Federal Advisory Committee Act
Clean Air Act Advisory Committee

Mobile Sources Technical Review Subcommittee

December 3, 2015
Port of Long Beach Maintenance Facility building
725 Harbor Plaza
Long Beach, CA 90802

Introduction/Opening Remarks

Ms. Gay MacGregor called the meeting to order at approximately 9:00 am on December 3, 2015, reviewed the agenda, and asked all workgroup members and persons in attendance to introduce themselves. The list of meeting attendees is provided in the appendix.

Office of Transportation and Air Quality Update

The Director of the EPA's Office of Transportation and Air Quality (OTAQ), Mr. Chris Grundler, thanked subcommittee members for their attendance and provided an update on EPA activities. Mr. Grundler stated that the investigation into Volkswagen emissions standards violations is ongoing. He emphasized the importance for the environment and consumers that the EPA maintains a comprehensive and rigorous inspections and oversight program.

Mr. Grundler stated that the final Phase 2 Greenhouse Gas (GHG) Emissions Standards and Fuel Efficiency Standards for Medium- and Heavy-Duty Engines and Vehicles are expected to be published in the middle of 2016. He stated that over 1 billion tons of carbon dioxide (CO_2) reductions are expected over the life of the program. He noted that the EPA is currently holding hearings and addressing comments related to the proposed standards. Mr. Grundler stated that the EPA is conducting a rigorous midterm evaluation of the Light-duty Vehicle Standards for model years 2022-2025 and will make a determination by 2018 on whether the standards are appropriate, overly stringent, or not stringent enough.

Mr. Grundler remarked that the EPA published the final Renewable Fuel Standards on November 30, 2015. Mr. Grundler stated that the final standards strike a balance between the reality of biofuel availability and the goals for advancing its use. He further stated that the final standards are pro-growth and will require two billion more gallons of renewable fuel in 2016 than in 2014.

Mr. Grundler stated that the EPA is working on an endangerment finding for GHG emissions from aircraft. The EPA is expecting the International Civil Aviation Organization (ICAO) to finalize international CO_2 standards for aircraft, and the EPA will evaluate whether to adopt this international standard in the U.S.

Mr. Grundler expressed appreciation to the Ports Workgroup for their efforts. He emphasized the importance of focusing on air quality at specific geographical areas rather than focusing solely on setting national air quality standards. Mr. Grundler stated that the Ports Workgroup is working to develop recommendations for a voluntary ports program, and he commented that the goal of such a program would be to encourage strategies that produce emissions reductions and improve air quality in a meaningful way. He emphasized the importance of accountability and tools to measure progress in a ports program. Mr. Grundler also noted that ports across the country are seeking federal funding to expand their operations and hoped these infrastructure investments could be implemented in a way that aligns with the values of environmental protection.

Comments and Discussion

Mr. Reynaldo Agama asked what changes had already been implemented by the EPA to address the Volkswagen emissions scandal. Mr. Grundler responded that the EPA has implemented a comprehensive vehicle emissions testing program that includes on-road and laboratory tests and also includes testing done in new and unpredictable ways. He also mentioned that the EPA has been testing all light-duty diesel vehicles on the road, and this testing is nearly complete.

Mr. Mridul Gautam stated that the EPA needs to audit the laboratories that are conducting vehicle emissions tests. Mr. Grundler stated that the EPA does not rely solely on tests conducted by others, and the EPA has a laboratory in Ann Arbor that conducts vehicle emissions tests. Mr. Grundler emphasized the need for laboratory emissions tests in addition to on-road tests. He stated that on-road tests are primarily used for screening purposes and are used in conjunction with other tools. Mr. Agama commented that he applauds the EPA for using this approach, whereas he is less supportive of the decisions of some countries to solely use portable emissions measurement systems (PEMs) to determine compliance.

Mr. Don Anair asked about the amount of resources that the EPA will need to implement additional testing programs in response to the Volkswagen emissions scandal and how the EPA plans to acquire those additional resources. Mr. Grundler responded that the EPA is using the resources needed to operate the testing program and has to make choices on where to allocate funds. He further noted that light-duty diesel vehicles were not a priority in past emission testing programs because they make up only a small percentage of the light-duty fleet.

Mr. Rich Kassel asked if EPA had attempted to quantify excess emissions from heavy duty diesel engines and to recoup them. Mr. Grundler stated that the EPA is working on making these calculations now.

Ms. Pamela Campos asked how the EPA is communicating to help restore and maintain the public's trust and confidence in the EPA's standards. Mr. Grundler responded that the EPA was rethinking its entire approach for compliance evaluation and is also planning to put data in the public realm to help improve transparency regarding compliance. He noted that the EPA is developing tools to allow for greater public access to data and is ensuring that all CBI claims are legitimate.

Presentation: Port of Long Beach Environmental Programs

Mr. Rick Cameron from the Port of Long Beach welcomed everyone to the port and gave a presentation on its environmental programs. The Port of Long Beach is a department of the City of Long Beach but does not receive public funds; instead, the port's revenues are from the leasing of its marine terminals. The port is the second busiest in the world, $180 billion worth of cargo imported through the port annually, and the port is responsible for the creation of 300,000 jobs regionally. The Ports of Long Beach and Los Angeles voluntarily created the San Pedro Bay Ports Clean Air Action Plan (CAAP), which provides a strategy for reducing air pollution emissions from port-related cargo movement.

Sources of port-related emissions include ocean-going vessels, harbor craft, heavy-duty trucks, cargo-handling equipment, and rail locomotives. Clean air progress and goals of the Port of Long Beach were presented, including the port's 2014 and 2023 emission reduction goals for diesel particulate matter (PM), nitrogen oxides (NO_x), and sulfur oxides (SO_x) and the reductions actually achieved by 2014. The port is investing over $4 billion in capital improvements, including the Middle Harbor Terminal Redevelopment Project, which will include terminals with all-electric, remote-controlled yard tractors. The port also plans to use robots to replace batteries for driverless vehicles. The Port of Long Beach has also invested to accelerate the commercial availability of clean technology and is planning the development of Energy Island to supply the port with green power.

Comments and Discussion

Mr. Rashid Shaikh asked if the 2014 emission reductions achieved by the port were based on source data (i.e. modeling) or ambient monitoring. Mr. Cameron responded that the emissions data were source based; however, he noted that the Port of Long Beach has two ambient monitors. Mr. Cameron stated that the data in the presentation does not match the ambient monitoring data, and there is a need to explain the difference between the modeling and monitoring data to the public. Ms. Jacky Grimshaw asked if the ambient monitoring data reflects the source-based emission reductions that were presented. Mr. Cameron stated that the data may reflect the reductions; however, he stated that the monitors measure cumulative emissions from numerous other sources in addition to the port. He stated that the modeling data helps the port focus on the source of emissions. Mr. Barry Wallerstein added that air quality in the area has improved but there is more work that needs to be done.

Mr. Grundler asked if the Port of Long Beach worked its electric utility provider on the Middle Harbor project to address the impact on the electric grid due to increased demand. Mr. Cameron responded that there was adequate capacity at the generator to supply the electricity needed for the project; however, significant work was required to develop the infrastructure needed to transmit electricity from the generator to the port.

Mr. Don Anair asked if the Port's truck incentive program was funded with a fee. Mr. Cameron indicated that there was a fee initially for pre-2007 trucks, and this fee requirements helped advance turnover of the truck fleet.

Mr. Luke Tonachel asked about the portion of the environmental projects at the Port of Long Beach that have been funded by public money. Mr. Cameron responded that all port funds are considered public and added that the port had also received Diesel Emissions Reduction Act (DERA) grants.

Presentation: Macro Port Assessment Overview

Mr. Karl Simon presented an overview of EPA's Macro Port Assessment. He thanked the MSTRS for their input in the development of the assessment.

The purpose of the Macro Port Assessment is to update the EPA's understanding of future national port-related emissions, to assess the effectiveness of technological and operational emission reduction strategies across ports with different emissions profiles, and to inform national policy discussion for port initiatives.

The Macro design includes an estimate of 2011 baseline emissions for various pollutants and an estimate of business-as-usual (BAU) emissions for 2020, 2030, and 2050 (for CO_2 only). Emission reductions were then subtracted from BAU inventories under two scenarios, with scenario B employing more aggressive emission reduction strategies than scenario A. The assessment includes reductions from the EPA's existing regulations, including locomotive and Emissions Control Area (ECA) regulations. The assessment is designed to provide a national picture of port–related emissions trends and does not provide specific data for local decision making at individual ports.

Emission reduction strategies and preliminary results of the Macro Ports Assessment were presented separately for port components excluding non-oceangoing vessels, such as drayage and rail, and for oceangoing vessels. Next steps include the completion of the macro strategy analysis, coordination with the MSTRS Ports Workgroup and others on the roll-out of the assessment and outreach, and finalization of the assessment and documentation.

Comments and Discussion

Mr. Alberto Ayala asked what assumptions were made to determine the penetration of electrification technology in the Macro Ports Assessment. Ms. Patulski responded that the EPA evaluated different technologies that are currently in use and made assumptions on the adoption rate, feasibility, and cost of the technologies. She noted that these assumptions were shared with the MSTRS Ports Workgroup. Mr. Simon stated that the EPA will be transparent with the assumptions used in the Macro Ports Assessment.

Mr. Anair commented that technologies in use at ports and investments in emerging technologies are constantly changing.

Mr. Wallerstein emphasized the difficulty in conducting a macro assessment of ports because of the differences between individual ports and the fact that not all technologies can be used at every port.

Presentation: MSTRS Workgroup Process

Ms. Gay MacGregor gave a presentation on the MSTRS workgroup process.

A workgroup is formed to provide recommendations on a specific issue or set of issues and gives the EPA and the MSTRS the ability to add issue specific expertise and stakeholders. No more than 50 percent of any workgroup can be members of the MSTRS. The MSTRS Ports Workgroup is seeking input on specific issues from the MSTRS. The workgroup will expand and refine recommendations for MSTRS consideration through spring 2016. The workgroup's next step will be to send the recommendations report to the MSTRS for approval to send to the Clean Air Act Advisory Committee (CAAAC). Once approved, the CAAAC will send the workgroup's recommendations to the EPA Administrator.

Ms. MacGregor asked MSTRS members to contact her if they are interested in joining the Ports Workgroup.

Presentation: MSTRS Ports Workgroup, Update for MSTRS

Ms. Lee Kindberg and Mr. Mike Gellar gave a presentation on the MSTRS Ports Workgroup.

The Ports Workgroup is developing recommendations and requests input from the MSTRS. The workgroup is focusing on emissions from ports because millions of people live near ports and rail yards, including a disproportionate number of low-income households; trade is growing and port expansion projects are underway; and emission reduction technologies and strategies at ports have been slow in implementation. The EPA asked the MSTRS for recommendations on the development of an EPA-led voluntary environmental port initiative and how to effectively measure air quality and GHG performance of ports and/or terminals within ports. Overarching questions addressed by the Ports Workgroup include: what are the most important metrics for ports on air quality performance; how to encourage and measure port-community engagement; and how to encourage participants to be part of a ports program, voluntarily reduce emissions, and share data to quantify the results.

Subgroups were created for developing the needs and recommendations in the following areas: definition/scope of a port, technology implementation and barriers, federal agency coordination, port inventories and metrics, strategies for community-port engagement, and program design/structure. The Workgroup's definition/scope of a port and key terminology related to the ports program were presented. Next, information on each subgroup was presented, including: subgroup considerations and progress, draft recommendations, and topics where work is ongoing and input is requested. Next steps of the Ports Workgroup include addressing gaps, finalizing the program design, getting feedback from key stakeholders, and presenting the draft workgroup recommendations to the MSTRS in the spring of 2016.

Comments and Discussion

In reference to the Ports Workgroup's overarching question of how to include emission reductions from voluntary programs into inventories and state implementation plans (SIPs), Ms. Patricia Strabbing suggested that these emission reductions should already be included in inventories. Ms. Kindberg responded that many ports do not have emission inventories and questioned how emission reductions achieved through voluntary programs can be used for SIP credit. Ms. Strabbing asked if ports are part of state emission inventories, and Ms. McGregor responded that inventories are conducted on a regional scale, and ports are not separated from other emission sources. Mr. Wallerstein added that tracking emission reductions from voluntary programs is also a matter of recordkeeping so that companies can receive credit for investing money in air quality programs.

Ms. Kindberg stated that the number one recommendation of the workgroup is the importance of DERA. Ms. Kindberg emphasized the Ports Workgroup's request for input on how to expand DERA funding to inventories and community planning. Mr. Wallerstein stated that the federal budget is shrinking, and DERA funds are already limited. He suggested that other funds, such as those used for EJ projects, could be used for planning purposes. Ms. MacGregor stated that initial constraints should not be placed on the workgroup and noted that DERA, which had resulted from the work of a similar workgroup, was conceived at a time when there were also limited resources. Mr. Grundler questioned whether expanding DERA authority would require statutory authority. Mr. Kassel stated that the Workgroup's recommendation to expand DERA is aspirational and that because DERA funding is limited, the workgroup should consider a broader array of available funding. He noted that there is a freight component of the 2015 Highway and Transportation Funding Act. Ms. MacGregor stated that there is a subgroup within the Ports Workgroup that is working on finding additional funding opportunities, and noted that the Committee on Marine Transportation Systems (CMTS) has developed an inventory of funding opportunities. Mr. Simon suggested that the Ports Workgroup also consider the National Freight Strategic Plan of the Department of Transportation (DOT) and the National Maritime Strategy of the Marine Administration (MARAD) as potential funding sources. Mr. Tonachel stated that ports can only look for funding opportunities if they are aware of them and suggested that the EPA engage in better communication of funding opportunities.

In reference to the Port's Workgroup's recommendation on clarifying the difference between air monitoring and modeling, Mr. Agama suggested that while monitoring and modeling data may not match, monitoring provides more meaningful ambient air quality data. Mr. Gellar responded that monitors can be set up at different locations to get different results. He further stated that monitoring measures emissions from multiple sources, including background ambient air quality, and communication is needed to explain the difference between modeling and monitoring data. Mr. Agama stated that monitoring data may not show emission reductions that were calculated using models. Mr. Wallerstein responded that due to the complex chemistry that leads to the formation of ozone, it can take time for emission reductions to have an impact on ambient ozone concentrations. He added that meteorology and other factors can affect monitoring data. Mr. Wallerstein further stated that monitoring is used to prove attainment of the National Ambient Air Quality Standards (NAAQS), and the only way to develop air quality plans, such as SIPs, is through the use of models and projections.

Ms. Grimshaw asked why the community survey considered by the Ports Workgroup was not pursued. Mr. Gellar responded that it was a decision of the Community Subgroup of the Ports Workgroup, and the community survey might be considered at a later time.

Mr. Gautam asked what the workgroup had considered on the topic of accountability of participants in the ports program. Ms. Kindberg stated that the workgroup is trying to determine how to integrate accountability into the program and is discussing this issue. She noted that there is a need to measure the impact of emission reductions achieved by program participants.

Ms. Simone Sagovac stated that money should not be diverted from emission reduction programs towards community engagement efforts. She also expressed concern that communities are not engaging in the competitive grants process. Ms. Sagovac further stated that to increase political will and support for DERA, funding needs must be quantified and compared with current funding levels. She added that political support can be increased for port air quality projects by showing that their benefits extend beyond the port boundary.

Mr. Shaikh commented on the need to reduce emissions from airports, and he stated that small aircraft use leaded gasoline.

Mr. Anair stated that emission inventories will be a fundamental component of the ports program, and emphasized the importance of funding opportunities to assist in the development of inventories.

Mr. John Viera asked if the air quality improvements at the Port of Long Beach, as presented by Mr. Cameron, are typical for U.S. ports. Mr. Gellar responded that these reductions are not typical and that the Ports of Long Beach and Los Angeles are two of the most progressive ports throughout the country. He also noted that many ports do not have environmental staff or emission inventories.

Mr. Viera asked if the Ports Workgroup had developed a recommendation to review successful emission reduction strategies, and Mr. Gellar responded that the workgroup is working on a recommendation that a technology clearinghouse be created that would provide information to other program members on successful strategies.

Mr. Tonachel asked how funding allocation can be prioritized and stated that there is a need to determine guidelines for funding allocation across all government agencies.

In reference to the Ports Workgroup's overarching question of how to encourage participation in the ports program, Mr. Andrew Green asked whether the EPA could set standards or threaten to set standards to promote participation. Mr. Gellar suggested that best practices could be required as an entry point to the program.

In reference to the Ports Workgroup request for input on whether requirements should be consistent across the U.S. for verification, Ms. Tracey Jacksier stated that the requirements should be consistent to promote clarity in the data and results.

Mr. Kassel stated that the outcome of the ports program should be to achieve as much emission reductions as possible, and that idea should flow through the tone of the final recommendations report. He stated that the program should attract participation in a way that leads to emission reductions. Mr. Kassel also stated that the community engagement, inventory, and technology aspects of the program are all related and integrated, and one key stakeholder should not be favored over another. In reference to the Ports Workgroup's question on how to promote participation, Mr. Kassel stated that the program must provide access to something that stakeholders want but otherwise cannot get, such as guidance to implement programs and access to funding.

Mr. Kassel stated that the Ports Workgroup should not relate inventories to the SIP process, and SIP attainment should not be used to encourage participation in the ports program since most ports will not be in nonattainment areas. He further stated that the ability of an emission reduction strategy to be used for SIP credit should not be the key criteria for determining whether a strategy is verifiable. Mr. Agama suggested that certain ports could be prioritized, such as those in nonattainment areas, and Mr. Kassel emphasized the difference between addressing community exposure concerns and addressing concerns related to the development of SIPs and reaching attainment. Mr. Cameron agreed that strategies should not be selected based only on whether they can be used for SIP credit. He stated that the ability of a strategy to be used for SIP credit is a different metric/indicator of its effectiveness than the ability of the strategy to help the community.

Mr. Rasto Brezny agreed that not all areas of the United States may care about whether a strategy can be implemented in a SIP. Mr. Brezny referenced a memorandum titled "Guidance on Incorporating Voluntary Mobile Source Emission Reduction Programs in State Implementation Plans (SIPs)"[1], and stated that the memorandum provides guidance on how to ensure that emission reductions are quantifiable.

Ms. Campos stated that the primary concern should be for community wellbeing and not emission reductions. She stated that the workgroup could consider strategies that may result in less emission reductions but greater health benefits. Ms. Campos suggested that the workgroup consider information on community health disparities, including existing data from the Centers for Disease Control and Prevention (CDC). Ms. Campos emphasized the need to consider how strategies will benefit individuals and families. Ms. Grimshaw agreed with Ms. Campos and added that employment and jobs are also a part of the community's wellbeing. She suggested that ports may not be supplying adequate jobs to benefit community wellbeing.

Ms. Kindberg asked MSTRS members to send additional comments to the Ports Workgroup.

Presentation: Initiatives for Sustainable Freight Transport in California

[1] Memorandum: Guidance on Incorporating Voluntary Mobile Source Emission Reduction Programs in State Implementation Plans (SIPs), From Richard D. Wilson, Acting Assistant Administrator for Air and Radiation, To EPA Regional Administrators, 1 – 10. October 24, 1997. Available at: http://www3.epa.gov/otaq/stateresources/policy/general/vmep-gud.pdf

Mr. Richard Corey, California Air Resources Board (CARB), gave a presentation on sustainable freight initiatives in California.

California has major air cargo airports, seaports, railyards and international border crossings for trucks between California and Mexico. To cut emissions from these activities, the California Air Resources Board (CARB) has undertaken action through regulations to reduce diesel particulate matter emissions from trucks, ships, locomotives, port equipment and harbor craft. The regulations incorporate fuel standards, limits on certain activities, such as idling, and other requirements. Since 2005, the regulations have reduced cancer risks by 85% at the largest California ports and 40-70% at the highest risk rail yards. To reduce emissions further in the future, increased efficiency in the transport system is needed and the use of zero and near-zero technologies will need to grow and expand. To achieve ongoing emissions reduction from the freight system in California, several stakeholders, including CARB, are working on a plan that incorporates immediate, near-term and long-term approaches.

Due to time constraints, there was no discussion following this presentation.

Presentation: Alternative Fuel Vehicles

Mr. Vic LaRosa, Total Transportation Services, Inc. (TTSI), gave a presentation on alternative fuel vehicles.

TTSI operates a 100-percent clean fleet and is a certified SmartWay partner. Future truck purchases will include liquefied natural gas (LNG), compressed natural gas (CNG), electric, and hydrogen fuel cell. Details of the company's 15 and 8.9 liter liquefied natural gas (LNG) trucks were presented. Information on zero emissions hydrogen fuel cell heavy-duty electric trucks was also presented, with a comparison to diesel and LNG in terms of horsepower, torque, fuel and emissions. As part of a sustainability project, TTSI is testing zero-emissions battery electric trucks.

Comments and Discussion

Ms. Jacksier stated that hydrogen fuel cell vehicles are not zero-emissions vehicles due to the emissions generated during production of the energy required to produce hydrogen. She stated that hydrogen production results in significant emissions, and the hydrogen trucks program is effectively moving emissions from the location where the trucks are operated to where the hydrogen is produced. Mr. LaRosa stated that hydrogen could be produced using energy from solar cells; however, Ms. Jacksier stated that currently, the large majority of hydrogen is produced using energy from steam generating units.

Mr. Anair asked about the challenges facing smaller fleets who want to adopt zero or near-zero emission trucks. Mr. LaRosa responded that as equipment costs increase, there will be more capital required to implement the technologies, and there is a need for the consolidation of fleets (i.e., consolidation to fewer fleets with more vehicles and resources) to allow for more widespread adoption of the technology.

Presentation: Near-Zero and Zero Emission Trucks: Their Role in the South Coast Basin

Mr. Matt Miyasato, South Coast Air Quality Management District (SCAQMD), gave a presentation on the South Coast Air Basin and the role of zero and near-zero emission trucks.

The South Coast Air Basin includes four counties – Los Angeles, Orange, Riverside, and San Bernardino – that make up 44 percent of the state's population. A map was presented showing the air quality of different areas in the South Coast Air Basin, ranging from good to hazardous. A chart was presented showing the top NO_x sources estimated for 2023, and the highest emitter is heavy-duty diesel trucks, which emit 56 tons of NO_x per day. Various 2015 models of zero-emission vehicles were presented. Information was also presented on the TransPower and IKEA electric yard tractor, as well as heavy duty plug-in hybrid trucks.

The SCAQMD is investigating local and regional applicability of an eHighway system, which is the electrification of lanes using a catenary system that supplies trucks with electric power. The trucks can be used on or off the catenary electric supply and are either diesel hybrid, CNG hybrid, or battery. The SCAQMD is investigating hybrid and hydrogen fuel cell trucks and won a Department of Energy (DOE) grant for $10 million for the Zero Emission Cargo Transport 2 (ZECT 2) program.

Trucks that operate under 10 mile distances include plug-in hybrid, catenary and battery electric. Trucks that operate over 20 miles include plug-in hybrid, catenary, near-zero natural gas, and fuel cell. Takeaways from the presentation include: the urgent need to obtain criteria pollutant and toxics emission reductions, the need to examine a portfolio of architectures/infrastructure, the idea that the same trucks can be used in a variety of duty cycles (e.g., yard, short-haul), and the need for national markets to accelerate turnover.

Comments and Discussion

Mr. Grundler asked about the cost of a long-range catenary system, and Mr. Miyasato responded that the catenary system costs one to five million dollars per mile. Mr. Wallerstein stated that there is a zero emissions truck lane in some parts of California.

Mr. Brezny stated that low NO_x vehicles, such as natural gas powered vehicles, emit high levels of PM and requested that the SCAQMD consider this issue when implementing low NO_x technologies. Mr. Miyasato stated that the SCAQMD is looking into this issue.

There was a discussion on whether catenary is overhead or underground, and Ms. Sagovac stated that catenary is by definition overhead; however it can be placed underground with some difficulty.

There was a discussion on container weight and how some containers weigh significantly more than others, which can affect the efficiency of trucks. Ms. Sagovac asked if there was research being conducted on the development of durable light-weight containers. Ms. Kindberg responded that it is the contents of the container that varies, and this is the most important factor. Mr.

LaRosa stated that there are technologies for durable light-weight containers that may be implemented in the future.

Adjournment

Ms. MacGregor stated that she will send out a Google poll to schedule the next meeting and adjourned the meeting.

Appendix

Workgroup Meeting Attendance List

Subcommittee Members	
Name	**Organization**
Reynaldo Agama	Caterpillar
Don Anair	Union of Concerned Scientists
Bob Anderson	Chevron Global
Alberto Ayala	California Air Resources Board
Deborah Bakker	Hyundai Motor Company
Julie Becker	Alliance of Auto Manufacturers
Rasto Brezny	Manufacturers of Emission Controls Association
Rick Cameron	Port of Long Beach
Pamela Campos	Environmental Defense Fund
Josh Chaise	Abengoa Bioenergy
Blair Chikasuye	Hewlett Packard
Richard Corey	California Air Resources Board
Elena Craft	Environmental Defense Fund
Andrew Cullen	Penske Logistics
Mridul Gautam	Mid-Atlantic Research Institute
Andrew Green	Puget Sound Clean Air Agency
Jacky Grimshaw	Center for Neighborhood Technology
Michael Iden	Association of American Railroads
Tracey Jacksier	AIR LIQUIDE Research & Development
Rick Kassel	Tri-State Transportation Campaign
Lee Kindberg	MAERSK
Jim Kliesch	American Honda
Nancy Kruger	National Association of Clean Air Agencies
Vic LaRosa	Total Transportation Services, Inc.
Melissa Lin Perella	Natural Resources Defense Council
Angelo Logan	East Yard Communities for Environmental Justice
Matt Miyasato	South Coast Air Quality Management District
Simone Sagovac	Southwest Detroit Community Benefits Coalition
Rashid Shaikh	Health Effects Institute
Daniel Short	Marathon Petroleum Company
Matt Solomon	NESCAUM
Patricia Strabbing	Chrysler Group
Luke Tonachel	Natural Resources Defense Council
John Viera	Ford
Barry Wallerstein	South Coast Air Quality Management District
Federal Government	
Liz Etchells	U.S. Environmental Protection Agency

Mike Geller	U.S. Environmental Protection Agency
Chris Grundler	U.S. Environmental Protection Agency
Gay MacGregor	U.S. Environmental Protection Agency
Courtney McCubbin	U.S. Environmental Protection Agency
Meg Patulski	U.S. Environmental Protection Agency
Karl Simon	U.S. Environmental Protection Agency
Attendees	
David Patterson	Mitsubishi Motors
Tim Johnson	Corning
Andrea Lubawy	Toyota Motor Engineering
Heather Wood	Kennedy Jenks/Port of VA
Contractor Support	
Lesley Stobert	EC/R Incorporated
Alden West	EC/R Incorporated