

# NEW YORK ENVIRONMENTAL LAW & JUSTICE PROJECT

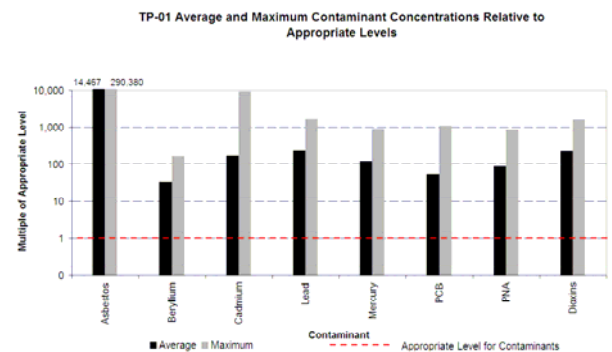
member of the Clean Water Network, National Coalition against the Misuse of Pesticides,  
National Lawyers Guild  
Environmental Counsel to the Uniformed Firefighters Association Local 94 I.A.F.F. AFL-CIO

## SUMMARY OF FINDINGS IN THE RJLEE REPORT

### Section 1. WHAT IS IN THERE

The R.J.Lee Group conducted \$33 million worth of testing on the property on 130 Liberty Street, the Deutsche Bank building. The group conducted sampling for different contaminants known to be present in World Trade Center dust in both the Deutsche bank building and other Class A office buildings for comparison. RJLee Group found “that the interior spaces on all floors of the Building are pervasively contaminated with WTC Dust and WTC Hazardous Substances.”<sup>1</sup>

The environmental test results indicated that “a combination of contaminants known to be hazardous to human health, in quantities and concentrations unparalleled in any other building designed for office use, permeates the entire structure at levels which exceed by up to thousands of times the levels considered appropriate for Class A office buildings.” These substances include “asbestos, lead, mercury, polychlorinated biphenyls (PCB), polynuclear aromatic hydrocarbons (PNA), polychlorinated dibenzo-p-dioxins (PCDD), and polychlorinated dibenzofurans (PCDF).”<sup>2</sup> Persistent and extensive growth of mold existed in many floors of the Building.<sup>3</sup>



These contaminants are “present on all floors of the building.”<sup>4</sup> Yet there is a high variability in the concentrations of WTC Hazardous Substances throughout the Building. Hotspots existed even in areas with relatively low average contamination levels.<sup>5</sup> In addition, the reports noted that variability of the composition of individual samples was so high that “no single WTC Hazardous Substance can be utilized to predict the concentrations of other WTC Hazardous Substances for remediation purposes.”<sup>6</sup>

### Section 2. HOW DANGEROUS IS THIS MIX OF CONTAMINANTS?

The finding of serious contamination is not news anymore. Its findings were verified by other testing data, including the data from the insurance companies, and Lower Manhattan Development Corporation, the present owner and the agency currently in charge of the demolition of the Building.<sup>7</sup> RJLEE group, however, offers detailed insights on how dangerous this particular mix of contaminants can be.

The RJLee Group, along with many other sources, characterized WTC dust as a mix of unique distribution of ultra fine particles as a result of undergoing combustion in intense heat and pressure. Because these “finely pulverized and friable” particles are much smaller than what would be found in ordinary surface dust, these particles are more likely to go into air by disturbance, more likely to be absorbed into human body due to its size, and ultimately – much more dangerous to human health.

<sup>1</sup> Contamination Report Pursuant to Testing Protocol-01 Interior Spaces Summary Report, RJLee Group, page 9. CR91.summary.final.121503.pdf

<sup>2</sup> See our memorandum re health effects of WTC contaminants for further information about the short and long term effects of these contaminants.

<sup>3</sup> See *infra*. Section 4. Mold

<sup>4</sup> Contamination Report Pursuant to Testing Protocol-01 Interior Spaces Summary Report, RJLee Group, page 10. CR91.summary.final.121503.pdf

<sup>5</sup> S7: Relationship between Contaminant Distribution, WTC Dust Concentration, and “Hot Spots” in 130 Liberty, page 2

<sup>6</sup> *id.*

<sup>7</sup> NOTE: There are other data and studies conducted regarding the Deutsche Bank building. NYELJP has made information requests to various agencies such as the EPA, Port Authority, Department of Buildings and others. We will keep updating on our findings. NYELJP also invites people to read the Initial Building Characterization Report prepared by Louise Berger Group for LOWER MANHATTAN DEVELOPMENT CORPORATION available on the web at [www.renewnyc.org](http://www.renewnyc.org). LMDC also has physical copies of their report, along with other studies conducted by Deutsche Bank (i.e. the RJLee Report) and its insurers. Call LMDC at 212-962-2300 to make the appointment to see the documents.

**Asbestos:** For instance, the RJLee studies found that “airborne asbestos fibers in the Building are longer and thinner than airborne asbestos fibers collected in other buildings nationwide not impacted by the WTC Event.”<sup>8</sup> “These longer and thinner fiber characteristics are generally accepted as resulting in higher human health toxicity.”<sup>9</sup>

**Lead:** Furthermore, the RJLee Group also found that lead in the Deutsche Bank building, due to its particular chemical and physical form, can be “more readily absorbed into the body following exposure (e.g. ingestion).”<sup>10</sup>

**Mercury:** RJLee Studies also emphasized mercury contamination. Although mercury is found in trace amounts in usual class A office buildings, testings found that surface mercury contamination in the building is “pervasive” and airborne concentrations of mercury “exceeding warning and unsafe levels set by EPA, U.S. Agency for Toxic Substances and Disease Registry (ATSDR), and Occupational Safety and Health Administration (OSHA).”<sup>11</sup> In addition, synergistic effect with extensive growth of mold was noted in the following way:

*Methyl mercury, a highly toxic form of mercury, is created by microbial action on metallic mercury and was found in trace amounts in the Building. Levels of methyl mercury will likely increase unless the source of mercury and bacteria are effectively remediated.*<sup>12</sup>

Mercury is very dangerous because it volatilizes at room temperature. Any activity increasing temperature slightly, including “certain remediation and demolition activities, will increase the levels of mercury within the Building which at times are likely to exceed worker exposure limits.”<sup>13</sup> Thus, any demolition activity, especially if using electrical demolition equipment, may pose unacceptable risks to workers and surrounding community if the demolition proceeds without proper safeguards against mercury.

**Suspension studies:** Not only the dust itself proves toxic, it is in a form / environment where it can be easily suspended and remain in the air for a long time. The RJLee Report found that “demolition will cause visible emissions of dust” and “disturbance of dust creates elevated airborne concentrations.” For instance, the group concluded that “normal air disturbance caused by minimal activities during sampling resuspends respirable WTC Dust and WTC Hazardous Substances.”<sup>14</sup>

**Synergies and additive effects:** Much overlooked is the Appendix 8 of the Health and Risk Assessment created by the Deutsche Bank Health Group. The Appendix is a comprehensive documentation of how toxicological interaction of chemicals in the Building’s mixture can multiply (synergistic) or add (additive) to the health risks:

**Asbestos + PCBs / PAHS:** Even though PCBs and PAHs received less study in the RJLee studies, the Appendix notes that the additive toxic effects of asbestos and these chemical compounds PAHs are extensively documented in the cigarette smoke research. The cigarette smokers were 92 times as likely to develop pulmonary cancers as the nonsmokers (Selikoff et al., 1968). Subsequent studies of this population would seem to indicate that when the lungs have been damaged from asbestos exposure (resulting in asbestosis), the carcinogenic effects of cigarette smoke are enhanced (Jones et al., 1996).

**PAHs and Particulate Matter:** the uptake of PAHs into model biological membranes is enhanced when the PAHs are adsorbed onto particulates, most notably silica, carbon black, and chrysotile asbestos fibers.

**Lead and Mercury, Dioxin and PCBs:** the Appendix documents current studies showing that interaction of lead and mercury, and interaction of dioxin and PCBs have synergistic or additive effect.<sup>15</sup>

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<sup>8</sup> Source: S5 Report: Key Findings

<sup>9</sup> **addendum:** We received comments that EPA and ASTDR actually describes the general profile of WTC asbestos that it is primarily in short fibers. However one expert further commented that

“these fibers indicate two things: a) the dust was not uniform; and b) there probably was a lot more of these long thin fibers in various areas of the dust released right after the collapse.” In a sense, this building trapped a good example of what was released precisely at the time of the collapse, this near, and in this direction. Later, less of the long fibers were found in all directions because those also are the first to be blown away on air currents and traveled the furthest from the site because of their aerodynamic characteristics.”

<sup>10</sup> Source: Risk Assessment and Public Health Implications of WTC Dust Contamination of the Deutsche Bank 130 Liberty Street Property, May 12, 2004

<sup>11</sup> Mercury Assessment: 130 Liberty Street Property Expert Report – Mercury, page 5.

<sup>12</sup> *Id.*

<sup>13</sup> *Id.*

<sup>14</sup> Source: S2 Report: Key Findings. These particles can remain for days according to the S4 Report.

In addition, it is worth noting that one of the resuspension study was done for both 130 Liberty Street and **4 Albany Street**. RJLee found resuspension of asbestos **above acceptable levels in both buildings!** (see S1 Report)

<sup>15</sup> Health-Risk Report Appendix 8: Additive and Synergistic Effects, May 12, 2004, page 2

### Section 3. EFFECTIVENESS OF REMEDIATION.

The RJLee Group tested how effective would be the cleanup efforts where the target building is pervasively contaminated in unprecedented magnitude. One group of study obtained pre and post-cleanup (by RJLee) samples in headers, raceways, cell systems, and high- and low-pressure ductwork in designated test cleaning areas throughout the building. The tables below summarize the comparison of pre- and post-cleaning contaminant levels on interior surfaces versus the health-based screening level discussed above for asbestos, dioxins, and lead:

**Table 8 - Comparison of Post-Remediation Sampling with Building-Specific Health-Based Screening Level for Asbestos\***

<b>Asbestos (s/cm<sup>2</sup>)</b>				
<b>Sampling Event</b>	<b>Count</b>	<b>Average</b>	<b>Max</b>	<b>Screening Level</b>
Post-Clean 1	15	<b>898,200</b>	<b>12,390,000</b>	500
Post-Clean 2	16	<b>155,200</b>	<b>1,473,000</b>	500
Post-Clean 3	8	<b>187,500</b>	<b>1,133,000</b>	500
Post-Clean 4	9	<b>239,300</b>	<b>1,829,000</b>	500
Post-Clean 5	6	<b>249,000</b>	<b>845,700</b>	500
Post-Clean 6	3	<b>62,640</b>	<b>114,800</b>	500

\*Averages and maximum readings in **bold** are above the Building-specific screening level

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**Table 9 - Comparison of Post-Remediation Sampling with Building-Specific Health-Based Screening Level for Dioxin\***

<b>Dioxin (TEQ pg/100 cm<sup>2</sup>)</b>				
<b>Sampling Event</b>	<b>Count</b>	<b>Average</b>	<b>Max</b>	<b>Screening Level</b>
Post-Clean 1	7	<b>0.242</b>	<b>1.263</b>	0.2
Post-Clean 2	8	0.159	<b>1.152</b>	0.2
Post-Clean 3	7	0.049	<b>0.220</b>	0.2
Post-Clean 4	9	0.092	<b>0.427</b>	0.2
Post-Clean 5	5	0.000	0.000	0.2
Post-Clean 6	5	0.000	0.000	0.2

\*Averages and maximum readings in **bold** are above the Building-specific screening level

**Table 10 - Comparison of Post-Remediation Sampling with Building-Specific Health-Based Screening Level for Lead\***

<b>Lead (µg/ft<sup>2</sup>)</b>				
<b>Sampling Event</b>	<b>Count</b>	<b>Average</b>	<b>Max</b>	<b>Screening Level</b>
Post-Clean 1	23	<b>102</b>	<b>481</b>	25
Post-Clean 2	26	<b>814</b>	<b>19,800</b>	25
Post-Clean 3	17	<b>34.4</b>	<b>148</b>	25
Post-Clean 4	19	<b>1,900</b>	<b>27,100</b>	25
Post-Clean 5	6	<b>93.9</b>	<b>176</b>	25
Post-Clean 6	6	<b>53.1</b>	<b>120</b>	25

\*Averages and maximum readings in **bold** are above the Building-specific screening level

RJLee also conducted another study jointly with Young Laboratories, the testing company hired by the Deutsche Bank's insurers. Young Laboratories constructed test abatement cells in office spaces in 130 Liberty Street. Young Laboratories conducted sampling, cleanup and then resampling to test the efficacy of the cleanup. RJLee Group also conducted side by side sampling. The findings show that the cleanup efforts, although they did reduce the levels of contamination, failed to remediate the pilot cells down to safe level.<sup>17</sup>

These findings demonstrate that **five or more cleanings were required** to reduce the concentrations of asbestos, dioxin, and lead below the health-based screening levels developed for the Building.<sup>18</sup> The contamination did decrease in most post-cleanup situations. However, the levels were simply too high to reduce down to safe levels in one cleanup effort. In addition, many data sets showed increased level of contamination post cleanup and indicated that there might be recontamination from other areas or simply that some cleanup efforts were ineffective.

<sup>16</sup> Deutsche Bank 130 Liberty Street Property Health-Risk Report, May 12, 2004, p44-45

<sup>17</sup> *Id.* at page 45

<sup>18</sup> *Id.* at page 46

These results, according to the New York Environmental Law & Justice Project, raises two crucial points. First, **whenever there is a cleanup / demolition activity in the 130 Liberty Street, post-cleanup/demolition resampling should be done to check for efficacy of the cleanup activity and potential for recontamination.** LMDC or any other entities can't just assume that cleanup / containment / demolition is successful. They have the burden to prove that these activities effectively removed contamination and thus effectively reduced the risk to workers and the community.

The other point should have been obvious from the beginning – **that contamination in the Deutsche Bank will not go anywhere unless there is there is professional removal, natural decay, or (God forbid) release to the environment outside the building.** As shown by the RJLee remediation studies, even multiple cleanup efforts fail to remove the contamination down to any manageable levels. As far as the Law Project can discover from the released public documents, there was little decontamination work or removal activities except the decontamination of the gash area and removal of supposedly “intellectual property” and furnitures. This indicates that **whatever the RJLee Group discovered in Deutsche Bank is still at large in the property.** LMDC and other entities / agencies should operate under the assumption that all the contaminants still exist in the Deutsche Bank building unless testing results prove otherwise. They have the burden to prove that these contaminants do not exist there anymore.

#### **Section 4. MOLD.**

The WTC COPC committee did not consider microorganisms a contaminant of potential concern. There is no set benchmarks for mold that triggers regulatory action. These set of facts may fool even some government officials into believing that mold is not a problem. However, the RJLee Group determined that the “Bank cannot ignore potential risks to public health from microorganisms.”<sup>19</sup> By 2002, the Group found that “extensive visible mold growth characterized many floors of the Building.”<sup>20</sup> Even though the Deutsche Bank removed visible mold in response, inspections during the Fall of 2003 and Winter 2004 revealed additional microbiological contamination in the Building, finding additional type of contaminants as well as contamination in areas not previously inspected.<sup>21</sup>



Photo 10. Photograph of heavy microbiological contamination in basement cell system in auxiliary vault. The degree of contamination in this area is so heavy that some air samples were overloaded.

In particular, many water systems in the building “are now contaminated with high counts of *Legionella pneumophila* bacteria (for instance, the upper secondary system has been estimated to have 4000 organisms per ml water, while as few as 40 organisms per ml water can serve as an inoculating dose).”<sup>22</sup>

**Despite the cleanup in 2002, mold and other microorganisms reappeared. Microbiological contamination is not going to disappear unless moisture level in the building can be adequately controlled.**<sup>23</sup> Any deconstruction activity in the Building, therefore, should take account of the potential risk microorganisms pose and how the activity might exacerbate the growth of microorganisms. For instance, wetting down method for asbestos removal will provide more than enough growth potential for these microorganisms which may cause allergic reactions, pneumonia and even legionnaire’s disease.<sup>24</sup>

<sup>19</sup> *Id.* at page 48

<sup>20</sup> *Id.* at page 48

<sup>21</sup> REPORT ON MICROORGANISMS AT 130 LIBERTY STREET, Brian G. Shelton, MPH, at page 3 – photo 10. at page 23

<sup>22</sup> Deutsche Bank 130 Liberty Street Property Health-Risk Report, May 12, 2004, at page 48

<sup>23</sup> REPORT ON MICROORGANISMS AT 130 LIBERTY STREET, Brian G. Shelton, MPH, at page 3

<sup>24</sup> *see* Deutsche Bank 130 Liberty Street Property Health-Risk Report, May 12, 2004, at page 49

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OUR WEBSITE IS AT <http://www.nyenvirolaw.org>**