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NATURAL RESOURCES DEFENSE COUNCIL

Testimony of the Natural Resources Defense Council (NRDC)
by
Richard Kassel
Director, Clean Fuels and Vehicles Project
In Support Of Intro. 168-A
December 17, 2007

My name is Richard Kassel, and I am pleased to testify on behalf of NRDC (the Natural Resources Defense Council) in support of Intro. 168-A. NRDC is a national, non-profit environmental organization, based in New York City. We represent more than 1.2 million members and online activists, including thousands of New York City residents. I direct NRDC's Clean Fuels and Vehicles Project, which works at the local, state, and national level to reduce pollution from all vehicles. I also advise the U.S. Environmental Protection Agency (EPA) on emissions issues as a member of EPA's Clean Air Act Advisory Committee and its Mobile Sources Technical Review Subcommittee.

NRDC congratulates the Council for its leadership in proposing Intro. 168-A. NRDC strongly supports Intro. 168-A, and views this bill as a worthy follow-up to the Council's recent laws that are already cleaning up the City's buses, sanitation trucks, construction equipment, and other publicly-owned diesel vehicles.

Intro. 168-A requires publicly-owned ferry operators to use ultra-low sulfur diesel (ULSD) fuel and to install pollution-cutting equipment. Taking these steps will reduce diesel emissions for New Yorkers aboard the ferries, and throughout the City. It will help the City meet its federal air pollution requirements. And, it will help the City reach its PlaNYC 2030 goal of having the "cleanest air of any big city in America."

Diesel exhaust is comprised principally of fine particulate matter ("PM" or "soot") and nitrogen oxides ("NOx"). Dozens of studies have linked fine PM to increased asthma attacks and emergencies, bronchitis, cancer, emphysema, and tens of thousands of premature deaths in the U.S. every year. A 1996 NRDC study, in fact, found that particulate soot can be linked to more than 4,000 premature deaths in the New York metropolitan region every year. Much of this soot comes from diesel engines -- in fact, on Madison Avenue, more than half of the soot particles breathed by pedestrians comes from nearby diesel engines. NOx emissions are a principal ingredient of ground-level ozone (or "smog"). New York fails to meet the U.S. Environmental Protection Agency's ("EPA's") health-based ambient air quality standards for both soot and smog, and must reduce these emissions over the coming decade or risk serious federal penalties.

Ferries are among the dirtiest, and least regulated, diesel sources. In sharp contrast to buses, trucks, construction equipment and other diesel engines that operate in New York City, the City's ferries operate with higher sulfur fuel, use rudimentary (if any) emission control devices, and are built to meet only the most basic emissions standards. In contrast, new diesel bus and truck engines in the City are more than 90 percent cleaner

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than the engines they replaced, thanks to new federal emission standards that went into effect earlier this year. These emission standards require extremely effective particulate filter and exhaust catalytic technologies to reduce their emissions. New construction and other nonroad diesel engines are en route to similar levels of emissions, and similarly sophisticated control technologies, thanks to new federal emissions standards that will be implemented over the next five years.

To address these dirty engines, the U.S. EPA has proposed, but not finalized, new Tier 3 and Tier 4 emission standards for marine diesel engines that would be applicable to the City's ferries over the next decade. When finalized, NRDC expects that these standards will adapt EPA's highway and nonroad diesel standards and the most advanced land-based pollution-cutting technologies to the marine sector. In addition, NRDC expects that the final rule will require ferry and other marine diesel owners and operators to install pollution-control devices that bring current unregulated (Tier 0) and Tier 1 engines to the Tier 2 level when they are rebuilt. EPA Administrator Stephen Johnson has repeatedly said that he anticipates this rule will be finalized this year.

Cleaner diesel ferries are already possible. A 2006 NYSERDA study[1] of private ferries in New York Harbor showed that using ULSD and a basic diesel oxidation catalyst reduced PM by 32-60 percent. It is worth noting that this is the most basic catalyst in the market, and it is a technology that NRDC expects will be eclipsed quickly once the new EPA standards are finalized. Ferries that were rebuilt to EPA Tier 2 engines reduced PM by 84 percent and NOx by almost 23 percent. Again, it is worth noting that NRDC expects the new EPA rule to require ferries to be rebuilt to this Tier 2 level.

Based on our review of the available technology and our assumptions on the contents of EPA's upcoming new marine diesel rule and its impact on future technology, NRDC has two suggestions to improve Intro. 168-A: First, in Section 1 (c), the bill should explicitly require retrofits and rebuilds to meet the EPA Tier 2 standards, at a minimum. Second, the bill should be expanded to require diesel generators onboard the City's ferries to meet the same requirements as engines on the City's ferries, i.e., to use ULSD and to be retrofit to Tier 2 level, at a minimum.

To sum it all up, New York City fails to meet EPA's health-based air pollution standards for soot and smog. Dirty diesel engines play a major role in this failure to provide cleaner air. As a result, thousands of New Yorkers experience avoidable asthma emergencies, cancers, heart attacks, and even premature deaths every year. The good news is that diesel engines are getting cleaner every day, thanks to new federal rules that are gradually cleaning up these engines, and to local programs that are accelerating the turn-over of today's dirty diesels and requiring their retrofit or replacement with cleaner models. New York City is playing a major role in this transition, thanks to its Local Laws that require construction equipment, buses, sanitation trucks and other publicly-owned diesel vehicles to be cleaned up.

The bottom line is this: Diesel ferries should be cleaner, they can be cleaner, and if Intro. 168-A becomes law, they will be cleaner.

Thank you for the opportunity to testify.

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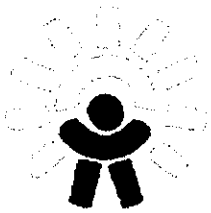
[1] NYSERDA, *NYC Private Ferry Fleet Emissions Reduction Technology Study and Demonstration*, Final Report 06-15, September 2006.



THE Children's Health FUND

New York City Council
Committee on Environmental Protection
December 17, 2007
250 Broadway, 14th Floor
New York, NY

Irwin Redlener, M.D.
Co-Founder and President, The Children's Health Fund
Associate Dean, Columbia University
Mailman School of Public Health

The Children's Health Fund appreciates this opportunity to come before the City Council Committee on Environmental Protection to speak on behalf of Int. No.168, which proposes to amend the administrative code to support the use of ultra low sulfur diesel fuel and optimal available technology to reduce emission of pollutants by diesel fuel-powered ferries in Lower Manhattan. By making investments to retrofit ferry engines and install high-grade particulate filters, we will be able to reduce dangerous emissions by 90% and improve air quality, especially for children suffering from or at risk for asthma.

While consistently breathing diesel fuel is potentially deleterious to all, it is especially problematic for people with asthma. A study just published in the December 6, 2007 issue of the *New England Journal of Medicine* found that exposure to diesel traffic had a negative impact on the lung function of people with asthma. Those with more severe asthma suffered more severe consequences than did people with mild asthma. Another recent study (2006) published in the *American Journal of Emergency Medicine* found that exposure specific air pollutants – sulfur dioxide, nitrogen dioxide, ozone, carbon monoxide, and small particulate matter increased the likelihood that children with asthma would require an emergency room visit for an acute asthma attack.

Asthma is second only to dental caries as the most common acute condition in childhood. Pediatric asthma rates in some of New York's inner city communities is in excess of 30%, based on research from The Children's Health Fund and The Harlem Children's Zone, among others. It is consistent with these findings about air pollutants in general and

diesel fuel in particular that the city's highest asthma hospitalization rate, according to data from the New York City Department of Health and Mental Hygiene, is in the East Harlem community. East Harlem is heavily trafficked by diesel fuel emitting vehicles, including some under the control of New York City. In the Bronx, these data show the highest rate for the South Bronx communities which are also most heavily trafficked by diesel fuel emitting vehicles.

The Children's Health Fund, along with its NYC-based programs, The New York Children's Health Project, the South Bronx Health Center for Children and Families and the Harlem Children's Health Project, strongly support the City Council efforts, led by Council Member Alan Gerson, to reduce exposure to diesel fuel throughout the City. These pollutants contribute to excessive rates of asthma and as such represent an important threat to the health of our children.

# # #

CAPTAIN JAMES DESIMONE
CHIEF OPERATING OFFICER – STATEN ISLAND FERRY
NEW YORK CITY DEPARTMENT OF TRANSPORTATION

HEARING BEFORE THE CITY COUNCIL
COMMITTEE ON ENVIRONMENTAL PROTECTION
DECEMBER 17, 2007

Good afternoon, Chairman Gennaro and Members of the Committee, I am Captain James DeSimone, Chief Operating Officer for the Staten Island Ferry at the New York City Department of Transportation ("DOT") and with me here today is Carter Strickland, Senior Policy Advisor for Air and Water in the Mayor's Office of Long Term Planning and Sustainability. Thank you for inviting us here today to testify on Proposed Intro 168-A that relates to the use of ultra low sulfur diesel and the best available technology for reducing the emission of pollutants by diesel fuel-powered ferries. We are happy to be here and look forward to the opportunity to work with the Council on this important legislation.

First, let me begin by saying that I think we can all take great pride in the fact that the City of New York's ferry system is today the most advanced in the nation insofar as initiatives taken to reduce emissions and improve air quality. That said, the City's waterways offer capacity for additional mass transit, and for that reason ferries are an important component of PlaNYC's goals to reduce congestion and travel times for many New York City residents and its goal to achieve the best air quality of any large city. The use of ferries has a long and reliable track record in the City. The Staten Island Ferry has been a municipal service since 1905, and currently carries approximately 19 million passengers in 33,000 trips made annually on the 5.2-mile run between the St. George Terminal on Staten Island and the Whitehall Terminal in lower Manhattan. This service is provided 24 hours a day, 365 days a year. The Staten Island Ferry is one of the most reliable forms of mass transit, with a peak rush hour on-time performance of almost 94%, current calendar year to date.

The Staten Island Ferry fleet is comprised of eight vessels. The newest are the Molinari Class, the Guy V. Molinari, the Sen. John J. Marchi, and the Spirit of America, which entered service in 2005 and 2006, can carry up to 4,400 passengers, and are powered with a diesel-electrical propulsion plant of 9,000 horsepower. The Barberi Class, the Andrew J. Barberi and the Samuel I. Newhouse, entered service in 1981 and 1982 respectively, can carry up to 6,000 passengers, and are powered with direct-drive diesel propulsion plant of 7,000 horsepower. The Austen Class, the Alice Austen and the John A. Noble, entered service in 1986, can carry up to 1,280 passengers and are powered with a direct-drive diesel propulsion plant of 3,200 horsepower. The John F. Kennedy entered service in 1965, can carry up to 3,500 passengers, and is powered with a diesel-electric propulsion plant of 6,500 horsepower.

Depending on class, the Staten Island ferries are fitted with two, three or four diesel engines. The principal pollutants of concern from marine engines are nitrogen oxides ("NOx") and particulate matter ("PM"). These pollutants are addressed through different techniques, which I will describe below. As with all diesels, improvements have three interdependent components: improved engines that meet certain emissions standards, filters and emissions control devices on the exhaust system, and fuel with lower sulfur content. I do want to emphasize, however, that control of these pollutants from marine vessels, with their unique operating conditions and larger size engines, cannot and do not directly apply technologies applicable to off-road land engines.

As I stated earlier, I think we can all take great pride in the fact that the City of New York's ferry system is today the most advanced in the nation insofar as initiatives taken to reduce emissions and improve air quality. There is no other public or private ferry system that can match the enhancements made to date, those underway and those planned for the near term to make its ferries more environmentally friendly.

First, DOT initiated a project two years ago to upgrade all main engines to the U.S. Environmental Protection Agency's ("EPA's") Tier 1 emissions standards for marine engines on its existing ferries. EPA's Tier 1 emission standards are equivalent to the internationally-negotiated MARPOL Annex VI agreement, became effective in 2004. These standards provide for NOx reductions only. The engine upgrade project is being funded through an agreement with the Port Authority of New York and New Jersey, which sought cost-effective methods to offset NOx emissions from its marine operations.

At the present time, three (3) vessels have been upgraded and the Port Authority is now in the final stages of concluding a follow-on contract to address the balance of the fleet. We anticipate that this project will be completed in FY '09, but note that we are dependent on Port Authority contracting. The initial project called for upgrading to Tier 1 because the Port Authority's Request for Proposals to upgrade the ferry engines to higher Tier 2 standards did not receive adequate responses. Nevertheless, we have continued to work with the Port Authority in this regard and are pleased to report that the pending follow-on contract for the Molinari Class and the ferryboat John F. Kennedy should be able to bring the Molinari Class engines up to Tier 2 standards and the Kennedy engines up to Tier 1.

Given the dynamic nature of this evolving technology, we have proceeded deliberately with the utmost concern for safety and reliability. Of paramount importance to the Administration is the safety and efficiency of these operations; we do not want to experiment with any technology that would strand several thousand passengers in the middle of New York Harbor. Nevertheless, we intend to follow our schedule for engine upgrades to the extent allowable by available technology and safety concerns.

Also, DOT, working with the Port Authority, did experiment and install a selective catalyst reduction ("SCR") and a diesel oxidation catalyst ("DOC") on the Alice Austen. These devices were meant to pilot techniques that would go beyond applicable Tier 1 engine standards

by addressing PM and achieving further NOx reductions. The complexity of installing such a system and related equipment and the necessity of building one-of-a-kind parts meant that the costs escalated to over $1.2 million for retrofitting just this one vessel. Based on that experience, DOT has concluded that SCR technology is not feasible and is not a cost-effective way to reduce pollution. As a result of that installation, however, DOT is planning to install DOCs on the remaining vessels, as described in greater detail below. DOT also analyzed the use of "diesel particulate filters" or DPFs, but concluded these would cause back pressure problems, and have no track record because they have not been used in any marine applications. All of the above, including engine upgrades, will result in PM reductions as well.

Second, DOT has analyzed the use of Ultra Low Sulfur Diesel ("ULSD"). Sulfur is one of the most problematic constituents of fuel, causing problems in its own right and interfering with pollution control devices, and ULSD addresses those problems by capping sulfur content at 15 parts per million. This compares favorably with typical marine fuels that currently contain several thousand parts per million sulfur. The Staten Island Ferry has begun utilizing Ultra Low Sulfur Diesel on the ferryboat John F. Kennedy. This trial began in mid-2007 to ensure that the fleet wide transition to Ultra Low Sulfur Diesel would go smoothly and without any problems, and DOT is ready to transition the remainder of the fleet to this fuel.

At the present time, a multi-year fuel contract for the Staten Island Ferry Division is at the Financial Control Board, and after that review will proceed to the Comptroller's Office for further review before registration. We anticipate transitioning the entire fleet to ULSD within the first quarter of CY '08. The switch to this fuel will produced immediate benefits to city residents. Even if no engine or emissions control device changes are made, ULSD use alone is capable of reducing engine-out PM emissions by several percentage points. This pioneering change in fuel comes many years before the EPA's 2012 deadline for the use of Ultra Low

Sulfur Diesel by ferries and leapfrogs over the EPA's interim schedule for the use of Low Sulfur Diesel (500 ppm).

In addition, this month, DOT has started purchasing fuel under a contract that requires five percent (5%) biodiesel, fuel made from non-petroleum biological sources. Biodiesel contains no sulfur and can be produced locally, and the City's use of this fuel will promote a sustainable and independent energy market.

Third, DOT plans to retrofit all main engines with DOCs to reduce the amount of PM pollution emitted. These DOC units, however, are not "off-the-shelf" items and must, therefore, be carefully designed for the particular application. The Port Authority has agreed to fund the consultant services for the DOC design development and installation, and we anticipate a consulting services agreement to be concluded by them within the next month or so. Following this, a design review will commence, a technical specification will be developed and a DOC prototype will be manufactured according to such design review and technical specification which will then be tested at a leading national research institute.

Assuming a successful test, the design and installation plans will then be submitted to the U.S. Coast Guard and American Bureau of Shipping for approval, after which a schedule for installation will be confirmed. It is anticipated that the entire design and installation process could take at least thirty-six (36) months, and the total cost to retrofit all eight ferryboats with DOCs is estimated at between $2.5 to $3 million.

DOT is committed to continuing its search for cutting-edge technology to address the emissions of its fleet of ferries. While we are pioneering advanced technologies, however, we must remember that the realities of the marine vessel market pose unique challenges. DOT is committed to making prudent investments in pollution reduction policies and to ensuring the safe and reliable operation of its ferries.

The Administration believes that the Ultra Low Sulfur Diesel provision is feasible, based on our current plans. We may have some technical amendments to suggest. Additionally, I would also like to note that we do have concerns regarding the "best available technology" or BAT mandate. We would want to make sure that the BAT concept as used in Proposed Intro 168-A would reflect the realities of the marine vessel market, yet would be consistent with other local laws. The City must retain the discretion to make prudent investments in pollution reduction policies and ensure the safety and reliable operation of its ferries. We look forward to working with the Council on drafting language to reflect this and other points.

Additionally, we have concerns about the mandate to buy boats that exceed Tier 2 standards by 85 percent (85%). It is our understanding that no such ferries exist, and it is unclear whether any are planned. Tier 1 emission standards, which are equivalent to the internationally-negotiated MARPOL Annex VI agreement, became effective in 2004; Tier 2 standards, which are more stringent than MARPOL Annex VI, became effective between 2004 and 2007, depending upon engine size. Despite the existence of an EPA program called "Blue Sky Series" to permit manufacturers to certify that their engines outperform current Tier 2 standards, to our knowledge, few if any manufacturers have registered with this program or have otherwise committed to building ferries that exceed Tier 2 standards by 85 percent (85%).

Moreover, the EPA has not yet published Tier 3 or Tier 4 emission standards for marine engines, and it is our understanding that the draft rules under consideration would next require Tier 3 engines to reduce NOx plus hydrocarbon output by 20 percent (20%) and PM by 50 percent (50%) from current Tier 2 levels. Manufacturers would have until 2014 to 2017 to produce Tier 4 engines that will reduce NOx output by 80 percent (80%) and PM output by 90 percent (90%) from current Tier 2 levels. Proposed Intro 168-A sets standards that are likely not achievable by manufacturers. To ensure the continued safety and effectiveness of our ferry fleet, the City must retain the ability to purchase commercially-available vessels at a reasonable price.

Finally, the Administration would ask the Council to amend the narrative performance standards, which express a preference for reducing particulate matter over nitrogen oxides. By definition all criteria pollutants are important factors in environmental quality and public health, and an inflexible hierarchy of preferences may lead to bad policy. Moreover, the standards would prevent the City from adopting any technology or practice if either pollutant would increase by a statistical error that shows itself as an increase. We may want to modify this to account for the fact that certain retrofit or other technologies or fuels may produce a large decrease in one pollutant in exchange for a slight increase within the range of statistical error.

Again, we look forward to working with the Council on this legislation and at this time we would be happy to answer any questions that you may have.

Testimony of Sprague Energy

Before the Committee on Environmental Protection
The Council of the City of New York
December 17, 2007

On Int. No. 168: a Local Law to amend the administrative code of the City of New York, in relation to the use of ultra low sulfur diesel fuel and the best available technology for reducing the emission of pollutants by diesel fuel-powered ferries owned by, operated by or on behalf of, or leased by the city.

Thank you for the opportunity to provide testimony on Local Law Int. No. 168. My name is Steven J. Levy, and I am a Managing Director of Sprague Energy. As many of you are aware, both I and Sprague Energy are very much advocates for the use of Ultra Low Sulfur Diesel fuel (ULSD) for both on-road and off-road diesel powered equipment including marine use and the City of New York ferries.

Sprague Energy has offices in New York with its headquarters located in Portsmouth, New Hampshire. Sprague is a privately held energy company with fuel supply terminals throughout Northeastern United States. Sprague has been managing the energy needs of our customers for over 130 years. Sprague is the largest supplier of commercial motor fuels in the City of New York, distributing to both private and government entities as City Agencies Port Authority of New York and New Jersey, MTA New York City Transit, Metro-North Railroad, Triborough Bridge and Tunnel Authority and Long Island Rail Road. Sprague provides its customers with a variety of both conventional and clean fuels, including ULSD, biodiesel, bioheat and ethanol (E85). Sprague has pioneered the use of ULSD in the United States and continues to be a leading supplier. Sprague began supplying ULSD in 1998, and ULSD became a mainstream product for Sprague in 2000, ten years before the Federal mandate for all on-road and off-road use of ULSD, six years prior to the United States Environmental Protection Agency (EPA) refiner mandate and twelve years before the EPA marine and locomotive mandate.

Sprague began supplying ULSD to the City of New York in 2001. In 2003, under the leadership of City Councilman James Gennaro, City Council and Mayor Bloomberg, the City passed legislation mandating ULSD for several on-road and off-road uses. During those years, there was also a concern over ULSD supply. If the City awards its fuel requirements to financially responsible and experienced suppliers, past experience illustrates there should not be a supply concern.

Today, although the EPA maximum sulfur content is 15 parts per million (ppm), surveys have concluded that the average sulfur content of ULSD is 7.7 ppm, or one-half the 15 ppm sulfur maximum limit. Additionally, although the EPA mandated a minimum 80 percent of refinery diesel production be ULSD, it is estimated that 94 percent of all U.S. highway diesel fuel is now

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ULSD. Additionally, although ULSD has not been shipped to the Northeastern United States on the Colonial Pipeline, the major pipeline shipment company transporting petroleum products from the Gulf Coast to the Northeast, there has been ample supply of ULSD. It is anticipated Colonial Pipeline ULSD movements to the Northeast will begin by the fourth quarter of 2008, thereby providing additional ULSD supply. As the supply of ULSD has been growing, the supply of 500 ppm, low sulfur diesel fuel, has been declining.

Although there has not been a ULSD supply interruption since the widespread introduction of ULSD nationally in October 2006, there were reports of localized instances of winter operability issues during the winter season of 2006-2007. This issue has been attributed to the lack of proper winterization of the fuel and has not been specifically attributed to the sulfur content of the diesel fuel. There have also been questions as to the lubricity characteristics of ULSD. These questions have been addressed over the years by the introduction of lubricity additives into the fuel to meet American Society for Testing and Materials (ASTM) specifications as well as some suppliers, such as Sprague, exceeding ASTM and engine manufacturer specifications to ensure sufficient lubricity.

ULSD has been enormously successful in achieving lower emissions whether utilized alone or with an emission control device. The fuel has been used as an enabler for emission control devices as well as solely to significantly reduce emissions. As a result, New York citizens are no longer observing black smoke spewing from diesel equipment.

The reality is that diesel fuel still drives America. Its vital role in our economy, quality of life and national security is due to the wide range of performance, efficiency and safety benefits it offers as an energy source. For that matter, ULSD continues to be the clean fuel of choice. It is a proven product which requires no infrastructure modifications and when utilized immediate emission reductions are recognized. ULSD has been the gateway to advanced emission control devices, which when used together creates the greatest level of emission reductions. ULSD is readily available and, given the operating similarities to conventional diesel, owners/operators of diesel-powered vehicles are more comfortable with ULSD than other clean fuels. ULSD utilizes the same supply and distribution infrastructure as conventional diesel. There have been no incidents of fuel users going without fuel, due to ample supply of ULSD. It should also be stated, biodiesel blends very well with ULSD when properly administered.

Thank you for your consideration of Local Law Int. No. 168. We look forward to assisting the City of New York in any way we can.

AMERICAN LUNG ASSOCIATION®
of the City of New York, Inc.

Testimony of
Michael Seilback, Senior Director of Public Policy & Advocacy,
American Lung Association of the City of New York
Regarding the use of Ultra Low Sulfur Diesel and Best Available Retrofit Technology for Ferries Owned, Operated, Leased or Used on Behalf of the City

December 17, 2007

For more than 100 years, the American Lung Association of the City of New York has worked to prevent lung disease and promote lung health among the residents of the five boroughs. In that regard, on behalf of the organization, I am pleased to provide the following testimony in support of Intro 168, which would mandate the use of ultra low sulfur diesel and best available retrofit technology for New York City's owned and operated ferry fleet.

This resolution would continue the City's successful efforts to battle diesel pollution in New York. The Council's leadership on a suite of diesel clean up bills including Local Laws 42 and 77 have led to efforts duplicated across the New York metropolitan area to clean up our neighbor's municipal fleets. These efforts will surely lead to cleaner air for all of us to breathe. However, we must ensure that as the City continues to rely on expanded mass transit options, we make certain that these new alternatives are also clean. New Yorkers have come to rely more and more on ferry service and it is as important to clean up this diesel fleet on water, as it has been to clean up our on-road fleets. Over a five year period, this legislation would change over the entire ferry fleet to cleaner fuel and technology.

NYSERDA's research on New York's private ferry fleet has shown that technology is currently available which would meet the requirements of this legislation. In fact, their testing has shown that full deployment of this program could to lead to decreased NOx emissions of over 12 tons/year, PM 2.5 of 3 tons/year and hydrocarbons of 56 tons/year. Passing this legislation would have a demonstrable effect on the air we breathe.

The fact is that more than eight million residents of New York City are exposed to some of the dirtiest air in the nation. Year after year the American Lung Association State of the Air report shows that the outdoor air quality in the five boroughs is toxic.

The State of the Air report is a county-by-county report card on the two most pervasive air pollutants: particle pollution (soot) and ozone (smog). Long term exposure to both of these pollutants can permanently damage lung tissue and has been shown to shorten lives. This year, the report ranked the New York metropolitan area on the top-ten list for cities with the worst ozone pollution and it ranked in the top 20 for worst areas most polluted by particle pollution.

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When inhaled deeply, fine particulates become lodged deep in the lungs, causing asthma attacks, wheezing, coughing and respiratory irritation. Children are particularly susceptible to the effects of particle pollution since they breathe fifty five percent more air per pound of body weight than adults and they are more likely to be active outdoors.

The reality is that our lungs simply weren't made to breathe the levels of pollution New Yorkers are forced to inhale. At the American Lung Association of the City of New York we're at the front lines of its impact.

The Association works on behalf of the more than two million residents who struggle with diseases like emphysema, chronic obstructive pulmonary disease and asthma, all worsened by the simple act of taking a deep breath on a bad air day. In particular, of the one million residents who have been diagnosed with asthma, 300,000 are children. Asthma is the leading cause of school absenteeism among school-aged children, and in some communities it has reached epidemic proportions affecting one in four families.

For a city like ours to be committed to the fight against asthma, we must do everything we can to reduce exposure to poor air. By cleaning up the City's ferry fleet, we are taking one further step in creating cleaner air for New Yorkers to breathe.

The American Lung Association of the City of New York is pleased to work with our elected leadership to clean up our ferry fleet and ensure that we allow all New York City residents to breathe easier.

Thank you.

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ENVIRONMENTAL DEFENSE

finding the ways that work

Testimony of Environmental Defense to the New York City Council, Committee on Environmental Protection

Regarding Intro 168 – In relation to the use of ultra low sulfur diesel fuel and the best available technology for reducing the emission of pollutants by diesel fuel-powered ferries owned by, operated by or on behalf of, or leased by the city.

Prepared by Isabelle B. Silverman, Attorney with Environmental Defense[1],
and presented at Public Hearing on December 17, 2007

Introduction

Thank you for the opportunity to testify today. Environmental Defense strongly supports efforts to reduce harmful air pollution from New York City's ferries. Although ferry service is essential, for example, to connect Staten Island with downtown Manhattan, ferries' diesel emissions are responsible for significant amounts of nitrogen oxides (NOx), particulate matter (especially $PM_{2.5}$) and other pollutants. Unfortunately, the sight of black soot coming out of ferries' smokestacks is all too familiar. Ferry emissions put ferry riders' and operators' health at risk.

Diesel emissions include more than 40 toxic substances, smog-forming emissions, soot, unburned hydrocarbons and other harmful byproducts -- many of which are known carcinogens. Diesel engines contribute to a laundry list of adverse health effects, including dizziness, increased incidence and severity of asthma attacks, chronic bronchitis, coughing, and symptoms associated with cardiovascular disease, cancer risk and even premature death. Not surprisingly, New York City's asthma hospitalization rates are twice the national average.

Given that New York City fails to meet federal health-based air quality standards for ozone and fine particulate matter ($PM_{2.5}$), we need to take every step we can to clean up the air, from congestion pricing to reducing ferry emissions.

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[1] Environmental Defense is a national non-profit environmental organization headquartered in New York City, with 400,000 members around the country and 40,000 members and activists in New York. The Living Cities program at Environmental Defense is dedicated to practical solutions that secure clean air, water and lands in urban areas like New York.

Suggested Modifications To Intro 168

Although Environmental Defense is supportive of Intro 168, we are suggesting *technologically feasible* modifications to achieve the greatest air quality benefits. Intro 168 was modeled after local laws[2] regarding the retrofitting of onroad and offroad land-based diesel vehicles and the use of ultra low sulfur diesel fuel (ULSD). Because land-based retrofit applications are different from marine applications, Intro 168 needs to have certain modifications reflecting the more difficult marine market. As the 2005 NYSERDA study regarding private ferry retrofits shows, ferry engines are more challenging to retrofit than onroad or offroad land-based engines.

Ultra Low Sulfur Diesel Fuel Is Now Widely Available

First of all, since those local laws regarding retrofits and the use of ULSD were passed in 2003 and 2005 respectively, ultra low sulfur diesel fuel (ULSD) with sulfur content of no more than 15ppm has become mandatory for on-highway diesel vehicles. Hence, ULSD is now widely available and any exceptions in Intro 168 regarding the availability of ULSD should be taken out. There should be no problem for ferries to power their engines and generators with ULSD.

Require Engine Upgrade To Meet Tier II Standards And Engine Retrofit

While reducing 85% of onroad and offroad engine particulate matter emissions with a diesel particulate filter (DPF) has become commonplace, the NYSERDA study shows that retrofitting ferry diesel engines with DPFs is challenging. Indeed, according to the study, it was not technologically feasible to install DPFs so engine upgrades/repowers to meet federal Tier II 2007 air quality standards in combination with diesel oxidation catalysts (DOCs) were used. Offroad engines have been divided into Tier 0, Tier 1 and Tier 2 engines. Tier 2 engines are the cleanest ~~offroad~~ marine engines currently available. Tier 3 and Tier 4 engines are coming out in the near future.

As to Intro 168, it is crucial to require an engine upgrade/repower *and* a retrofit (Intro 168 refers to it as "best available technology") because the retrofit alone (which at this point will most likely be a DOC), will only reduce 20-25% of total particulate matter emissions. An engine upgrade, on the other hand, will also reduce NOx and PM emissions. For example, an engine upgrade from Tier 0 to Tier II will eliminate 84% of PM and 69% of NOx emissions. These are results that cannot be achieved only with a DOC.

Unlike a DPF, DOCs do not trap particulate matter but, with the help of a chemical reaction, strip off the soluble organic fraction (SOF) from the particulate matter. Although DOCs help making $PM_{2.5}$ particles get smaller (i.e. reduce the total mass of the $PM_{2.5}$), $PM_{2.5}$ particles can still escape into the air and lodge deep in our lungs causing health problems. As a result, we can achieve the greatest air pollution and health benefits by combining an engine upgrade or repower with a retrofit (installation of best available technology).

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[2] Local Law 77-2003, Local Laws 39, 40, 41 & 42-2005,

The U.S. EPA and California Air Resource Board (CARB) have verified that DPFs typically reduce more than 85% of particulate matter emissions (including $PM_{2.5}$) and DOCs typically only reduce between 20-25% of total particulate matter emissions. DPFs are most effective because they are filters trapping particulate matter emissions (e.g. $PM_{2.5}$).

Diesel Generators On Ferries Also Need Engine Upgrade/Retrofits

Because ferries sometimes also have diesel generators for electricity production on board, those diesel engines need to be included in Intro 168. Diesel generators are simple applications so the law should require the installation of best available technology (retrofit) to achieve an 85% PM reduction for all diesel generators on the ferries as well as the use of ULSD. Currently, an 85% reduction would require the installation of a DPF – which is technologically feasible as this is a common application. Generators meeting Tier 3 or Tier 4 offroad standards would be excluded from this retrofit requirement.

Environmental Defense Cautions About The Use Of Heavy Metal Based Fuel Borne Catalysts As Fuel Additives

For the 2005 NYSERDA study, a platinum-based fuel borne catalyst (FBC) was used as a fuel additive in combination with a DOC. Because platinum is a heavy metal which can have detrimental health effects when airborne, Environmental Defense does not recommend using FBCs with DOCs. FBCs should only be used in combination with a DPF so that the platinum gets trapped in the filter. Since a DOC is not a filter, the platinum in the fuel additive can escape into the air.

Emissions

The entire bill should refer to emission*s* in plural rather than only emission in singular since diesel emissions contain many different pollutants.

Conclusion

Environmental Defense is committed to working with the City Council to clarify Intro 168 and we have also attached below our suggested modifications to Intro 168 to these comments. We look forward to continued cooperation with the City Council and the Bloomberg Administration to achieving the greatest emissions reductions and health benefits.

For questions or further information, please contact Isabelle Silverman, Attorney at Environmental Defense, at 212-616-1337 or isilverman@environmentaldefense.org.

Environmental Defense REDLINED Modifications:

Proposed Int. No. 168-A

By Council Members Gerson, Yassky, Avella, Brewer, Fidler, Gentile, James, Koppell, Mark-Viverito, Martinez, McMahon, Monserrate, Nelson, Recchia Jr., Sanders Jr., Weprin, Felder, and Foster

A LOCAL LAW

To amend the administrative code of the city of New York, in relation to the use of ultra low sulfur diesel fuel and the best available technology for reducing the emissions of pollutants by diesel fuel-powered ferries owned by, operated by or on behalf of, or leased by the city.

Be it enacted by the Council as follows:

Section 1. Title 19 of the administrative code of the city of New York is amended by adding a new section 19-306 to read as follows:

§19-306 Use of ultra low sulfur diesel fuel and best available technology by city ferries. a. For purposes of this section only, the following terms shall have the following meanings:

(1) "Ferry" means any motorized watercraft that is used as a means of commuter passenger mass transportation by water.

(2) "Person" means any natural person, partnership, firm, company, association, joint stock association, corporation or other similar business entity.

(3) "Ultra low sulfur diesel fuel" means diesel fuel that has a sulfur content of no more than fifteen parts per million and meets federal on-highway diesel fuel standards.

(4) "Diesel Generator" means diesel generators that are kept on the ferry for the purpose of generating electricity.

b. As of July 1, 2008, every diesel fuel-powered ferry owned by, operated by or on behalf of, or leased by the city shall be powered by ultra low sulfur diesel fuel.

c. Diesel fuel-powered ferries owned by, operated by or on behalf of, or leased by the city shall utilize engine upgrades or repowers to meet United States environmental protection agency's Tier II 2007 air quality standards for marine engines if the engines are not already meeting those standards; and in addition to the upgrade, each engine shall utilize the best available technology for reducing the emissions of pollutants in accordance with the following schedule:

(1) two such ferries shall meet Tier II 2007 standards and utilize best available technology by July 1, 2008;

(2) three such ferries shall meet Tier II 2007 standards and utilize best available technology by January 1, 2009;

(3) four such ferries shall meet Tier II 2007 standards and utilize best available technology by July 1, 2009;

(4) five such ferries shall meet Tier II 2007 standards and utilize best available technology by January 1, 2010.

(5) all such ferries shall meet Tier II 2007 standards and utilize best available technology by July 1, 2010.

d. All diesel generators shall utilize ultra low sulfur diesel fuel and best available technology that has been verified by EPA or CARB to reduce at least 85% of diesel particulate matter emissions.

e. (1) Any diesel fuel-powered ferry that is purchased, newly operated by or on behalf of, or newly leased by the city after the effective date of this section shall exceed the United States environmental protection agency's Tier II 2007 air quality standards for marine engines by at least eighty-five percent.

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(2) Any diesel fuel-powered ferry owned by, operated by or on behalf of, or leased by the city that exceeds the United States environmental protection agency's Tier II 2007 air quality standards for marine engines by at least eighty-five percent shall be exempt from the requirements of subdivision c of this section.

f. (1) The commissioner shall make determinations, subject to the written approval of the commissioner of environmental protection, and shall publish a list of such determinations, as to the best available technology to be used for each type of ferry to which this section applies for the purposes of subdivision c of this section. Each such determination, which shall be reviewed and revised as needed, but in no event less often than once every six months, shall be primarily based upon the reduction in emissions of particulate matter and secondarily based upon the reduction in emissions of nitrogen oxides associated with the use of such technology and shall in no event result in an increase in the emissions of either such pollutant.

(2) The city shall not be required to replace best available technology for reducing the emission of pollutants or other authorized technology utilized for a diesel fuel-powered ferry in accordance with the provisions of this section within three years of having first utilized such technology for such ferry.

g. This section shall not apply:

(1) where federal or state funding precludes the city from imposing the requirements of this section; or

(2) to purchases that are emergency procurements pursuant to section three hundred fifteen of the charter.

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Deleted: g. The commissioner shall issue a written determination that permits the use of diesel fuel that has a sulfur content of no more than thirty parts per million to fulfill the requirements of subdivision b of this section if ultra low sulfur diesel fuel is not available to meet the needs of the city to comply with that subdivision. Such determination shall expire after six months but may be renewed in writing every six months if ultra low sulfur diesel fuel continues to be available to meet the needs of the city, but in no event shall such a determination be in effect after September 1, 2008.

h. Subdivision c of this section shall not apply to a diesel fuel-powered ferry where the city makes a written finding, which is approved in writing by the commissioner and the commissioner of environmental protection, that the best available technology for reducing the emission of pollutants as required by that subdivision is unavailable for such ferry, in which case the city shall use whatever technology for reducing the emission of pollutants, if any, is available and appropriate for such ferry.

i. In determining which technology to use for the purposes of subdivision i of this section, the city shall primarily consider the reduction in emissions of particulate matter and secondarily consider the reduction in emissions of nitrogen oxides associated with the use of such technology, which shall in no event result in an increase in the emissions of either such pollutant.

j. Any finding made pursuant to subdivision i of this section shall expire after six months, at which time the requirements of subdivision c of this section shall be in full force and effect unless the city renews the finding, in writing, and the commissioner and commissioner of environmental protection approve such finding, in writing.

k. (1) On or before October 1, 2008, and every succeeding October 1 thereafter, the mayor shall submit to the comptroller and the speaker of the council a report regarding the use of ultra low sulfur diesel fuel, engine upgrades to meet federal Tier II 2007 air quality standards for marine engines, and the installation of best available technology for reducing the emissions of pollutants and such other authorized technology in accordance with this section for diesel fuel-powered ferries owned by, operated by or on behalf of, or leased by the city during the immediately preceding fiscal year. The information contained in this report shall also be included in the mayor's preliminary

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management report and the mayor's management report for the relevant fiscal year and shall include, but not be limited to: (i) the total number of diesel fuel-powered ferries owned by, operated by or on behalf of, or leased by the city; (ii) the number of such diesel-fuel powered ferries that were powered by ultra low sulfur diesel fuel; (iii) the number of such diesel-fuel powered ferries that have utilized an engine upgrade to meet federal Tier II marine engine standards; and (iv) the number of such diesel-fuel powered ferries that have utilized the best available technology for reducing the emission of pollutants, including a breakdown by the type of technology used for each ferry model; (iv) the number of such diesel fuel-powered ferries that utilized other authorized technology in accordance with this section, including a breakdown by the type of technology used for each ferry model; (v) the number of ferries purchased, newly operated by or on behalf of, or newly leased by the city after the effective date of this section and whether or not such ferries are eighty-five percent cleaner than the United States environmental protection agency's Tier II 2007 air quality standards for marine engines; (vi) all findings, and renewals of such findings, issued pursuant to subdivision h of this section, which, for each finding and renewal, shall include, but not be limited to, the quantity of diesel fuel needed to power diesel fuel-powered ferries owned by, operated by or on behalf of, or leased by the city; specific information concerning the availability of ultra low sulfur diesel fuel; and (vii) all findings and renewals of such findings issued pursuant to subdivision i of this section, which shall include, but not be limited to, all specific information submitted by the city upon which such findings and renewals are based and the type of other authorized technology, if any, utilized in

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accordance with this section in relation to each finding and renewal, instead of the best available technology for reducing the emissions of pollutants.

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§2. If any section, subdivision, sentence, clause, phrase or other portion of this local law is, for any reason, declared unconstitutional or invalid, in whole or in part, by any court of competent jurisdiction, such portion shall be deemed severable, and such unconstitutionality or invalidity shall not affect the validity of the remaining portions of this law, which remaining portions shall continue in full force and effect.

§3. This local law shall take effect ninety days after enactment, except that the commissioner of transportation shall take all actions necessary, including the publishing of a list determining the best available technology to be used for each type of ferry and the promulgation of rules, to implement this local law on or before such effective date.

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