna Orkin
96 Schermerhorn St.
Apt. #7H
Brooklyn, NY 11201
Fax: Phone: 718-246-1577
Project: CARPET ULTRASONICATION

Customer ID: MISC-ACCT
Customer PO: CC
Received: 09/26/02 5:40 PM
EMSL Order: 030213373
EMSL Project ID:
Analysis Date: 9/30/02

Standard Test Method for Carpet Sonication, Indirect Preparation and Analysis for Asbestos Structure Number Concentration by Transmission Electron Microscopy

AMPLE ID	AREA SAMPLED (cm²)	ASBESTOS TYPE	ASBESTOS STRUCTURES (≥0.5 - <5)	(≥5)	Sensitivity (str/cm²)	CONCENTRATION (str/cm²)	COMMENTS
A 030213373-0001	25	Chrysotile	2	5	11,333.42	79,333.95	

Note: Due to non-fibrous particulate loading, the analytical sensitivity for the method was not reached.

(Received October 31, 2002)

The TERA panel is in the process of performing a task of monumental importance. Thousands of lives including those of some of the audience at the conference, are at stake. The course of action which EPA follows in this case will set the precedent for similar and even dissimilar situations in the future. It is therefore critical that the panel be mindful of the following:

Charming as the notion of a fingerprint may be, it is not appropriate to this situation. Two of the largest buildings in the world collapsed as well as one smaller one. All three contained hundreds of contaminants. These contaminants travelled according to the winds, their weight and other factors which, as a non-scientist, I do not know.

Buildings do not have fingerprints. Or if they do, in the sense of having unique characteristics, the fingerprints are not entirely relevant. For many toxins were deposited apart from the building materials and they must all be gotten rid of. If one insists on speaking in terms of fingerprints then one could say, criminals do not always leave fingerprints. Sometimes they leave a thread of clothing or a hair. And sometimes they leave no clue besides the crime committed. This is another reason the fingerprint metaphor is deceptive. It is not fingerprints that commit crimes but it IS the toxins which will compromise our health.

Nothing will make this task easy. What makes sense in this situation is to determine from existing photographs where the plume went particularly on the first day when, we are told, 95% of the airborne debris was dispersed. These pictures would tell us what areas must be cleaned up and those areas do not form a nice circle with Ground Zero in the middle.

No testing is needed in the areas of greatest impact. Those areas should be cleaned without further ado. Testing would seem to be necessary the further out one goes from those areas. Perhaps experts such as Paul Bartlett who works in dispersion could help determine what might have traveled where.

2. While on the first day of the conference the TERA panel expressed a wish for testing to be done for asbestos on hard and porous surfaces as well as air, this wish seemed to dwindle on the second day. I was absent for several hours that day, but I had the impression that some panelists were deferring to what they called the greater expertise of other panelists.

The panel consists of experts who have been assembled because their expertise enables them to ask probing questions. Mercifully they are not in the position of a jury who must reach a unanimous decision. The panel is not required to line up behind one opinion and it would be harmful to us if they abandoned skepticism out of a lack of confidence in their own doubts.

3. The TERA policy on bias was detrimental to the process of critiquing the EPA document under review. It became obvious over the course of the two days that regardless of their vast accomplishments, the panel did not profit by knowing little about the aftermath to the World Trade Center disaster. The scientists in the audience were vital in the education of the panel. While the panel consisted of scientists of great intellectual achievement it was, as they said, impossible for them to work in a vacuum. This vacuum was more profound than they realized. Not only did they not know what the document they were reviewing was for or the data on which it was based, they did not know the history of how the World Trade Center disaster has been handled.

To discourage scientists who have "taken a position" on the issues downtown is simply to discourage scientists who are informed about the issues downtown. No one who is informed about a situation refrains from having an opinion about it which is the same thing as 'taking a position' on it. The implication that 'positions' are political rather than purely scientific or intellectual is incorrect. The scientists who believe that more cleanup or different testing needs to be done have not arrived at these conclusions from a position of disliking EPA. They have arrived at these conclusions by looking at what is being done and bringing their knowledge to bear on the situation.

By now the TERA panel has perhaps been brought up to speed by scientists who have been involved in downtown issues for the last year. With that and their own experience in other parts of the country we hope and trust they will make a great contribution to the cleanup of Lower Manhattan.

Attached is testimony submitted to the Ground Zero hearing held by the Senate Committee on the Environment and Public Works. It concerns the experience of Stuyvesant High School last year and contains a section on illnesses at the school as well as a description of what the students were exposed to.

Thank you greatly for your involvement.

Testimony of Jenna Orkin, mother of Ground Zero Student

I am the mother of a 17-year-old boy who was a student at Stuyvesant High School four blocks north of Ground Zero on September 11.

In a statement that will undoubtedly resonate for years to come, on September 18, Christy Todd Whitman declared the air downtown to be safe. So, on October 9, Stuyvesant reopened to cries of, "Get back to normal!" and, "Show the terrorists!" Wall Street was up and running again so all was right with the world.

Unbeknownst to us at the time, the week that Stuyvesant returned to its building was the week that Dr. Thomas Cahill of U.C. Davis conducted studies a mile north of Ground Zero that revealed levels of very- and ultra-fine particulates that were higher than at the Kuwaiti oil fields.

For the next eight months, Stuyvesant got a double whammy of toxic waste: Not only did they have the WTC site to the south. They also had it on their north doorstep for that was where the waste transfer barge stayed while being loaded with the debris that was to be carted away to Staten Island. This placement was in violation of state law but in the so-called ‘emergency' that prevailed for the eight months of the cleanup (and what sort of emergency was it, exactly, after the first few weeks when it was clear no one else would have survived? A real estate emergency? An economic emergency?) environmental laws were thrown to the four toxin-laden winds. The barge operation was host to diesel cranes and idling diesel trucks that worked round the clock seven days a week. According to the American Lung Association of Pennsylvania, I believe, diesel contains dozens of toxins and carcinogens.

How was Stuyvesant equipped to handle this onslaught? The school's filtration system was about 10% effective until the end of January when it was upgraded to 40% effectiveness. Although we had been told the school had undergone a thorough cleanup including the ventilation system, we later learned that in fact the ventilation system had not been cleaned.

Particulate Matter 2.5 - dust that is small enough to penetrate deep into the lungs and not come out again - was often higher at Stuyvesant than at Ground Zero. Isocyanates and tetrachloroethane were high when they were measured but after the troubling results, they weren't measured again. Lead in the ventilation system, of which wipe samples were taken only when parents threatened to sue the Board of Education, was thirty times the level one would expect to find on the floor. (There is no official standard for lead in ventilation systems.) Asbestos was found at 250 times normal limits in the auditorium which had been used as a triage center.

Despite all these findings, the Board of Education (now renamed the Department of Education) continues to maintain the building is and always has been safe. The lead, they said after the results of the wipe samples were announced, would stay in the walls. The asbestos, they said after the results of the auditorium samples were announced, would stay in the carpet.

On February 7, 2002, Deputy Chancellor David Klasfeld wrote to parents, "I can only conclude from the [Parent Association's] report's use of sensationalistic language (e.g. "Diesel fumes are carcinogenic") that the intent of this report is not to provide parents with useful information but rather, to cause further stress and divisiveness to the Stuyvesant community and to damage the school's mission for educational excellence... [T]he report matter-of-factly claims that ‘diesel fumes are carcinogenic" without... present[ing] any evidence or exposure data to support these specious claims."

High levels of lead had been found in the Stuyvesant gym where it could be inhaled deeply and in the cafeteria where it could settle on students' food. Mr. Klasfeld wrote, "While lead can cause several adverse health effects, these are usually from prolonged exposure to the dust from the metal or when children consume lead-based paint." Perhaps Mr. Klasfeld believed that while lead-based paint was not on the menu, lead on rye was o.k. fare. He continued: "known adverse health effects from these contaminants are generally the result of prolonged, occupational type exposure." Undoubtedly, in his view, studying is not an occupation because students don't get paid and teaching is not an occupation because it is not usually associated with exposure to lead poisoning.

In spite of the fact that FEMA had allocated 20 million dollars to clean the Ground Zero schools, the Board of Education refused to clean the ventilation system of Stuyvesant until parents, using the pro bono services of attorney Richard Ben-Veniste of Watergate fame, threatened to sue. Now that the asbestos has been found in the auditorium carpet (using ultrasonication, a test performed not by the Board of Education but by an engineer hired by the parents - a test which the EPA is still not employing in its clean up plan for Lower Manhattan) they are balking at testing or abating the auditorium seats. Presumably they believe that the asbestos took a unanimous vote to boycott the seats in favor of the carpet.

In the mean time, 60% of the staff at Stuyvesant reported in a NIOSH study that they had had respiratory and other symptoms they attributed to their exposure to the air at school. No such study has been conducted among students. However parents have reported that their children have been diagnosed with new-onset asthma that may last the rest of their lives; chronic sinusitis entailing heavy doses of steroids and antibiotics and the newly-coined ‘chemical bronchitis." One girl had her first asthmatic episode in seven years - an attack that landed her in the Emergency Ward - after swimming in the Stuyvesant pool which had not been cleaned.

Klasfeld complained that parents' reports of illnesses were ‘anecdotal.' This is true. In the absence of a scientific study, all we had to go on was anecdotal reports. He also said, "we believe the events of September 11 and its emotional aftermath have contributed to a number of these incidents." We, who? Mr. Klasfeld and the students' doctors?

After several months of attending hearings and talking to scientists, by February, 2002, I had amassed enough evidence to convince my ex-husband that our son should not be in the Stuyvesant building. I put our son in an alternative high school, the only school that was willing to take a junior mid-year. The school offered no courses except one in Planned Parenthood. Instead, the students did ‘internships' which involved, in my son's case, stuffing a record number of envelopes.

In the last year, a number of parents have become activists. In my attempts to research issues related to those at Stuyvesant, I went to Google and typed in "elementary schools" and "toxic." Over 23,000 cites came up. It's enough to make you think that the powers that be have other interests at heart than the well-being of children.

When Christy Todd Whitman declared the air in Lower Manhattan to be safe to breathe she set in motion a chain of events that many of us believe will prove the undoing of thousands. Already Ground Zero workers are suing the city for their exposure to toxins during the recovery operation. Many rescue dogs are sick and at least one, 'Bear', has died. The exposure of the students and staff at Stuyvesant was not so different.

In fact, Stuyvesant is a microcosm of everything that can go wrong. The foxes are in charge of the chicken coop. Having made initial mistakes they are in the position of having to

defend those mistakes by compounding them. Clearly, there are not enough checks and balances in place. Not enough watchdogs nor enough penalties to make those in charge think twice about lying and compounding the lie. The penalties for compounding lies should increase exponentially over time to prevent the paramount ethic at work from being, "Cover your tracks at all costs."

Daniel Sitomer
(Received October 11, 2002)

Charge Question #3 - Since PAHs are known to volatize, should they be included as a COPC considering the amount of time that has now passed?

Charge Question #7 – Please clarify why 25 ug/ft2 is specified considering the HUD clearance for lead is 40 ug/ft2.

Other Questions:

If background levels are not provided, can the task force provide guidance on where to find or how to establish background levels?

The asbestos clearance requirement has an inherent conflict between the method and the clearance level, please clarify.

The COPCs chosen ignore all metals other than lead even though such metals are known to exist in the WTC dust, please explain.

Kimberly Flynn
(Received October 14, 2002)
9/11 Environmental Action

Charge Question #1
What was done to take into account the major limitations of the available data on which the WTC Indoor Air Assessment was based? I'm referring to the limited numbers of samples for many contaminants, the fact that there was very little indoor sampling for some contaminants, the limited geographic distribution of indoor and outdoor samples, the self-admitted limitations of
the ATSDR/NYC DOH study, etc.

Charge Question #5a
Please clarify the basis on which it was decided to utilize for asbestos in indoor air the 1 in 10,000 risk estimate for a 1 year exposure, as contrasted to the 1 in a million "point of departure" criteria specified in the National Contingency Plan.

Charge Question 5b
Please comment on how the specific behaviors and vulnerabilities of infants and very young children were taken into account in the elaboration of exposure scenarios. Were actual calculations made for infant exposure as part of the 30-year assessment of surface contact with indoor dust? What about the pathways of ingestion and inhalation for infants and young children crawling and playing on carpets? How were the differences between infant residential exposure vs. adult occupational exposure calculated and factored in? Was the potential for bioaccumulation for dioxin and other bioaccumulative contaminants taken into account? How? Was there any consideration given to built-in safety factors (such as the 10X stipulated by the Food Quality Protection Act), which attempt to take into account infants' and children's greater vulnerabilities and greater exposures to toxic substances?

Charge Question #9
EPA's cleanup protocols and scopes of monitoring and work for lower Manhattan appear to be predicated upon the preliminary findings and recommendations of the COPC committee. Appendix B of the WTC Indoor Air Assessment identifies two populations for evaluation, one of which is designated "residents" but is defined to include all workers located in lower Manhattan except for WTC site workers. Please explain why the contaminants of potential concern identified by the COPC committee, and particularly asbestos, are targeted for cleanup and monitoring in residences, but not in workplaces (including schools). Is there any scientific basis for the exclusion of non-residential interiors from the cleanup?

What consideration was given to the complexities of the deposition of toxic contaminants beyond the immediate vicinity of Ground Zero? In a recent article in Newsday, Pulitzer prize-winning journalist Laurie Garrett quotes a number of experts who state that, given the intense heat from the explosions, significant updrafts carried concentrations of contaminants far away from the
immediate area surrounding Ground Zero. Given that the placement of EPA's sampling units were for the most part concentrated on or around the pile, what consideration was given to levels

of COPCs deposited farther away, along the south easterly vector of the plume, which blew all the way into Brooklyn?

What was done to factor in synergistic effects of simultaneous exposure to two or more COPCs in arriving at Benchmarks based on risk-based criteria for indoor air?

What calculations were done to factor in cumulative synergistic exposures?

(Received October 21, 2002)

October 21, 2002

Jane M. Kenny
Regional Administrator
Environmental Protection Agency, Region 2
290 Broadway
New York, NY 10007-1866

Dear Administrator Kenny,

We are writing to register our objection that EPA has failed to comply with the proper, legally mandated public process in its assessment and cleanup of hazardous substances released in the World Trade Center disaster.

A central requirement of EPA's mandate under the National Contingency Plan is the implementation of a transparent public process, including the establishment of an administrative record and the timely circulation of documents for review and comment by members of the public as well as qualified experts. The fact that a peer review is only now being conducted of a basic assessment document identifying contaminants and setting benchmarks -- after contracts for cleanup have already been awarded -- is one indication of how seriously EPA is failing in its responsibility to implement the process for proper public and expert scrutiny prescribed by the NCP.

Second, we object to EPA's delegating to a private company its responsibility to assess community and worker risks from exposure to World Trade Center contaminants. As a private entity, Toxicological Excellence in Risk Assessment (TERA) is exempt from the full measure of accountability that is fundamental to EPA's mandate to protect the health and safety of the public.

Third, the specific choice of TERA to conduct this review raises serious concerns about whether the health and safety of the public will consistently be the decisive factor in the panel's deliberations. We note that the Board of TERA is dominated by trustees who have close ties to industry, and in several cases are direct representatives of such industries as ExxonMobil and the Rio Tinto Mines. We question whether representatives of ExxonMobil and Rio Tinto, whose operations release many of the same toxins of concern in the WTC, can serve in a disinterested and objective fashion.

We have similar concerns about the inclusion on the peer panel of individuals with close ties to, or who are directly employed by, major polluting industries regulated by the EPA. In any number of cases these individuals are being asked to weigh the hazards of chemicals their own companies or clients produce or discharge into the environment.

We consider it unacceptable that TERA's conflict of interest policy excludes representatives of EPA-regulated industries only if the individual has a "direct personal financial investiment benefitting from the outcome of the review." At the same time, it tends to disqualify some of the most knowledgeable experts who, simply by virtue of their investigations, may have "taken a position" in defense of public health and safety.

In connection with the upcoming WTC Peer Review to be conducted by TERA, we would appreciate your response to a number of specific questions:

1. Under what authority was EPA acting when it charged TERA with carrying out this peer review? NCP regulations are explicit about requiring formal notice to the public, public comment, and a formal written, published response to all public comments on any cleanup action. What steps did EPA take to notify the public about the peer review meeting? How will comments provided to TERA be made available to the public?

2. Last February, The World Trade Center Tenants' Coalition (WTC RC) met with NYC DOH and ATSDR about the results of indoor testing these agencies carried out jointly. At that meeting, WTC RC got agreement from the agencies that no conclusion could be reached about the presence and levels of contaminants in any particular residence in Lower Manhattan beyond the 59 apartments involved in the study. The fine print in the executive summary of the ATSDR/NYCDOH study confirms this:"Results from this investigation do not necessarily reflect conditions that would be found in other buildings, at other times just following the collapse, or after the sampling period. The measurements reflect conditions present at the time of the sampling (November 4-December 12, 2001) in the buildings and areas sampled."
Given the serious limitations of these data, why is ATSDR data/study being used so extensively to determine contaminants of potential concern?

3. Was there any attempt by EPA to conduct representative sampling on mercury?

4. The document under review states that a "concerted effort was made to identify and review additional sources of WTC-related data [...] from environmental organizations and the private sector." Please clarify approximately what percentage of the data evaluated was obtained from the private sector as compared to data obtained by government agencies. Please indicate approximately what percentage of the data evaluated was obtained outdoors and what percentage indoors. Please clarify whether there were any significant disparities in results when comparing data from private and governmental sources, and from indoor and outdoor results.

5. What steps did EPA take to ensure that the panel put together by TERA would be fully representative of the public interest and would not be subject to the bias of members who are employed by or have close ties to industry?

6. Please provide us with details on EPA's relationship and contracts with TERA and any parent organizations, affiliates, or trustees. We intend to file a FOIA request for the peer review contract and other information, but your cooperation would be appreciated as it would greatly expedite the process.

7. Should members of the peer review panel arrive at the conclusion that the "health-based benchmarks" under consideration are not sufficiently protective of human health, what steps will EPA then take to make the appropriate alterations in its cleanup protocols?

As we did in our letter of June 20, 2002, to which you have not replied, we are again calling upon EPA, as the lead agency in the cleanup of hazardous substances released in the destruction of the WTC, to immediately institute a legitimate public process for all matters pertaining to that cleanup. In doing so, we are asking for nothing other than that your agency obey the federal environmental and worker safety laws that govern its response to disasters that pose a threat to human health and the environment.

We are grateful for your consideration and await your early reply.

Sincerely,
Kimberly Flynn
on behalf of 9/11 Environmental Action

(A hard copy of this letter will be faxed to the Senators Hillary Clinton, Charles Schumer, and members of the Senate Environment and Public Works Committee, to US Representatives Jerrold Nadler, Carolyn Maloney and Nydia Velazquez, and to City Council members Alan Gerson, Margarita Lopez, James Gennaro, and Christine Quinn)

Neil Feldscher
(Received October 17, 2002)
EMTEQUE Corporation

Charge Question #5a

Concerning use of the Millet & Hayes K-factors, I am not aware of many studies showing agreement with the values that the K-factor study showed. Also, when using K-factors, there is a question as t what is the appropriate K-factor to be used.. This is especially important since the range of K-factors runs 5 orders of magnitude.

Charge Question #7

The use of the lead risk assessment value as a completion level as compared to the HUD clearance level may generate confusion. It may also lead to questioning how HUD can allow the completion of a remediation in housing to a level that we are now indicating requires continued cleaning as Tier II. It should also be noted that until recently, HUD used a standard 2.5x higher than their current standard.

Charge Question #9

Due to the lack of "background" levels for many of these items (i.e., silica and fibrous glass in dust), the usability of setting levels to "background" is probably very limited. Even asbestos, which has been well researched, has limited background data. Some individuals are advocating levels found in limited studies in buildings and environments that may be very dissimilar to that found in downtown Manhattan.

While there has been no discussion of "proper" use of the COPC's within the document, this may need to be an area of discussion. At a minimum, I would expect a statement similar to that given by the ACGIH as a policy statement for their TLVs and BEIs. Without restating, they simply indicate that the guidelines are intended for use in industrial hygiene and are to be interpreted and applied by only personnel trained in the use and discipline.

Cate Jenkins
(Received October 23, 2002)
U.S. Environmental Protection Agency

See attached comments on September 2002 draft WTC peer review

(See attached file: TERAcomments-102202-jenkins.pdf)

(Received October 29, 2002)

See attached news article showing elevated blood aluminum levels according to one researcher. Text also included in body of this email.

(See attached file: timesherald-102802-aluminum.pdf)

(Received October 29, 2002)

Dr. Allan Susten of ATSDR at 404-498-0007 is listed in the announcement as being in charge of the ATSDR meeting on short fibers.

He indicates that the invited panel will consist of Bruce Case,McGill; Martin Lipman, NYUniv School of Med; James Lockey, U Cinn Sch of Med; Ernest
(gene) McConnell, Tox Path, Inc formerly NIEHS; Brooke Mossman, Univ of Vermont, College of Med; Gunter Oberdorster, Univ of Rochester; William Wallace, NIOSH Morgantown, WV. (names and locations may not be spelled
correctly)

Anyone can get on the mailing list for the report from the meeting by calling and asking to be included.

Panel Discussion - Health Effects of Asbestos and Synthetic Vitreous
Fibers: The Influence of Fiber Length

AGENCY: Agency for Toxic Substances and Disease Registry (ATSDR), Department of Health and Human Services (HHS).

ACTION: Notice of meeting.

SUMMARY: ATSDR is holding a panel discussion to review and discuss the current state-of-the-art understanding of health effects related to asbestos and synthetic vitreous fibers (SVFs), especially those of less than 5 microns in length. ATSDR has invited a cross-section of scientists with expertise in the fields of toxicology, epidemiology, pulmonology/pathology, and medicine to participate in 1½ days of discussions on a variety of topics, including depositional patterns of fibers in the lung and mechanisms of toxic action, the relationship of fiber size to toxicity,

irritant effects of fibers, relationships between measured fiber levels and observed adverse health outcomes, and data gaps/research needs. ATSDR will use the scientific input received from the discussions of each of the individuals to aid in developing scientifically defensible public health evaluations for human exposures to smaller-than-5-micron fibers and in the formulation of future research proposals.

DATES: The panel discussion will be held on October 29, 2002, from 1:00 p.m. to approximately 6:00 p.m., and October 30, 2002, from 8:00 a.m. to approximately 5:30 p.m.

LOCATION: The panel discussion will be held at the Jacob K. Javitz Federal Building, 26 Federal Plaza, 6th Floor, New York, NY 10278. It is located on Broadway between Worth and Duane Streets. Participants must enter through the Broadway Street "Federal Employees Entrance" and show picture identification and a registration confirmation e-mail from ERG. To make hotel reservations at the nearby Holiday Inn Downtown/SoHo, please call the hotel directly at 212-966-8898. Reference the "ATSDR Fibers Panel" to receive the group rate of $195.00/night plus 13.25 percent tax and $2.00 occupancy tax. You must make your reservation before October 14, 2002. After this date, any remaining rooms will be released from our block and sold on a space- and rate-available basis.

ATTENDING THE PANEL DISCUSSION: The public is welcome to attend the panel discussions. There is no charge for attending the meeting; however, you must pre-register as seating is limited. To register, send your full contact information (name, affiliation, mailing address, phone, fax, and email) to ATSDR's contractor, Eastern Research Group, Inc. (ERG) by email (meetings@erg.com) or fax (781-674-2906), referencing the "ATSDR Fibers Panel." If you have any questions about registration, please call ERG directly at 781-674-7374.

A limited amount of time will be set aside for members of the public to present brief oral comments regarding asbestos- and synthetic vitreous fiber-related scientific issues. Oral presentations will be limited to 5 minutes, and the number of people giving oral comments may be limited by the time available. Opportunity for making oral comment will be provided on a first-come, first-served basis; therefore, the public is encouraged to pre-register and sign-up to present oral comments by emailing (meetings@erg.com) or faxing (781-674-2906) ERG. After the meeting, ATSDR will prepare a summary report that will capture the salient points of each of the panel members and observers. The agency will consider the scientific information received during the meeting to aid in developing scientifically defensible public health evaluations for human exposures to smaller-than-5-micron fibers and in the formulation of future research proposals.

FOR FURTHER INFORMATION: For general questions about the asbestos and synthetic vitreous fibers panel discussion, contact Dr. Allan Susten, Assistant Director for Science, Division of Health Assessment and Consultation, ATSDR, at 404-498-0007. For questions about logistics, contact ERG at 781-674-7374.

BACKGROUND INFORMATION: ATSDR conducts public health assessments to evaluate possible public health implications of contaminants associated with hazardous waste sites and other environmental releases. A crucial part of this evaluation is the understanding of

toxicological implications of exposure to substances that may be present. Recent events have highlighted a need to further explore the potential for health effects from exposure to biopersistent fibers, specifically asbestos and some SVFs. ATSDR is currently involved in several site assessments that address the potential for residential and community exposures to persistent fibers from past industrial operations (e.g., vermiculite processing plants across the country), hazardous waste sites, and dust generated from the World Trade Center (WTC) collapses in lower Manhattan. These sites are unique in that contaminant materials are/may be present in people's homes and communities. Additionally, there are potential concerns surrounding smaller length fibers which may have been generated by each of these past activities, especially in relation to the materials found in lower Manhattan.

Smaller fibers and non-fibrous particles may be generated as fibrous materials are processed, disposed of, or damaged, as in the case of the WTC collapses. In these situations, traditional fiber counting techniques may not quantify all of the materials present. Standard assessment methodology addresses fibers greater than 5 microns in length, based on the relative risk of longer fibers being greater than that of shorter fibers. Significant toxicology and occupational health research has focused on asbestos fibers and SVF greater than 5 microns in length, however, it seems that much less is known about the potential health effects of smaller fibers. ATSDR has identified a need to understand the potential for fibers less than 5 microns in length to contribute to adverse health effects. ATSDR is convening this panel to gain a greater understanding of asbestos and SVF toxicity, especially as it relates to fibers less than 5 microns in length. Research needs identified during these deliberations may lead to the development of specific research projects.

ATSDR's overall goal is to receive individual expert opinions on the following three general questions related to asbestos and SVF toxicity. A number of specific questions related to these issues will also be discussed. (1) What is the physiological fate of asbestos and vitreous fibers less than 5 microns in length? (2) What are the potential health effects (cancer and non-cancer) of asbestos and vitreous fibers less than 5 microns in length? (3) What data gaps are evident when addressing the above questions? What research is needed to fill these data gaps?

Dated:

Georgi Jones, Director
Office of Policy and External Affairs
Agency for Toxic Substances and Disease Registry

(Received November 1, 2002)

(See attached file: Suzuki-Yuen-02-AnnNYAS.pdf)(See attached file: Suzuki-Yuen-01-IndHealth.pdf)

Attached are the full texts of 2 articles relating to asbestos fiber size and cancer. They will be posted soon at: www.NYenviroLAW.org

These studies are:

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1. Y. Suzuki and R. Yuen (2001)
[Mount Sinai School of Medicine]
Asbestos tissue burden study on human malignant mesothelioma. Industrial Health, 39, 150-160.

2. Y. Suzuki and R. Yuen (2002)
[Mount Sinai School of Medicine]
Asbestos fibers contributing to the induction
of human malignant mesothelioma. Annals of the New York Academy of Science, in press.

Marilena Christodoulou

(Received October 23, 2002)

9/11 Environmental Action/ President, Stuyvesant High School Parents' Association

Re: World Trade Center Indoor Air Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks (COPC) Peer Review

Dear Ms. Dollarhide:

Below please find my comments on the COPC Peer Review. Please distribute this letter and enclosures to the panelists and include same in the written public comments part of the peer reviewers' final report and in the public record of the review process.

I Extensive Indoor Environmental Testing Results Have Not Been Provided to the Peer Reviewers

I am disturbed that, as confirmed at the Peer Review Meeting, the EPA has not made available to the peer reviewers the results of extensive environmental testing conducted by the EPA and the NYC Department of Education (DOE), formerly the Board of Education, at Stuyvesant High School and at many other lower Manhattan buildings. I am particularly familiar with the Stuyvesant situation as I was the President of the Stuyvesant High School Parents' Association in school years 2000-2002.

The EPA conducted asbestos and dioxin testing inside Stuyvesant in October 2001. From October 2001 to July 2002, ATC Associates, Inc., the vendor hired by DOE, conducted daily indoor monitoring for asbestos, carbon dioxide, carbon monoxide, total volatile organic compounds (TVOC), and respirable particulate matter (PM2.5), and, on a weekly basis, fiberglass, lead, silica, dioxin, PCB's, heavy metals, and TVOC including benzene. Results from such environmental sampling demonstrate that, on more than 50% of the days from October 9, 2001, when the students returned to school, to February 1, 2002, measurements of respirable particulate matter (PM2.5) inside the school have exceeded EPA guidelines for children. Measurements of PM2.5 continued to exceed EPA regulatory levels on several days through May 2002. These particulates may contain a mixture of toxins. Levels of lead dust in excess of regulatory limits were found inside Stuyvesant on several occasions in December, January, and February.

Similar lead contamination was found at other Ground Zero schools, all subsequent to their cleanup and reopening. These test results have been provided to the EPA, including by the DOE at the EPA National Ombudsman Investigative Hearing on March 11, 2002.

. . . . .

Enclosed herein is a copy of my testimony at the U.S. Senate Committee on Environment and Public Works Hearings of February 11, 2002, which describes the contamination at Stuyvesant and the resultant incidence of illness among the students and staff.

In addition, testing conducted by the DOE in April 2002 (also provided to the EPA) shows that the 300 unit ventilators in the classrooms were contaminated with an average lead concentration of 1,174.89 ug/sq.ft., nearly 30 times higher than the EPA's lead abatement limit of 40 ug/sq.ft. Further, 15 samples taken from the school's central HVAC units and ductwork showed average

lead concentrations of 89.16 ug/sq.ft.

Please note that all of the above-mentioned contamination was identified after the school underwent an asbestos abatement conducted under the oversight of the EPA. Also of note is the fact that the lead contamination in the ventilation systems was found after high levels of lead had been cleaned from various hard surfaces.

The above is of great concern to me for the following reasons:

First, the peer reviewers do not have a full picture of all the varied environmental sampling results that should be available to them as they evaluate the COPC document.

Second, the Stuyvesant experience indicates the need for a broader array of testing than is recommended in the COPC document, including for various contaminants in both occupied spaces and unoccupied spaces like ventilation systems.

Third, it points to the need for an institutionalized process for the EPA to collect and share on a timely basis all environmental sampling results with affected parties and with the public. It should be noted that the DOE withheld the results of the lead testing conducted in the Stuyvesant ventilation systems for six weeks and only released them to the Parents' Association under the threat of imminent litigation.

II Need for Different Types of Testing for Air, Hard Surfaces, and Soft (Porous) Surfaces

As an observer at the Peer Review Meeting, I was pleased to hear the discussion from the panelists on the need for the EPA to conduct Air Testing, Hard Surfaces Testing, and Soft (Porous) Surfaces Testing and to develop separate methods and criteria for each type of testing.

The asbestos experience at Stuyvesant clearly proves the need for such differentiation. No asbestos was detected during AHERA aggressive air sampling conducted in the school's auditorium in October 2001, nor in the daily asbestos air sampling conducted throughout the school from October 2001 through June 2002. However, two samples of carpeting taken from the auditorium by the Parents' Association's environmental consultants this summer and tested by ultrasonication were found to contain approximately 60,000 and 2,400,000 asbestos structures/sq.cm. This clearly indicates the unreliability of the AHERA air test methodology for porous surfaces.

The EPA needs to come up with methods on how to test porous soft surfaces, such as micro-vacuuming and ultrasonication, and to develop criteria including realistic background levels for various WTC contaminants for these methods. I understand from professionals in the field that EPA has been doing some of this type of testing but has not released any of the data. If such is the case, I recommend that the peer reviewers request immediate disclosure of this data to the public.

Given the extensive discussion and apparent consensus at the meeting on the need for testing air as well as hard and soft surfaces, it is important for the peer reviewers to know that the EPA is taking the position that air testing is appropriate for soft surfaces. Based on the EPA's letter faxed to the DOE on or about October 11, 2002 (copy enclosed), the DOE is justifying the use of

air testing for carpets and upholstery at Stuyvesant at the exclusion of any other method for testing those soft surfaces.

I sincerely hope that the peer reviewers will incorporate their recommendations on the need for separate types of testing in their final report.

III Peer Review Panel Should Not Endorse the EPA Cleanup Program

Given that the EPA cleanup of residential indoor spaces began prior to the commencement of the peer review process, and given that the panelists have not been provided with the EPA Cleanup Protocols, it is essential that the panelists' report be limited to a review of the COPC document only and not constitute an endorsement of the EPA's Cleanup effort. It is my opinion that this has to be affirmatively and clearly stated in the report.

This is of particular concern because of the shortcomings of the EPA's Cleanup program, and related potential hazards to the public health, as described to the panelists during the public comment part of the Peer Review Meeting.

Thank you for your cooperation.

Sincerely,

Marilena Christodoulou
Member, 9/11 Environmental Action
President, Stuyvesant High School Parents' Association 2000-2002

Enclosures:

*Testimony of Marilena Christodoulou, President, Stuyvesant H.S. Parents' Association, before the U.S. Senate Committee on Environmental and Public Works, Subcommittee on Clean Air, Wetlands, and Climate Change, February 11, 2002

*Letter from Mark A. Maddaloni, EPA, to Matthew Onek, DOE

STUYVESANT HIGH SCHOOL PARENTS' ASSOCIATION
345 Chambers Street
New York, NY 10282-1099
(212) 312-4800 C www.stuypa.org
PA Hotline: (212) 312-4838

Testimony of Marilena Christodoulou
President, Stuyvesant High School Parents' Association
before the
U.S. Senate Committee on Environment and Public Works
Subcommittee on Clean Air, Wetlands, and Climate Change
February 11, 2002

On behalf of the six thousand parents at Stuyvesant High School, I want to thank you for holding this hearing on a matter of great concern to our community.

Stuyvesant High School is an academically excellent school for which each student must take a competitive examination in order to gain admission. Approximately 20,000 students take the Specialized Science High Schools' entrance examination for the 750 available spaces at the school. It is the most competitive school in the New York City public school system and arguably in the country.

The school, located four blocks north of the World Trade Center, was heavily impacted by the events of September 11. The 3,000 students and 200 staff members were evacuated in the middle of a cloud of toxic dust and debris as the second tower was collapsing. Almost immediately, the school building was commandeered for use by rescue and recovery agencies and personnel.

The Board of Education (BOE) reopened the school on October 9th. We were the first school in the Ground Zero area to return to its building. Some of the remaining six schools have only returned last week and one school, PS 89, has initiated legal proceedings against the BOE seeking an injunction against the return. The goal of our Parents' Association (PA) has been to ensure that the return to Stuyvesant would occur only when the streets were safe for walking and the building was safe for occupancy. Our single most important concern is the issue of air quality—both inside and outside the school—specifically, the possible presence of airborne contaminants and related potential adverse health effects. Unfortunately, it is my opinion that the return to Stuyvesant was premature and that environmental conditions in and around the school continue to pose a potential threat to our children's health and well-being.

As the inside of the school tested positive for asbestos, the BOE conducted an asbestos abatement prior to reoccupancy. We were encouraged by the fact that the BOE's cleanup should have taken care of not only asbestos, but also all other particulate contaminants. In addition, as a result of negotiations with the PA, the BOE agreed to undertake environmental sampling inside and outside the school (which continues to this day). Results are reviewed by H.A. Bader Consultants, Inc., the PA's hired environmental engineers, and by the PA Environmental Health & Safety Committee.

The excavation operations and the few remaining fires at Ground Zero continue to release a variety of contaminants into the lower Manhattan air. These contaminants, all of which are associated with potential adverse health effects, include asbestos, lead, crystalline silica, dioxins, carbon monoxide, diesel and gasoline exhaust, PCB's, heavy metals, and benzene and other volatile organic compounds. In addition, several hundred trucks a day carry pulverized debris and steel girders coated with remnants of asbestos fireproofing from Ground Zero past

Stuyvesant to the waste transfer barge operation located immediately adjacent to the north side of the school on Pier 25. This is the main debris removal operation from Ground Zero. Additional contaminants are released into the air as loads are transferred from trucks to barges. Diesel emissions from the many trucks and cranes at the barge are another source of contaminants.

Our experience since returning to school has been and continues to be problematic. Our children are getting sick. We are also concerned about the possible delayed health effects (like cancer) 10-20 years from now from exposure to the chemicals in the air.

Contaminants Are Entering the School

Our goal is to prevent contaminants in the outdoor environment from entering the school and affecting our children. The primary route of outdoor contaminants into the school (assuming

windows and doors are kept closed) is through the ventilation system. The main defense against contaminants is the filtration in the ventilation system. To date, the BOE has failed to take adequate measures to protect our children. Despite repeated requests from the PA, the BOE still has not cleaned the ductwork of the ventilation systems. After months of stalling, the BOE finally upgraded the filters at the end of January. Although these replacement filters provide an improvement in efficiency, they still do not provide adequate protection, according to evaluations by two independent professional ventilation engineers working with the PA.

Results from environmental sampling conducted by the BOE demonstrate that, on more than 50% of the days from October 9, when our children returned to school, to February 1, measurements of respirable particulate matter (PM 2.5) inside the school have exceeded EPA guidelines for children. These particulates may pose a greater danger because they may contain a mixture of toxins. Levels of lead dust in excess of regulatory limits were found inside Stuyvesant on several occasions in December, January, and February.

The Barge Operation is a Main Source of Contaminants

It is clear that the close proximity of the barge to the school is putting our children at a greater risk of exposure to toxic contaminants. The PA's environmental engineer has measured and compared airborne concentrations of particulate matter at Ground Zero and on the north side of the Stuyvesant building, and found the particular matter to be higher at Stuyvesant. As the north side of the school faces away from Ground Zero and towards the barge operation, the only reasonable explanation is that we have elevated levels of particulates coming from the barge/truck operation. The PA expert also reports that levels of particulate matter at Stuyvesant have consistently been double the levels at Barclay Street, one block from Ground Zero.

On several occasions, the EPA notified the PA that, weeks earlier, it had monitored high levels of certain contaminants in outdoor air at its monitoring station, between the school and the barge, in excess of EPA regulatory limits. These contaminants included asbestos, tetrachloroethane, and isocyanate. Unfortunately, the EPA has not been monitoring the latter contaminants on a regular basis nor is it monitoring and disclosing the full array of possible contaminants. Further, there is no system in place for proactive notification of the residents, workers, and students in the area to enable them to take protective measures (like staying at home) on days when levels of contaminants in the air are high.

Carting of the Ground Zero debris material to the barge constitutes an unacceptable risk to our children and to the surrounding community along the truck route. We are in the unique position to observe the truck and barge operation, and we can report to you that, despite assurances from government officials, the trucks are not always adequately covered; on cold days the debris cannot be hosed down to prevent the release of dust; and the levels of visible dust in the air and on the pavement are high.

To date, government agencies have been unwilling to either relocate the barge operation to a less damaging site or to take effective measures to protect the community. There was discussion to containerize the debris at Ground Zero prior to trucking them to the barge; to install particulate traps by the barge; and to use low-sulfur fuel for the trucks and the cranes. To date, none of these measures has been implemented.

Even simple measures such as halting barge operation on below-freezing non-hose down days, rerouting trucks from Pier 25 to Pier 6 during the hours when school children are outdoors, and directing trucks hauling loads with high dust content to Pier 6, have not been implemented.

There are 4,500 school children, some as young as 4 years old, within two blocks of this barge operation. We are at a loss to understand how the Government could locate a toxic dump right next to a school in the middle of a residential community. The BOE has taken no effective action to have the barge relocated, or to ensure its operation in an environmentally safe manner.

In summary, our children are exposed to three sources of contaminants: the air inside the school, the toxic composition of the Ground Zero debris trucked and dumped at the barge, and the diesel emissions and combustion byproducts generated by the trucks and the cranes.

Incidence of Illness Among Students and Staff

Since the return to school on October 9th, a number of students and faculty have reported and exhibited clinically diagnosable symptoms of illness. Many parents report that their children have experienced unusual rashes, nosebleeds, coughing attacks, and chronic sinus and respiratory problems, including new onset asthma and chemical bronchitis. Parents have reported to us several emergency room visits. It has been reported that several custodians have chemical bronchitis. Since the return to Stuyvesant on October 9 through December 14, at least eleven students have left the school due to air quality problems. These students, who will not be allowed to return by the BOE, have chosen to leave one of the most prestigious public high schools in the nation, and to forfeit a public educational opportunity that essentially cannot be replaced.

Several faculty members have left or taken sabbaticals for health reasons or medical concerns. The teachers' union has filed a grievance over environmental conditions at the school. The National Institute for Occupational Safety and Health ("NIOSH"), a branch of the Centers for Disease Control, has begun an investigation of environmental conditions and health effects among teachers at Stuyvesant (and other lower Manhattan locations). However, NIOSH can only investigate the health impact on workers and has no jurisdiction to conduct an evaluation of our children. Neither the BOE nor the NYC Department of Health have conducted an epidemiological study of the students. The incidence of student illness cannot be adequately characterized based only on attendance rates and visits to the school nurse's office.

Stuyvesant's student population is very diverse. Many of our students come from first and second generation non-English speaking immigrant families. We are concerned that many of these families do not have the wherewithal to seek early medical care. Dr. Stephen Levin, of the Mt. Sinai Selikoff Center for Occupational and Environmental Medicine, has advised us that early detection and treatment of respiratory illness is critical in terms of preventing such illness from becoming chronic. (I would like to take this opportunity to thank Dr. Levin for his help during this period).

In conclusion, these developments call into question any unequivocal assurances from government agencies, including the EPA and the BOE, about the health and safety of our children.

Immediate Action Is Needed

The following courses of action should be implemented to protect environmental quality and public health:

A. <u>Barge Operation</u>: The truck/barge operation on Pier 25 should be relocated to an area where

there is less residential and educational impact.
B. Ventilation Protocols: The Government should immediately issue protocols for proper preventive measures to be taken by schools and other institutions in the area with regard to installation of protective air filtration and cleaning and operation of ventilation systems.
C. Cleaning of Buildings and Enclosed Structures: The Government should mandate regular proper cleaning (i.e., wet-cleaning and HEPA-vacuum) of building interiors and other enclosed structures in the area, including foot-bridges such as the one outside Stuyvesant.
D. Cleaning of Streets and Sidewalks: The Department of Sanitation, as well as entities such as the Battery Park City Authority, should be required to regularly wet-clean the streets and sidewalks in the area, as it is necessary for dust suppression.
E. Environmental Monitoring and Notification: The Government should take action to ensure complete environmental testing, both indoor and outdoor; full and timely disclosure of results; and immediate and full notification of elevated levels of contaminants to residents, workers, and students in lower Manhattan.
F. Monitoring of Incidence of Illness and Medical Coverage: The Government should assume responsibility for implementing a centralized and coordinated effort to monitor and track incidence of illness among residents, workers, and students in the area. A central registry of all residents, workers, and students who have been exposed to contaminants as a result of the September 11 attacks should be established. The Government should assume responsibility for early detection and medical treatment of illness related to the World Trade Center disaster. Also, in my opinion, a dedicated fund should be established to pay for medical costs associated with any future health problems of registered individuals as a result of WTC chemical exposure.

Thank you for the opportunity to address you today.

David Carpenter

(Received October 23, 2002)

Director, Institute for Health and Environment, University at Albany

To: The World Trade Center Peer Review Panel

From: David O. Carpenter, M.D., j
Director, Institute for Health and the Environment University at Albany

I have reviewed the document, "World Trade Center Indoor Air Assessment: Selecting Contaminants of Potential Concern and Setting Health-Based Benchmarks". My comments are listed below, each in reference to the page of the report.

Page 5: The list of Contaminants of Potential Concern (COPCs) lists "dioxin", but I hope that this also includes furans and co-planar PCBs. A better listing would be "dioxin and dioxin-like substances". It is essential that furans be included, particularly, since they may be the major combustion product in some circumstances. Arsenic should also be added to the list. It is a highly toxic substance and would be expected to be released at some level at least.

Page 6 (and throughout the document): I take great exception to the use of a lifetime cancer risk of 10-4. This is not protective of the public health, and is not an appropriate standard. The appropriate standard for each carcinogen is 10-6. The use of such a high level of risk is made even more outrageous because of the fact that this document show no consideration of the effects of mixtures of carcinogens, and does not consider the unique vulnerability of children. These two factors must be considered, and should be a major consideration even if the risk level for an individual carcinogen were set at 10-6. To list as being acceptable a risk of 10-4 for PAHs, for dioxin, and for asbetos, when clearly many persons, including children, are exposed to all of these substances ignores overwhelming evidence that cancer risks are at least additive for most substances, and in some cases are synergistic. In my judgment the setting of acceptable risk at such a high level invalidates this document.

Page 14~ln relation to the issue of children, the discussion on page 14 states "screening levels for carcinogens may underestimate cancer risk for children, but Tier I contaminant levels are not expected to persist, therefore the magnitude of any associated uncertainty would be small". This is simply wrong. While PAHs may not persist for long periods of time, certainly dioxins, asbestos, chromium, arsenic and lead will persist indefinitely. It is simply not acceptable to discount long-term exposure to these multiple carcinogens as posing risks to the whole population, especially to children.

Page 12: The same concern as discussed above on cancer risk applies to the non- , cancer risks. Each of the COPCs has numerous effects of other organ systems, " including the immune system, the brain and the various endocrine systems. Again, children are most vulnerable to these effects, and the most vulnerable period is during gestation and the early years of life. It is not acceptable to set the Hazard Quotient (HQ) at 10 for Tier I exposure for all of the reasons listed above. Most of these

contaminants are persistent in the environment. They will not go away in indoor dust, and they will continually circulate in indoor air. The HQ for Tier 1 should be set at 1.

Page 19: There is a major problem with the asbestos standard because of the fact that the WTC collapse resulted in widespread distribution of asbestos fibers smaller than 5 Jlm, and this has not been considered. Such small asbestos fibers penetrate more deeply into the lung than do larger fibers, and while there is still some uncertainty, it is likely that these small fibers pose an even greater hazard. While I am aware that there is considerable attention to the issue of small asbestos fibers, cleanup standards at this stage of the debate must be set so as to be certain that they are protective of human health.

Thank you for consideration of these concerns.

Public Observer Oral Comments at the WTC Peer Review Meeting

The panel commented that they appreciated hearing the technical comments from meeting observers. The following summarizes oral comments made from the public for consideration by the panel in providing feedback on the document being reviewed. Written comments submitted to the panel are included in Appendix C. When observers mentioned specific technical data as the basis for their comments, they were encouraged to bring these data forward for consideration by the panel. New data submitted by observers during or subsequent to the meeting have been included in these technical meeting notes as Appendix C.

Summary of Technical Comments on COPC Selection

Observers made comments regarding limitations in the adequacy of the data that were used in developing the COPC list. Several public observers commented on limitations in the sampling data used as the basis for screening COPC, due to limitations in the extent of the available data used, reliance on outdoor air samples, and limitations in the geographical distribution. For example, several observers commented on weaknesses on relying on reports of sampling data from building owners. Other observers noted discrepancies in monitoring results that were privately funded as compared to results reported in agency-sponsored surveys. Several observers suggested the availability of additional data that could have been used by the document authors in identifying potential COPC. In several cases, observers provided additional data during the course of meeting, while others noted the availability of additional studies. For example one observer noted that thousands of tests in residences and commercial building have been done. Another observer commented that the ambient monitoring data would not be representative of contaminant distributions inside.

- In addition to statements about the availability of additional data on which the identification of COPC should be based, several observers noted specific compounds that should be further considered for inclusion on the COPC list. For example, one observer suggested that americium 231 (from smoke detectors), chromium, and small particulates (particulate matter less than 2.5 microns) should be included. Another observer questioned the exclusion of small asbestos fibers, neurotoxicants such as certain polybrominated compounds (e.g., from flame-retardants), mercury (based on high levels in dust reservoirs), and a variety of other compounds (unspecified toxics) that were excluded without a review of representative air sampling.

Summary of Technical Comments on Setting Benchmarks

- Several comments were made on the definition of the three tiers. Several observers commented on the selection of $1x10^{-4}$ as the risk level for developing the tier criteria. For example, one observer commented that there is a discrepancy in the document in that the current risk communications is that Tier criteria do not pose a public health risk, but that the selection of $1x10^{-4}$ risk level is based only on limitations in sampling. Another observer commented that if general dust exposures would be high if they caused sufficient clogging to interfere with the asbestos sampling. Another observer noted the availability of a new high efficiency sampler that that the EPA could consider to lower the detection limit for asbestos. One observer noted that the Tier 3 criteria averaging for 30 years does not adequately account for children exposure during

this period. Observers also commented on the multifaceted nature of activity patterns in the area. Observers noted that many people spend their entire life in the area, that children go to school and live in the area, and that many people live and work in the area, which impacts the selection of 30 years exposure duration assumption used in the Tier III criteria. Another observer commented the document focused only on cancer endpoints, and not the transient effects related to COPC exposure. Other observers also commented on the need to consider alternative effects, sighting reports of respiratory conditions associated with the WTC-related exposures. Regarding contaminant specific criteria, one observer commented that the criteria used for lead (e.g., the HUD standard and the air limit based on the IEUBK) did not account for new data that indicate that the neurotoxicity lead probably has no threshold, that EPA has considered reducing the limit to 5 ug/dL, and that the current value of 10 ug/dL is not adequate. Another observer commented on the need to consider background dietary exposure to dioxin in the evaluation of this chemical.

C Several observers asked the panel to consider the broader context of the use of the document for risk management for further cleanups, and the important public health implications of the review in making comments on the document. Several observers questioned the exclusion of commercial properties from the scope of the document (and the current clean-up effort). One observer noted the need to look at areas of mixed use. Others commented on the decision to begin the cleanup prior to completing the risk assessment. Comments were also made regarding the geographical scope of the clean-up effort. For example concerns were raised about the communication of the basis and options for scope A and scope B cleanups, the adequacy of risk communication efforts regarding the clean-up effort.

C Several comments and questions were raised regarding cleaning protocols and supporting sampling and analysis methods. The need to use alternative methods for asbestos sampling was mentioned by several observers. For example, one observer noted that high levels of asbestos fibers have been detected using ultrasonication, where other techniques failed to identify asbestos. This commenter further commented that if ultrasonication is not used, then AHERA clearance standards should be used. Another observer commented that NYDEP asbestos standard should be followed for determining whether asbestos containing material requires clean-up. Another observer suggested that ultrasonication and microvac tests should be evaluated, and that these technologies were disallowed in the current protocols. Other observed noted that HVAC systems are not adequately accounted for in the current sampling and cleaning protocols, which could result in resuspension of particulates.

C Several observer comments addressed the area of developing fingerprints of WTC-related contaminants, and the identification of background exposure levels. With regard to COPC fingerprints, one observer commented that NIST has a computer model that provides contaminant fingerprint data depending on the debris from various floors of the WTC. Another observer commented, however, that the footprint for WTC-related COPC would likely vary depending on the COPC that was selected, and this limitation would need to be considered before using a single surrogate. Another observer commented that mercury requires a different testing protocol would since this is a vapor, and that measures based on asbestos would not account for this. One observer noted that a fingerprint consisting of fiberglass, PAHs, and crystalline silica has been used in evaluating air handling systems. Observers also commented on the issue of identifying background levels. One observer commented about the availability of

data from recent urban research studies to help determine appropriate background exposure levels.

- Several observers commented on the need to consider potential synergistic effects of mixed exposures. The reported synergy between asbestos and smoking, mercury and PCBs (in clarifying questions a panel member noted that it is methyl mercury not metallic mercury that induces a synergistic effect with PCBs), and mixed exposure to tumor initiators and tumor promoters were noted was noted as examples that warrant further evaluation. One observer noted that the Department of Energy had a methodology for assessing mixtures.

List of Hard-copy Only Submissions by Observers

David Newman

New York Committee for Occupational Safety and Health
(Received October 29, 2002)

- Health Hazard Evaluation (HHE) reports issued by NIOSH for 4 NY sites (Borough of Manhattan Community College, Stuyvesant High School, Office of the Attorney General of the State of New York, and NYC clerical worker offices)
- "Report on Findings: Building Air Quality Assessment" date August 22, 2002
- William Ewing, CIH, "Asbestos In Settled Dust Concentrations in New York City Before September 11, 2001" (abstract)
- EPA Region II, "Addendum #2 – World Trade Center Dust Cleaning Program, Monitoring Contract Scope of Work, Evaluation Procedures to Determine the Presence of WTC-Related Dust and Debris in residential Ventilation Systems in Lower Manhattan."
- EPA Region VIII, "Phase 2 Sampling and Quality Assurance Project Plan, Revision 0, for Libby, Montana – Environmental Monitoring for Asbestos, Evaluation of Exposure to Airborne Asbestos Fibers During Routine and Special Activities."
- EPA Region VIII, Memorandum, "Amphibole Mineral Fibers in Source Materials in Residential and Commercial Areas of Libby Pose an Imminent and Substantial Endangerment to Public Health."
- Three chapters from Millette, James and Hays book entitled, *Settled Asbestos Dust Sampling and Analysis* (Ch. 6 – Data: Levels of Asbestos in Dust; Ch. 8 – Resuspension of Settled Dust; Appendix 4 – Methods for Analysis of Carpet Samples for Asbestos)

Doan Hansen

Brookhaven National Laboratory
(Received October 24, 2002)

- Globalcontinuity.com print out of web page, dated October 17, 2002
- The Synergist. September 2002, Vol. 13, No. 9. AIHA
- "On Track" Noteworthy Activities from DOE sites sheet
- Craig, DK, et al. 1999. Recommended Default Methodology for Analysis of Airborne Exposures to Mixtures of Chemicals in Emergencies. App. Occ. Env. Hyg. Vol. 14(9): 609-617.
- "Short Communications" AIHA Journal. 56:919-925 (1995)
- Craig, DK, et al. 2000. Derivation of Temporary Emergency Exposure Limits (TEELs). J Appl. Tox. 20, 11-20.
- Hansen, Doan J. 1999. DOE Emergency Planning & Emergency Management Using Emergency Response Planning Guidelines (ERPGS) and Temporary Emergency Exposure Levels (TEELS). Drug Chem Tox. 22(1): 15-23.
- AIHA ERP Committee Procedures and Responsibilites, Dec. 18, 1999.
- US DOE SCAPA Subcommittee on Consequence Assessment & Protective Actions.

TEELs Temporary Emergency Exposure Limits. Revion 8. Jan. 31, 2002.

Angus Crane

North American Insulation Maufacturers Association (NAIMA)
(Received October 29, 2002)

- Volume 81: Man-Made Vitreous Fibers, IARC Monographs on the Evaluation of Carcinogenic Risks to Humans. 2002.
- Insulation Facts Sheet #59
- Letter to Kenneth Mentzer, NAIMA, from Charles Jeffress, US Department of Labor, dated May 18, 1999
- Double-CD set entitled, "Synthetic Vitreous Fibers: Medical andScientific Articles

Other Items Submitted During Meeting

- Summary of State-of-Science & Practice Regarding Micro-Activity Data (hardcopy of Powerpoint presentation), Valerie Zartarian
- Data on Length of Time in Residence
- Letter to Tammy Meltzer regarding ALC Building #400 Report, Documentation and Testing Results, dated October 21, 2002
- PLM Bulk Asbestos Report dated July 29, 2002 to Joel Kupferman
- Letter from Salvatore Cassano, Chief of Operations, NYFD, on Apparatus Asbestos Guidelines, dated August 2, 2002
- Comments from Catherine McVay Hughes, with handwritten annotations, including WTC site map
- EPA Region II, Environmental Sample Data Collected from Gateway Plaza, dated September 16, 2002
- UC Davis, News & Information sheet, dated February 11, 2002
- Cancer Potency Values and Reference Doses Data sheets on BaP, PAHs, TCDD and related compounds