SUPREME COURT OF THE STATE OF NEW YORK
COUNTY OF NEW YORK

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IN THE MATTER OF NEIGHBORS UNITED BELOW CANAL, JAN LEE, DCTV, EDWARD J. CUCCIA BETTY LEE, and AMERICAN INDIAN COMMUNITY HOUSE,

Petitioners,

For a Judgment pursuant to Article 78 of the CPLR

-against-

MAYOR BILL DE BLASIO, et al.,

Respondents.

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AFFIDAVIT OF JUDITH ZELIKOFF IN SUPPORT OF THE VERIFIED PETITION

Judith Zelikoff, being duly sworn deposes and says:

1. I have a Ph.D in Experimental Pathology and Immunology from Rutgers: NJ Medical School (formerly known as University of Medicine and Dentistry of NJ) and I am a tenured professor at the NYU School of Medicine, Department of Environmental Medicine in the areas of environmental medicine and toxicology. I have served in numerous leadership positions in the field of toxicology, including but not limited to National Institutes of Health (NIH) Study Sections, United Nations Environmental Programme projects, NASA boards, and National Academy of Science Panels (i.e., Institute of Medicine, National Research Council and Engineering, and Medicine's Board on Earth Sciences and Resources), as well as Environmental Protection Agency study sections and advisory boards concerning the toxic effects of air pollution, metals and alternative tobacco products. I served for two years (2010-2012) as a member of the National Toxicology Program (NTP) Board of Scientific Advisors. In addition, as part of the NYU National Institute of Environmental Health Science Core Center, I serve as

the Director of the Community Engagement Core. In this capacity, I engage with environmentally-impacted underserved communities throughout NYC and New Jersey on environmental health matters.

2. I have published over 120 peer-reviewed papers and reviews in the areas of toxicology and environmental and public health and have organized a number of international toxicology meetings throughout the world. I have also served as editor for several toxicology/environmental public health books and authored numerous book chapters in the same areas. My publications and book chapters are primarily in the areas of immunotoxicology (for which I received a Lifetime Achievement Award from the Society of Toxicology), air pollution toxicology, metal toxicology, and developmental and reproductive toxicology associated with inhaled metals, mixtures, nanomaterials, dusts (lunar dusts, World Trade Center Dust), and tobacco/nicotine products.

3. I have reviewed the documents prepared by the New York City Department of Correction regarding the environmental impacts of the proposed jail on 124-125 White Street in the Chinatown neighborhood of Manhattan, including the Final Environmental Impact Statement ("FEIS"). Based on my extensive background and expertise in the areas of environmental health science and toxicology, I do not believe that these documents provide an accurate picture of the health impacts that the construction activities (demolition and new construction) will have on the Chinatown community, particularly on the elderly and children.

4. A complete list of the sources cited herein is annexed as Exhibit A.

Impacts from the Construction on Preexisting Conditions and Susceptible and Vulnerable Populations

5. Preexisting conditions play a role in susceptibility to environmental pollutant exposure. While there is some evidence in the literature associating the risk of *developing* lung disease in previously asymptomatic individuals following exposure to air pollution, there is long-standing evidence demonstrating increased risk of exacerbating preexisting diseases (e.g., asthma, chronic obstructive pulmonary disease (COPD), and cardio vascular disease (CVD)) as a result of particulate air pollution exposure. In addition to those individuals with preexisting diseases or co-morbidities, there are additional vulnerable populations who may be more susceptible to the effects of air pollution, including the elderly, people of Asian descent, pregnant women, children and those who may have previous inhalation exposure to toxic components where they live or work, for example, exposure to dust from the World Trade Center destruction.

6. The construction activities will occur in the densely populated Asian community of Chinatown, directly adjacent to the Chung Pak senior living center and around the corner from the Charles B. Wang Community Health Center, on a narrow residential street, less than a block from a park, and close to two elementary schools. The particular susceptibility of the Asian community, and its elderly and children were not considered in the FEIS analyses of air quality or construction impacts. I note also that the FEIS failed to include any public health impact analysis whatsoever.

7. There is accumulating evidence that older adults (elderly) are more susceptible to the health effects associated with particulate matter (PM) exposure, specifically: 1) increased hospitalizations and cardio-respiratory mortality as demonstrated in Bell et al and Simoni et al. and 2) cognitive aging and brain health (Kulick et al). Furthermore, if the elderly (at least 85-years-old) are 'socially disadvantaged', they are at greater risk of dying from high air pollution,

either immediately or several days later, and are not (necessarily) adequately protected by the current regulatory standards that have been established for the general population (Cakmak et al).

8. Asians are the fastest growing major racial/ethnic group in the US (Pew Research Center 2019), and while it is often assumed that Asian Americans are a 'model minority' who have few barriers to success, studies show that this population is at a 'disproportionate risk of exposure' to health hazards such as air pollution, methyl mercury, and lead (Gordon et al). Evidence suggests that 'segregation' in US Chinatowns may be correlated with increased risk of cancer and asthma in children. In Grineski et al, the authors demonstrated that neighborhoods with higher proportions of Chinese, Korean and South Asian residents have significantly greater cancer risk burdens due to exposure to hazardous air pollutants (HAPs) relative to whites.

9. Given the increased risk of adverse health effects that Asian Americans appear to face, coupled with age as a factor in susceptibility to the effects of air pollution, the proximity (44 ft) of the Chung Pak low-income senior residence and the Charles B. Wang Community Health Center is particularly important to consider. The effects of long-term demolition and construction in this area could be more than a 'temporary disruption,' but rather an exceptionally detrimental disturbance to residents' health and well-being for years-to-come.

10. While seniors are at greater risk of health complications and even death from air pollution exposure, those who are still growing and developing have their own set of risks. Children are more sensitive to the effects of air pollution and most environmental toxicants than adults because they are in a stage of rapid growth and development of their pulmonary and immune systems. Air pollution may exacerbate existing asthma, as demonstrated in Chen at al where children with physician-diagnosed asthma had more chronic lower respiratory tract symptoms (bronchitis & phlegm production) if they lived in communities with higher levels of

NO_2, $PM_{2.5}$ and PM_{10}. Furthermore, McConnell et al demonstrated the incidence (new-onset) of asthma in a 3-yr follow-up study of children who were exposed to traffic-related air pollution at home and/or school in children who were asthma- and wheeze-free at the start of the study. Given the close proximity of P.S. 23, P.S.130 and Columbus Park to the jail site, these findings strongly suggest that children, in particular will be exposed to increased levels of particulate air pollution from construction activities.

11. Individuals with a history of previous inhalation exposure, such as WTC dust components, can suffer from a delayed onset of health effects (pulmonary, cardiac or gastrointestinal disease), and there is 'overwhelming' evidence that individuals living/working in Lower Manhattan on or after 9/11/01 have exhibited more chronic disease in comparison to those living/working further distances from Ground Zero (Lippmann et al). Chinatown is only 4,936 feet away from one WTC. Thus, individuals living/working in lower Manhattan at this time were exposed (either dermally or by inhalation or ingestion from contaminated food stuffs in open markets) to large amounts of the associated dust components. Because of the well-known pathologies that arose from exposure to these toxic dusts, exposed individuals are likely more vulnerable to the adverse effects associated with another toxicant challenge, i.e., toxicants arising from demolition or construction-related air pollutants.

Particulate Matter Impacts

12. Air pollution (composed of particles, gas and aerosolized liquids) may be generated from various environmental sources. Airborne particles (i.e., particulate matter or PM) are found in varying concentrations at demolition and construction sites and include $PM_{2.5}$, PM_{10} and total suspended particulates (TSP) (Araujo et al). While it is not possible to predict with absolute certainty where and how far particles will travel based on changing wind, weather,

temperature and composition, it has been demonstrated that $PM_{2.5}$ typically lasts days in the atmosphere and is capable of traveling thousands of kilometers in the absence of precipitation (Seigneur et al).

13. Therefore, it is imperative to consider the possibility that particles may travel farther than the proposed radius of 1 city block surrounding the Site, as was assumed in the FEIS, *see* FEIS 4.14-16, and that despite the general statement included in the FEIS (4.14-3) that 'measures will be taken to reduce pollutant emissions' such as 'dust suppression techniques, idling restrictions, ultra-low sulfur diesel fuel and best available technologies', more than a temporary disruption in air quality within the community will likely occur.

14. Furthermore, it is important to note that DOC's proposed method to suppress dust - watering - is inefficient and oftentimes not sustainable over long periods of time (Yonofski et al). The unidentified source of the water, the volume of water that would be necessary for a project of this size and duration (which is not provided in the FEIS), and the resulting runoff created from a constant spray or flow of water at the Site, could result in greater areas of environmental contamination, not less.

15. Contamination of local groundwater is also possible, as the dust and contaminants being dampened by watering are now on the ground and flowing into municipal drainage or local waterways. Groundwater contamination from demolition and construction activities should not be ignored simply because the groundwater in New York City is not a source of drinking water, as contaminants in groundwater can enter residential basements during rain storms or flooding (Doherty-Lyons et al).

16. Additionally, as particles may travel distances in outdoor air, a significant portion of outdoor air pollution moves indoors through natural ventilation (open windows or doors;

cracks, joints or leaks), transport (hair, clothing, shoes or pets) and/or mechanical ventilation systems (Johnson et al). This is important to note since it has been estimated that Americans spend 90% of their time indoors and 70% of that time at home (https://www.epa.gov/report-environment/indoor-air-quality). Therefore, once air pollutant particles enter the home, individuals may be continuously or repeatedly exposed without realizing their indoor air quality has been compromised. Without proper ventilation, it may be difficult to remove particles once they move indoors. The FEIS contains no analysis of potential impacts from indoor air exposure, particularly on the neighboring senior living center, but also on the very old and likely highly porous, tenement buildings directly across the street.

17. Airborne particles are composed of chemical mixtures based on their source and thus, when determining possible adverse health effects, it is imperative to evaluate chemical composition, not just their mass concentration (i.e., NAAQS standards) as was the only measure considered in the FEIS (4.10-4). At comparable mass concentrations, particles from different sources, due to differences in their chemical composition can exhibit differential toxicities. For example, in a study by Park et al., comparing $PM_{2.5}$ from different sources, the highest toxicity score was obtained for diesel engine exhaust particles, followed by gasoline engine exhaust particles, biomass burning particles, coal combustion particles, and road dust, suggesting that traffic plays the most critical role in enhancing the toxic effects of fine particles.

18. Given the stated ability of particles to travel distances when airborne, it is particularly concerning that the list of potential 'contaminants of concern' cited in the FEIS (FEIS 4.7-3 – 4.7-4), which includes volatile organic compounds (VOCs), semi-volatile organic compounds (SVOCs), polychlorinated biphenyls (PCBs), metals, fuel oil, asbestos and lead-based paint, may become airborne during demolition at the jail site. The potential health effects

associated with exposure to any of these 'contaminants of concern' alone or in combination, should they become airborne is, in fact, alarming (Grimm et al; EPA.gov: Benzene, Lead, PCBs). Given that several of these contaminants (VOCs, e.g. benzene; outdoor air pollution (collectively) and PM (separately designated) are International Agency for Research on Cancer (IARC)-designated human carcinogens (Group 1), or probable human carcinogens (Group 2A, PCBs), it is particularly important to outline a detailed and comprehensive plan for demolition that includes containment and full-time site monitoring (e.g., London Best Practice Guidance). This kind of plan is absent from the FEIS.

19. It behooves the City to also consider the fact that individuals and communities will not be exposed to single contaminants, as outlined in the FEIS, from the demolition site, but rather simultaneously to complex mixture of contaminants, including (but, not limited to) PM plus ozone plus metal welding fumes plus wash-down materials plus PCBs, and (semi) Volatile Organic compounds.

Conclusion

20. Overall, the FEIS has grossly generalized (if addressed at all) the potential adverse public health and environmental effects that can result from the proposed demolition and construction at 124-125 White Street. Furthermore, the FEIS does not account at all for susceptible or vulnerable populations living, working, playing or going to school in very close proximity to the Site; neither does the FEIS account for these susceptible population's response to even federally-acceptable (NAAQS) levels of PM and other potential hazardous air pollutants (VOCs, SVOCs, metals, lead and/or lead-based paint, fuel oil, PCBs, or asbestos) either alone or in combination. A FEIS inclusive of these factors as well as a comprehensive and detailed plan for preventing or mitigating increased air pollution during the proposed long-term

(4+ years) demolition and construction, is vital to the health, well-being and safety of the community, but is completely lacking.

Judith Zelikoff

Sworn to before me this
7th day of February 2020

Notary Public

KAREN L. MINTZER
Notary Public, State of New York
NO. 02MI6010758
Qualified in Kings County
Commission Expires September 13, 2022