



South Coast Air Quality Management District

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TO: SCAQMD Technology Committee
Joe Buscaino, Chair
Sheila Kuehl, Vice Chair
Larry McCallon, Judith Mitchell, Dwight Robinson, Janice Rutherford

FROM: Matt Miyasato, DEO, Science & Technology Advancement

TECHNOLOGY COMMITTEE

21865 Copley Drive, Diamond Bar, CA 91765
May 19, 2017 ♦ 12:00 p.m. ♦ Conference Room CC-8

TELECONFERENCE LOCATION

Los Angeles City Hall	8575 Haven Avenue
200 N. Spring Street	Suite 110
Room 410	Rancho Cucamonga, CA 91730
Los Angeles, CA 90012	

(The public may participate at any location listed above.)

Call-in for listening purposes only is available by dialing:

Toll Free: 866-244-8528

Listen Only Passcode: 5821432

In addition, a webcast is available for viewing and listening at:

<http://www.aqmd.gov/home/library/webcasts>

AGENDA

JUNE BOARD AGENDA ITEMS FOR ACTION/DISCUSSION

1. Reallocate Funding Sources for Awarded Projects Under Carl Moyer Program

On October 7, 2016, the Board awarded contracts under the FY 2015-16 "Year 18" Carl Moyer Program, including two contracts executed for \$249,050 to repower a marine vessel and \$627,873 to replace one off-road agricultural equipment from the Carl Moyer Program Fund (32). Subsequently, staff identified \$225,136 in turn-back funds from withdrawn projects from a 2012 Diesel Emissions Reduction Act (DERA) grant. This action is to amend both contracts, substituting \$225,136 in Carl Moyer funds

Brian Choe
Program
Supervisor

with the unencumbered portion of the 2012 DERA grant in the Advanced Technology, Outreach and Education Fund (17).

2. Execute Contract for Secondary Organic Aerosol Formation Study and Amend Technical Assistance Contracts for In-Use Emissions Testing for Heavy-Duty Vehicles

Adewale Oshinuga
Program
Supervisor

Secondary organic aerosol (SOA) is an important component of suspended fine atmospheric particulate matter with significant environmental risks. Design of an effective emission control strategy to reduce the risks requires further understanding of the formation of SOA. As part of an in-use emissions test previously approved by the Board, staff is proposing to assess SOA concentrations from heavy-duty diesel and natural gas vehicles. These actions are to execute a contract with University of California Riverside CE-CERT to evaluate the SOA formation from heavy-duty diesel and natural gas vehicles and amend contracts with Gladstein, Neandross & Associates, LLC, and AEE Solutions, LLC, to provide technical assistance for in-use emissions testing for heavy-duty vehicles at a total cost not to exceed \$85,000, \$50,000 and \$50,000, respectively, from the Clean Fuels Fund (31).

3. Other Business

Any member of the committee, or its staff, on his or her own initiative or in response to questions posed by the public, may ask a question for clarification; may make a brief announcement or report on his or her own activities, provide a reference to staff regarding factual information, request staff to report back at a subsequent meeting concerning any matter, or may take action to direct staff to place a matter of business on a future agenda. (Govt Code Section 54954.2)

4. Public Comment Period

Members of the public may address this body concerning any agenda item before or during consideration of that item (Govt. Code Section 54954.3). All agendas for regular meetings are posted at District Headquarters, 21865 Copley Drive, Diamond Bar, California, at least 72 hours in advance of a regular meeting. At the end of the regular meeting agenda, an opportunity is also provided for the public to speak on any subject within this body's authority. Speakers may be limited to three (3) minutes each.

Next Meeting: June 16, 2017 at SCAQMD Headquarters in CC-8

Document Availability

All documents (i) constituting non-exempt public records; (ii) relating to an item on the agenda for a regular meeting; and (iii) having been distributed to at least a majority of the Technology Committee after the agenda is posted, are available prior to the meeting for public review at the South Coast Air Quality Management District Public Information Center, 21865 Copley Drive, Diamond Bar, CA 91765.

Americans with Disabilities Act

The agenda and documents in the agenda packet will be made available, upon request, in appropriate alternative formats to assist persons with a disability. Disability-related accommodations will also be made available to allow participation in the Technology Committee meeting. Any accommodations must be requested as soon as practicable. Requests will be accommodated to the extent feasible. Please contact Pat Krayser at 909-396-3248 from 7:00 a.m. to 5:30 p.m., Tuesday through Friday, or send the request to pkrayser@aqmd.gov.

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DRAFT
Technology Committee Agenda #1

BOARD MEETING DATE: June 2, 2017

AGENDA NO.

PROPOSAL: Reallocate Funding Sources for Projects Under Carl Moyer Program

SYNOPSIS: On October 7, 2016, the Board awarded contracts under the FY 2015-16 “Year 18” Carl Moyer Program, including two contracts executed for \$249,050 to repower a marine vessel and \$627,873 to replace one off-road agricultural equipment from the Carl Moyer Program Fund (32). Subsequently, staff identified \$225,136 in turn-back funds from withdrawn projects from a 2012 Diesel Emissions Reduction Act (DERA) grant. This action is to amend both contracts, substituting \$225,136 in Carl Moyer funds with the unencumbered portion of the 2012 DERA grant in the Advanced Technology, Outreach and Education Fund (17).

COMMITTEE: Technology, May 19, 2017; Recommended for Approval

RECOMMENDED ACTION:

Authorize the Chairman to amend contracts with the following contractors:

1. Matthew Potter dba Mako Matt’s Marine for the repower of a marine vessel to substitute \$43,920 of the \$249,050 contract from the Carl Moyer Program Fund (32) with the DERA funds in the Advanced Technology, Outreach and Education Fund (17).
2. Organic Depot, LLC, for the replacement of one off-road agricultural equipment to substitute \$181,216 of the \$627,873 contract from the Carl Moyer Program Fund (32) with the DERA funds in the Advanced Technology, Outreach and Education Fund (17).

Wayne Natri
Executive Officer

Background

On October 7, 2016, the Board awarded contracts for on- and off-road vehicles and engines under the FY 2015-16 “Year 18” Carl Moyer Program including contracts for Matthew Potter dba Mako Matt’s Marine and Organic Depot, LLC. Subsequently, a portion of funds from a 2012 DERA grant, which the Board had approved on February 5, 2016, to fund various repower and replacement projects for marine vessels and off-road equipment, was unencumbered from withdrawn projects.

Proposal

This action is to amend contracts with Matthew Potter dba Mako Matt’s Marine and Organic Depot, LLC, substituting \$225,136 from the Carl Moyer Program Fund (32), which consists of \$43,920 of Matthew Potter’s award and \$181,216 of Organic Depot’s award, with the 2012 DERA grant funds in the Advanced Technology, Outreach and Education Fund (17). The Carl Moyer Program funds will be reallocated to fund other projects under the Carl Moyer Program.

Benefits to SCAQMD

The successful implementation of these projects using U.S. EPA’s DERA grant and Carl Moyer Program funds will provide direct benefits in emission reductions for NOx, PM and associated ozone, as required by these programs.

Resource Impacts

A total of \$225,136 from the Carl Moyer Program Fund (32) will be substituted with the recently unencumbered 2012 DERA grant funds, previously recognized in the Advanced Technology, Outreach and Education Fund (17).

Agenda Item #1

Brian Choe

Reallocate Funding Sources for
Awarded Projects Under Carl Moyer
Programs

Background

- In October 2016, the Board awarded contracts for on- and off-road vehicles and engines under “Year 18” Carl Moyer Program (CMP)
- Subsequently, \$225,136 of a 2012 DERA grant that funded off-road equipment and marine vessel repowers and replacements was unencumbered from withdrawn projects

Proposal

- Amend two CMP contracts to substitute \$225,136 of the awards from the CMP Fund with the unencumbered DERA grant funds
 - \$43,920 of \$249,050 for a marine vessel repower
 - \$181,216 of \$627,873 for an agricultural equipment replacement
- Replaced CMP funds will be reallocated to fund other CMP projects



Recommended Action

Amend the following contracts to substitute contract awards from CMP Fund (32) with the DERA funds in the Advanced Technology, Outreach and Education Fund (17):

1. Matthew Potter dba Mako Matt's Marine for the repower of a marine vessel to substitute \$43,920 of the \$249,050 contract award
2. Organic Depot, LLC, for the replacement of one off-road agricultural equipment to substitute \$181,216 of the \$627,873 contract award

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DRAFT
Technology Committee Agenda #2

BOARD MEETING DATE: June 2, 2017

AGENDA NO.

PROPOSAL: Execute Contract for Secondary Organic Aerosol Formation Study and Amend Technical Assistance Contracts for In-Use Emissions Testing for Heavy-Duty Vehicles

SYNOPSIS: Secondary organic aerosol (SOA) is an important component of suspended fine atmospheric particulate matter with significant environmental risks. Design of an effective emission control strategy to reduce the risks requires further understanding of the formation of SOA. As part of an in-use emissions test previously approved by the Board, staff is proposing to assess SOA concentrations from heavy-duty diesel and natural gas vehicles. These actions are to execute a contract with University of California Riverside CE-CERT to evaluate the SOA formation from heavy-duty diesel and natural gas vehicles and amend contracts with Gladstein, Neandross & Associates, LLC, and AEE Solutions, LLC, to provide technical assistance for in-use emissions testing for heavy-duty vehicles at a total cost not to exceed \$85,000, \$50,000 and \$50,000, respectively, from the Clean Fuels Fund (31).

COMMITTEE: Technology, May 19, 2017; Recommended for Approval

RECOMMENDED ACTION:

Authorize the Executive Officer using the Clean Fuels Fund (31) to:

1. Execute a contract with University of California Riverside CE-CERT to evaluate the SOA formation from heavy-duty diesel and natural gas vehicles in an amount not to exceed \$85,000; and
2. Amend contracts with the following entities to provide technical assistance for in-use emissions testing of heavy-duty vehicles in an amount not to exceed \$50,000, each for a total of \$100,000:
 - a. Gladstein, Neandross & Associates, LLC; and
 - b. AEE Solutions, LLC.

Background

On-road heavy-duty vehicles are currently one of the largest sources of NO_x and PM emissions, which are major contributors to secondary organic aerosol (SOA) formation, along with some volatile and semi-volatile organic compounds. SOA formed from atmospheric reactions of organic compounds in the presence of NO_x constitutes an important component of suspended fine atmospheric PM with significant environmental risks, such as respiratory and heart diseases as well as visibility degradation. Design of an effective emission control strategy to reduce SOA emissions and associated risks necessitates further understanding of the formation of SOA in the atmosphere.

In 2014, the Board approved a contract with the University of California Riverside (UCR) CE-CERT to investigate the physical and chemical composition of primary and secondary aerosols from diesel and gasoline direct injection (GDI) vehicles. Now that the SOA from diesel and GDI vehicles have been successfully characterized, similar efforts are being devoted to assess SOA formed by the reaction of gaseous and particulate emissions from heavy-duty diesel and natural gas vehicles. These efforts are further aligned with a recently Board-approved study to conduct in-use emissions testing, fuel usage profile characterization, and an impact assessment of current technology and alternative fuels on fuel consumption and emissions from 200 heavy-duty vehicles.

Proposal

SOA Study

Complementary to the ongoing emissions study to assess in-use emissions from heavy-duty vehicles, UCR CE-CERT proposes to investigate the physical and chemical composition of SOA formed by the reaction of gaseous and particulate emissions from heavy-duty diesel and natural gas vehicles. During the vehicle in-use emissions testing, UCR CE-CERT will collect samples of exhaust gases in a mobile chamber and transport the chamber to an atmospheric processes laboratory where the samples will be photochemically aged and characterized. During the aging process, UCR CE-CERT will also classify the aerosol and measure the size, mass and composition distribution of the non-refractory aerosol as well as gaseous, particulate size distribution and black carbon emissions. The results of this study will provide valuable information on primary and secondary particulate emissions including SOA from in-use heavy-duty diesel and natural gas vehicles and facilitate a discussion on potential mitigation strategies.

Technical Assistance for In-Use Emissions Study

Gladstein, Neandross & Associates, LLC, (GNA) and AEE Solutions, LLC, will provide technical assistance for the in-use emissions study under existing Board-approved technical assistance contracts. Specifically, GNA and AEE Solutions will assist in the: 1) development of test vehicle selection, activity and emissions protocols, 2) recruitment of 200 heavy-duty test vehicles, 3) preparation of a technology assessment plan to identify the impact of current and near-future technology on engine performance, emissions and fuel usage, 4) identification of engine and aftertreatment issues and how to mitigate them, and 5) matching of vehicle technologies to vocations for which technology benefits can be maximized.

Sole Source Justification

Section VIII.B.2 of the Procurement Policy and Procedure identifies four major provisions under which a sole source award may be justified. This request for sole source award is made under provision B.2.d.: Other circumstances exist which in the determination of the Executive Officer require such waiver in the best interest of the SCAQMD. Specifically, these circumstances are B.2.d.(4): Level-of-effort expert consultation services; B.2.d.(6): Project requiring compatibility with existing specialized equipment; and B.2.d.(8): Research and development efforts with educational institutions or nonprofit organizations. UCR is an educational institution and CE-CERT is their research center with multidisciplinary resources to engage in diverse environmental and transportation research programs including advanced vehicle technologies and systems; emission measurements, analyses and controls; atmospheric measurements and modeling; and renewable energy. In addition, the proposed project requires specialized equipment for the collection and aging of exhaust gases, and UCR CE-CERT has designed and constructed a mobile chamber for the collection of exhaust gas samples as well as built and operated an atmospheric processes laboratory for aging the samples. GNA and AEE Solutions will provide technical assistance for the in-use emissions study under existing level-of-effort contracts.

Benefits to SCAQMD

The proposed projects are included in the *Technology Advancement Office Clean Fuels Program 2017 Plan Update* under “Fuel/Emissions Studies.” SOA formation studies will enhance our ability to model the formation of SOA from unburned diesel and natural gas as well as close the gap between atmospheric measurements and model predictions of PM concentrations. Models equipped with these SOA formation processes could then be used to help formulate science-based policy for the reduction of ambient PM concentrations. In addition, the in-use emissions study will be used to measure the effectiveness of engine, fuel and aftertreatment technologies, improve emission inventories for air quality modeling and planning, and match vehicle technologies to vocations for which technology benefits can be maximized as well as to develop effective strategies toward achieving the federal ambient air quality standards.

Resource Impacts

The total cost for the proposed projects will not exceed \$185,000 from the Clean Fuels Fund (31) summarized as follows:

Proposed Projects	SCAQMD Funding (<i>requested</i>)
SOA Study	\$85,000
Technical Assistance for In-Use Emissions Study	\$100,000

Sufficient funds are available from the Clean Fuels Program Fund, established as a special revenue fund resulting from the state-mandated Clean Fuels Program. The Clean Fuels Program, under Health and Safety Code Sections 40448.5 and 40512 and Vehicle Code Section 9250.11, establishes mechanisms to collect revenues from mobile sources to support projects to increase the utilization of clean fuels, including the development of the necessary advanced enabling technologies. Funds collected from motor vehicles are restricted, by statute, to be used for projects and program activities related to mobile sources that support the objectives of the Clean Fuels Program.

Agenda Item #2

Adewale Oshinuga

Execute Contract for Secondary Organic Aerosol Formation Study and Amend Technical Assistance Contracts for In-Use Emissions Testing for Heavy-Duty Vehicles

Background

- NO_x and organic compounds are precursors of secondary organic aerosol (SOA)
- SOA is part of suspended fine particles
- SOA formation data is needed to develop mitigation measures
- In 2014, Board awarded a contract to UCR to study SOA formation from gasoline passenger vehicles
- Limited information on SOA formation from heavy-duty diesel and natural gas vehicles



Proposal

- Assess SOA formation from heavy-duty diesel and natural gas vehicles
 - Complements in-use emissions test of 200 heavy-duty vehicles
 - Collect samples from diesel and natural gas heavy-duty vehicles
 - Classify aerosol and measure gaseous and particulate emissions



Proposal (cont'd)

- Amend technical assistance contracts to assist with in-use emissions study
 - Contractors
 - Gladstein, Neandross & Associates, LLC
 - AEE Solutions, LLC
 - Proposed tasks
 - Develop test vehicle selection, activity and emissions protocols
 - Recruit up to 200 vehicles for participation
 - Prepare technology assessment plan
 - Identify engine and aftertreatment issues and how to mitigate
 - Match vehicle technologies to vocations

Recommended Action

Authorize the Executive Officer using the Clean Fuels Fund (31) to:

1. Execute a contract with UCR CE-CERT to evaluate the SOA formation from heavy-duty diesel and natural gas vehicles in an amount not to exceed \$85,000; and
2. Amend contracts with the following entities to provide technical assistance for in-use emissions testing of heavy-duty vehicles in an amount not to exceed \$50,000 each for a total of \$100,000:
 - a. Gladstein, Neandross & Associates, LLC; and
 - b. AEE Solutions, LLC