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Dear Members of the Environment and Natural Resources Committee,

The exposure to toxic emissions from petroleum is a crucial public health issue. These emissions can contain chemical compounds that have detrimental effects on vulnerable populations such as the developing fetus, infants, children and those with underlying disease. Both Senators Carney's proposed amendment to LD163, and LD 1532 contain several salient and cost effective steps to protect the public's health.

1. Human Exposure Model

A Human Exposure Model such as the US EPA HEM-3 should be employed. This will give the important indication of risk from multiple toxic exposures over time. This model more accurately provides a real world summation of exposure to an individual than the single value at only one very short period of time from an air monitor. As Dr. Andrew Smith, the state toxicologist, stated a community such as South Portland has such a small population (for statistical relevance) that an epidemiological analysis could not prove or disprove a pattern of disease such as pediatric leukemia.

2. Direct Measurement of all Air Emissions

There must be at least quarterly measurement of all emissions from the large petroleum storage tanks. Direct measurement of emissions must be done, and not estimations based on data that is neither representative of that unique facility or is contemporaneous. The direct measurements must be done at least once a quarter due to the importance of including seasonal climatological variations. When there is indication of a problem, in depth monitoring and evaluation must be instituted.

3. Fence Line Monitoring

When warranted, such as when a school like Kaler Elementary in South Portland abuts on a large storage tank farm, it is imperative that there be fence line monitoring.

4. Fugitive Emissions

Fugitive emissions must be accurately determined since they frequently are a major but an easily unreported source of toxic emissions. Although infra red has in the past been used, FTIR spectroscopy is best suited for determination of harmful emissions.

5. Pit Falls from Estimation

Methods based on estimation, such as AP-42, are very popular with industry but have profound inaccuracies and health risks. AP-42 emission factors can not estimate the erratic but potentially quantitatively significant fugitive toxic emissions. AP-42, 5th Edition Compilation of Air Pollution Emissions Factors, US EPA states that "Data from source-specific emission tests or continuous emission monitors are usually preferred for estimating a source's emissions because those data provide the best representation of the tested source's emissions". The US EPA Office of Inspector General (2006) reported that emissions from petroleum facilities were significantly under reported in the emissions inventory due to poor quality emissions factors for leaks, vents and fugitive emissions.

Petroleum products cause a wide spectrum of health problems, especially for the developing fetus, infants and children. Despite the advances in medical toxicology, the vast majority of exposure levels are still based on animal models, and occasionally adult occupational exposure. Human neuro- development is far different. Further, benzene, a very common compound in petroleum, is a known carcinogen. Asthma and other inflammatory diseases are known to be exacerbated by exposure to the chemicals found in petroleum products. Exposure is costly to the patient and family, but also to schools, and an unnecessary burden on the health care system. The loss of a single IQ point is estimated to reduce lifetime earnings in today's dollars by \$23,600 (Gould, Economic Policy Institute, 2006). In clinical practice, typically loss of multiple IQ points are found. Not included are associated psychological, medical or social service costs and the loss in income tax revenue. Despite our State's current air emissions monitoring program, the US EPA found two facilities in South Portland to be in violation of the law from their toxic air emissions.

Accurate monitoring and evaluation of air emissions as proposed in LD 163 and LD 1532 is imperative.

Thank you for your consideration.

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