P.O. Box 15071
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April 16, 2010

Mayor and City Council
City of Berkeley, CA

RE: Public Health and Laundromats
3095 Telegraph Avenue, Administrative Use Permit No. 09-20000161

Mayor and Council:

As an environmental health scientist living in Berkeley, I felt compelled to write on behalf of my fellow residents regarding the potential health impacts of the proposed laundromat at 3095 Telegraph Avenue (Administrative Use Permit No. 09-20000161).

I have a lifetime familiarity and involvement with environmental health issues. Earning my Master's in Environmental Health Science at UC Berkeley's School of Public Health, my coursework included Advanced Toxicology; Exposure Assessment; Risk Assessment; Characteristics of Airborne Contaminants; Occupational & Environmental Epidemiology; and more. In my undergrad I studied the foundations of the physical and biological sciences as well as environmental health coursework including The Sick Building Syndrome and Pesticide Toxicology. I have participated in air pollution research in China and the U.S., including a field study in Berkeley which I designed and conducted.

On March 23, 2010, I happened to be present for the public hearing, and what really caught my attention was the impression staff gave that laundromat emissions are safe because they are not directly regulated by the California Air Resources Board (CARB) and our local Air District (BAAQMD).

While it is true that CARB does not specifically regulate laundromat emissions, there are numerous health concerns regarding those emissions and many of their potential components are in fact regulated.

Moreover, I was told this week by a senior staffer in the Indoor Air Pollution Exposure Assessment Section at CARB that local Air Districts can and do take action to regulate laundromat emissions, typically using nuisance laws (which are only as strong as the local community and its governing bodies). The issues of concern range from fumes (particularly if gas dryers are employed), to lint. Dry cleaning establishments, were they considered, impose a host of additional toxicity concerns.

<u>Regulation is inadequate:</u>

When fragrance chemicals and other laundry components are mixed with high heat in a dryer, volatile chemical reactions occur, and the chemicals are increasingly concentrated into the air, which can pollute a substantial geographic area, even if vents are taken to or above a roof. This is exacerbated with gas dryers. Just the washing process can introduce contaminants into the air (Howard, 1998).

Fragrances are *essentially unregulated* (Smith, 2010). If we consider how understudied the steadily

growing 84,000+ industrial chemicals tracked by the EPA are (a mere fraction of the industrial chemicals in use);[1] then consider that perfumes may contain not only those chemicals, including those known to be harmful, but others not even identified for screening; health concerns are clearly present.

Moreover, the limitations of modern Epidemiology are great. In health screening, large and dramatic effects are relatively easy to identify, but the more subtle or long-term effects of any one chemical, let alone their myriad admixtures, are difficult to identify even with large, expensive, long-term studies. The resources are not available to adequately study this growing body of chemicals.

Health effects from scented products including laundry fumes:

Anecdotal evidence for dryer fume effects is abundant, although funded studies are sparse. The studies that do exist, and our knowledge of their components, some of which have been studied, demonstrate clear evidence of health concerns, and the need for further study.

Fragrances alone are of serious concern, and are frequently imposed upon public awareness due to their odor. In terms of nuisance, a nationwide survey found that 30.5% of the general population found scented products on others irritating, and 10.9% reported actual irritation from scented laundry fumes vented outside. (Caress, 2009)

Scientific study has associated these *unregulated* perfuming chemicals with a range of health effects including headaches, chest tightness and wheezing, infant diarrhea and vomiting, mucosal irritation, reduced pulmonary function, asthma and asthmatic exacerbations, rhinitis and airway irritation, and epidermal effects such as contact dermatitis.

The components of fragrances can and do contain dangerous chemicals, as well as many unknown or untested chemicals, yet their components are kept secret from the public. Even “unscented” products can contain “masking” chemicals. In essence, fragrance is a “loophole.”

Two studies from the early 1990's identified 150 unique volatile organic chemicals (VOCs) in just 31 products (Wallace, 1991; Cooper, 1992). More recently, the top six best-selling fragranced products (air fresheners and laundry supplies) were analyzed and found to contain over 50 unique VOCs as well as at least one “Hazardous Air Pollutant” (as identified by the U.S. EPA) in all but one of the products (Steinemann, 2009). These studies identified additional known hazardous chemicals in the products.

Toxicity of fabric softeners (antistatic pads):

A study specifically examining fabric softeners identified a toxicological basis for explaining some of the complaints regarding fabric softener sheets. The study examined five commercial fabric softener products. Mice exposed to dryer emissions using the products exhibited “sensory irritation (SI), pulmonary irritation (PI), and airflow limitation (AFL)” in up to 58%, 23% and 32% of breaths, respectfully, during half-hour exposures. Simply having proximity to a pad was harmful; “placing one fabric softener pad in a small room overnight resulted in an atmosphere that caused marked SI (61% of

1 http://www.epa.gov/oppt/newchems/pubs/invntory.htm accessed April 15, 2010.

breaths)." Moreover, physical investigation found "inflammation of interalveolar septae of the lungs" in the mice after three exposures. Analysis of one pad revealed emissions of "several known irritants (isopropylbenzene, styrene, trimethylbenzene, phenol, and thymol)." (Anderson, 2000)

The fact that many fragranced products may induce a sociosexual or other behavioral or emotional response through pheromone mimicking or pheromone inclusion (Friebely 2004, Berliner 1991), adds an additional concern.

Ventilation does not prevent exposure:

Venting dryers on or near the roof does not prevent exposure, although it should help reduce exposure. Just one ground-level dryer may bother passersby. Twenty-six dryers, plus washers, clearly increases the potential for harm. Within-building leakage to residential units would also increase exposure.

Noise and vibration:

Issues of noise and vibration are also concerns. From the March 23 packet, the susceptibility of the building to noise and vibration penetration from the machines is in question. I was also concerned that noise levels may exceed 80 dBA; that is an OSHA threshold for long-term incremental hearing damage which cannot be corrected with a hearing aid.

Noise is a major health problem around the world, particularly important in cities where heightened exposures to large populations are found. The European Commission has identified noise as a primary public health problem and is mobilizing to address it[2]. In contrast to Europe, the EPA's Noise Control Division was terminated in the early 1980's by President Ronald Reagan (Broder, 1988), effectively freezing progress on this important public health issue.

Noise from ambient sources has been shown to impact sleep (Ising, 2004); cause increased heart attacks (acute myocardial infarction, or AMI), and ischemic heart disease (Babisch, 2008); and cause hypertension (Bluhm, 2007). Noise creates stress, and "there is overwhelming evidence both for the deleterious effects of stress on the heart" (Dimsdale, 2008).

Conclusion:

Laundromats are a health concern which need to be carefully mitigated. The emission of unregulated fragrances containing dangerous chemicals known to be a nuisance to many in the general population, is only one of the concerns. Nuisance laws are one option for regulating laundromats. Providing laundromats in the same building with residences increases the potential health concerns, which include air pollution and noise pollution, even if mitigations are employed.

Sincerely,

Jason N. Meggs, Mcp, Mph

2 http://ec.europa.eu/environment/noise/home.htm accessed April 16, 2010

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