

BOARD MEETING DATE: December 6, 2024

AGENDA NO. 6

PROPOSAL: Transfer and Appropriate Funds, Issue Solicitations and Purchase Orders for MATES VI

SYNOPSIS: Since 1987, South Coast AQMD has conducted five MATES campaigns to evaluate air toxics health risks in South Coast AQMD's jurisdiction. MATES VI measurements for a wide range of air toxics are anticipated to begin in early 2025. The collected data will be used to support air toxics modeling and quantify health impacts. These actions are to transfer up to \$1,138,956 from the Clean Fuels Program Fund to the General Fund for the MATES VI program, and appropriate funding to the Monitoring & Analysis, Planning, Rule Development & Implementation, and the Technology Advancement Office Divisions FY 2024-25 through FY 2027-28 budgets as needed, and issue solicitations and purchase orders to support the goals and objectives of MATES VI.

COMMITTEE: Administrative, November 8, 2024; Recommended for Approval

RECOMMENDED ACTIONS:

1. Transfer up to \$1,138,956 from the Clean Fuels Program Fund (31) to the General Fund (01) to support the MATES VI program;
2. Appropriate up to \$1,343,956 from the Undesignated (Unassigned) Fund Balance (which includes \$205,000 of unspent funds previously authorized by the Board on December 1, 2023) to the Monitoring & Analysis Division (MAD), the Planning, Rule Development, & Implementation (PRDI) Division, and the Technology Advancement Office (TAO) to procure additional resources needed to complete MATES VI on an as-needed basis at any time over the period of FY 2024-25 through FY 2027-28, as shown in the Attachment;
3. Authorize the Executive Officer, in accordance with South Coast AQMD's Procurement Policy and Procedure, to execute a sole source contract with University of California, Riverside (UC Riverside) to study ethylene oxide sources, in an amount not to exceed \$176,956;
4. Authorize the Procurement Manager, in accordance with South Coast AQMD's Procurement Policy and Procedure, to issue sole source purchase orders and/or contracts for the following as listed in the Attachment and described in this letter:
 - a. One Agilent Mass Hunter Software system from Agilent Instruments in an amount not to exceed \$175,000;

- b. One Canister Cleaning System from Entech Instruments, Inc. in an amount not to exceed \$50,000;
 - c. One Ion Chromatograph from Thermo Electron North America, LLC in an amount not to exceed \$80,000;
 - d. One Acid Microwave from CEM, Inc. in an amount not to exceed \$52,000;
 - e. Up to two aethalometers from Magee Scientific in an amount not to exceed \$100,000;
 - f. Up to five data loggers from Agilaire, LLC in an amount not to exceed \$90,000;
 - g. Up to 20 air toxics samplers from Met One Instruments, TISCH Environmental, and Mesa Laboratories, Inc. in an amount not to exceed \$305,000, using \$205,000 of unspent funds authorized for the solicitation of Air Toxics Samplers in the December 1, 2023 Board Letter (Agenda No. 4);
 - h. Supplemental laboratory analysis of ammonia by the Wisconsin State Laboratory of Hygiene (WSLH) in an amount not to exceed \$35,000; and
 - i. Supplemental laboratory analysis by Eastern Research Group, Inc. in an amount not to exceed \$47,250, for analysis of polycyclic aromatic hydrocarbons (PAHs), using funds previously authorized by the Board in December 2023.
5. Authorize the Procurement Manager, in accordance with South Coast AQMD's Procurement Policy and Procedure, to issue solicitations and purchase orders for two vacuum pumps in an amount not to exceed \$30,000 as listed in the Attachment and described in this letter.
 6. Authorize the Procurement Manager, in accordance with South Coast AQMD's Procurement Policy and Procedure, to issue a contract or purchase order, as deemed appropriate, with vendor(s) selected from South Coast AQMD's List of Prequalified Vendors in an amount not to exceed \$20,000 for additional computational storage as listed in the Attachment and described in this letter.

Wayne Nasti
Executive Officer

SR:SE

Background

MATES is an environmental justice initiative that South Coast AQMD started in 1987 with MATES I. Since then, five MATES campaigns have been conducted to characterize the concentration of airborne toxic compounds within South Coast AQMD jurisdiction and determine the region-wide cancer risks associated with major airborne carcinogens. As each successive MATES campaign builds on the previous work, each iteration added new goals and objectives and employed more sophisticated measurement and modeling techniques. Results of MATES are used to provide public information about air toxics and associated health risks throughout the region, evaluate progress in reducing air toxics exposure, and provide direction to future toxics control programs. Previous MATES campaigns have also identified unknown air toxics sources

and have been critical in the interpretation of data from special air toxics monitoring studies in various communities. MATES continues to be the most sophisticated regional air toxics analysis conducted in the nation, relying on the extensive air quality monitoring, modeling, and analysis expertise and resources at the agency.

Planning for MATES VI has been underway since early 2023 with field measurements expected to begin in early 2025. As in previous MATES campaigns, South Coast AQMD staff has convened a Technical Advisory Group (TAG) to provide technical guidance in the design of the study. The group includes experts from academia, health agencies, and government. Four TAG meetings have been conducted to date. MATES VI field measurements will be conducted over a one-year period at ten fixed sites throughout the region. MATES VI monitoring is being extended to the Coachella Valley for the first time. In addition, two of the ten air monitoring stations will be adjacent to freeways to capture near-road air toxics impacts. As in past MATES campaigns, state-of-the-art chemical transport modeling will be conducted to evaluate air toxics concentrations and risks throughout the entire South Coast Air Basin and Coachella Valley.

In addition to the fixed site monitoring described above, MATES VI includes three supplemental special studies. The first special study, funded by South Coast AQMD and conducted by Emission Analytics, LLC and their subcontractors at the University of California, Irvine and the University of Southern California, is currently underway to characterize particulate matter concentrations and potential health risks from brake, and road and tire wear emissions. Second, South Coast AQMD staff plans to conduct a study to characterize sources of ethylene oxide (EtO) and examine how much EtO is emitted or produced locally. This work may help identify strategies to reduce ambient EtO levels throughout the region. The TAG has provided key insight and feedback in the overall scope, design, and plan for these two studies. Third, UC Riverside researchers have conducted preliminary experiments to determine whether secondary EtO can be formed from the atmospheric aging of urban air with atmospheric oxidants. Preliminary results indicate that this process may form some of the EtO observed regionally, but further research is needed to quantify this effect and understand the chemical reactions responsible for EtO formation.

In December 2023, the Board approved the transfer of up to \$5,024,725 from the Clean Fuels Program Fund to the General Fund for the MATES VI program. South Coast AQMD already possesses or is in the process of procuring most of the monitoring, laboratory and computer equipment needed for MATES VI. However, the comments and feedback received from the TAG over the past year resulted in changes in the planned scope of MATES VI, which now requires additional instrumentation, software, hardware, laboratory consumables for enhanced EtO efforts, and one temporary chemist to implement the feedback received. This equipment will also be available after MATES VI for additional studies, special investigations, or community monitoring. Up to \$1,138,956 will be needed to carry out this change in scope. In addition, \$205,000 of

unspent funds previously authorized by the Board in December 2023 for solicitation of Air Toxics Samplers, is reauthorized here for sole-source purchase to accommodate this change in scope. Lastly, \$47,250 of funds previously authorized for supplementary laboratory analysis by the Board in December 2023 is included here to approve sole-source purchase to ensure monitoring network consistency.

Proposal

This action is to transfer up to \$1,138,956 from the Clean Fuels Program Fund (31) to the General Fund (01) and appropriate up to \$1,343,956 to the MAD, PRDI, and TAO budgets over FY 2024-25 through FY 2027-28 to purchase additional equipment and supplies, retain temporary staff, and fund a sole-source contract with UC Riverside for the MATES VI program. A description of resource needs is described below and is summarized in the Attachment.

Proposed Sole-Source Contracts

UC Riverside Study on Secondary EtO Formation

The proposed 18-month study will significantly expand upon preliminary work conducted by UC Riverside. The study will evaluate and quantify EtO formation from the oxidation of relevant atmospheric species and mixtures using a EtO monitor South Coast AQMD recently purchased. This instrument's low detection limit will both improve accuracy and enable faster switching between experimental conditions. Results from these experiments will be used to identify the precursors most likely to contribute significantly to the formation of ambient EtO, which can help design effective control measures. Ethylene will be added for some experiments to evaluate any synergistic effects. This action is to authorize the Executive Officer to issue a sole source contract with UC Riverside to study EtO sources and formation, in an amount not to exceed \$176,956. UC Riverside possesses the unique expertise and equipment to conduct these experiments.

Proposed Sole-Source Purchase Orders

Mass Hunter Software

The laboratory operates many Agilent Gas Chromatographs and Mass Spectrometers that will be used to analyze samples for EtO and other air toxics during MATES VI. The chromatography software used to operate these instruments, Mass Hunter, has multiple versions installed across the laboratory network, and does not meet best practices for data redundancy and security. This purchase allows all versions of Mass Hunter to be updated to the current standard and establishes server-based data redundancy with audit trails and remote accessibility. This action is to authorize the Procurement Manager to issue a sole source purchase order with Agilent Technologies for an amount not to exceed \$175,000 for the purchase and configuration of the Mass Hunter software and licenses.

Canister Cleaning System

The laboratory currently maintains and operates three canister cleaning systems used to remove trace-level contamination from air sampling canisters prior to use. Two of the systems are no longer supported by the manufacturer and need replacement to ensure adequate air toxics sampling throughput during MATES VI. This action is to authorize the Procurement Manager to issue a sole source purchase order with Entech Instruments, Inc. for an amount not to exceed \$50,000 for the purchase and installation of a canister cleaning system.

Ion Chromatograph

The laboratory operates an ion chromatograph to support the PM_{2.5} cation analysis performed for MATES VI. The current ion chromatograph is over ten years old and needs replacement to ensure continued analytical capacity and support from the manufacturer. This action is to authorize the Procurement Manager to issue a sole source purchase order with Thermo Electron North America, LLC for an amount not to exceed \$80,000 for the purchase and installation of an ion chromatograph system.

Acid Microwave

The laboratory uses two acid microwaves to prepare filters for the TSP and PM₁₀ metals analysis conducted during MATES. One of the microwaves is fifteen years old and in immediate need of replacement. This action is to authorize the Procurement Manager to issue a sole source purchase order with CEM Corporation for an amount not to exceed \$52,000 for the purchase and installation of a laboratory-grade acid microwave.

Aethalometers

Aethalometers are used to measure black carbon and estimate diesel particulate matter, a primary risk driver identified in previous MATES campaigns. Two aethalometers are needed to ensure black carbon is measured at all MATES sites. This action is to authorize the Procurement Manager to issue a sole source purchase order with Magee Scientific for an amount not to exceed \$100,000 for the purchase of up to two aethalometers.

Data Loggers

Data loggers are specialized computers used to store and transmit data at air monitoring stations. Up to five data loggers will be needed for additional instrumentation being deployed as part of MATES VI. This action is to authorize the Procurement Manager to issue a sole source purchase order with Agilaire, LLC for an amount not to exceed \$90,000.

Air Toxics Samplers

Additional air toxics samplers are required due to changes in the scope of MATES VI over the past year due to feedback from the technical advisory group and internal staff deliberations. Therefore, this action is to authorize the Procurement Manager to issue

sole source purchase orders with several vendors, including Met One Instruments, TISCH Environmental, and Mesa Laboratories, Inc., for up to 20 air toxics samplers for an amount not to exceed \$305,000.

Supplemental Laboratory Analysis of Ammonia

MATES VI will include expanded measurements of ammonia. Regional emission inventories are suspected to underestimate real-world ammonia emissions. This is mainly because emission contributions from motor-vehicles, biomass burning (e.g., wildfires and prescribed fires), dairy farms, agricultural fields, and atmospheric processes are still not fully characterized. Ammonia can cause both short-term and long-term respiratory health issues and is an important precursor to secondary PM_{2.5}. This action is to authorize the Procurement Manager to issue a sole source purchase order with the Wisconsin State Laboratory of Hygiene (WSLH) in an amount not to exceed \$35,000 for passive sampling and analysis of ammonia at all MATES VI sites through the National Atmospheric Deposition Program (NADP).

Supplemental Laboratory Analysis of PAHs

Funds for the analysis of samples for PAHs, a class of air toxic compounds, was approved by the board on December 1, 2023. EPA's national contract laboratory, Eastern Research Group, currently performs PAH analysis of samples at two monitoring sites in the South Coast Basin; two additional sites will be added for the duration of the MATES VI study. This action is to authorize the Procurement Manager to issue a sole source purchase order with Eastern Research Group Inc. for an amount not to exceed \$47,250 for the analysis of samples for PAHs using funds previously approved by the board on December 1, 2023.

Proposed Purchase Through a Solicitation Process

Replacement Vacuum Pumps

Each of the TILDAS EtO monitors purchased for MATES VI that use a continuous vacuum pump will require significant routine service throughout the duration of the MATES monitoring campaign. To ensure continued monitor operation and mitigate data loss, two spare vacuum pumps are needed. This action is to authorize the Procurement Manager to release a solicitation, and based on the results, issue a purchase order for up to two vacuum pumps for an amount not to exceed \$30,000.

Computational Storage

Analyzing the large quantities of data generated by MATES VI measurements and chemical transport modeling requires extensive computational storage space. This action is to authorize the Procurement Manager, in accordance with South Coast AQMD's Procurement Policy and Procedure, to issue a contract or purchase order, as deemed appropriate, with vendor(s) selected from South Coast AQMD's List of Prequalified Vendors in an amount not to exceed \$20,000 for additional computational storage.

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. The request for sole source purchase and/or contract with Agilent Technologies is made under Section VIII.B.2.c(1): The unique experience and capabilities of the proposed contractor; and VIII.B.2.c(2): The items are available from only one source, and the project involves the use of proprietary technology. Agilent Technologies is the sole manufacturer and distributor of Agilent's Mass Hunter software. They also possess unique knowledge and training in the proper installation and configuration of the enterprise-grade software.

The request for sole source purchase of a canister cleaning system is made under Section VIII.B.2.d(6): Projects requiring compatibility with existing specialized equipment. The laboratory is trained on and has gained specialized knowledge of its existing canister cleaning system. Procuring a like system will allow for the interoperability of parts and transferability of this specialized training and knowledge.

The request for sole source purchase of an ion chromatograph is made under Section VIII.B.2.d(6): Projects requiring compatibility with existing specialized equipment. The laboratory operates and maintains six Thermo ion chromatographs that are operated with Thermo's enterprise-grade Chromeleon chromatography software. To ensure compatibility with this existing system, and facilitate staff training and operation, a Thermo ion chromatograph is needed.

The request for sole source purchase of an acid microwave is made under Section VIII.B.2.d(6): Projects requiring compatibility with existing specialized equipment. The laboratory operates and maintains two laboratory-grade acid microwaves. To ensure compatibility with existing parts and facilitate staff training and operation, a CEM microwave is needed.

The request for sole source purchases of the aethalometers and data loggers are made under Section VIII.B.2.c(2): The items are available from only one source, and the project involves the use of proprietary technology; and VIII.B.2.d(6): Projects requiring compatibility with existing specialized equipment. The aethalometers are available from only one distributor, Magee Scientific. No other manufacturer or distributor sells a black carbon monitor with similar technical specifications and pricing, as it involves the use of proprietary technology. Similarly, Agilaire, LLC is uniquely qualified to provide data loggers with specifications that meet the requirements. In addition, the proposed equipment will allow for full compatibility and comparability of both aethalometers and data loggers with those already deployed at MATES sites.

The request for sole source purchase of air toxic samplers is made under Section VIII.B.2.d(6): Projects requiring compatibility with existing specialized equipment. Met One Instruments, TISCH Environmental, and Mesa Laboratories Inc. are the manufacturers and suppliers for the SASS, High-Vol, and PQ100 samplers used for

PM2.5 speciation, TSP speciation, and Cr VI sampling as part of the MATES VI study. All of these samplers have been either already deployed, or are available to be deployed, at several MATES VI sites and as part of different monitoring programs (e.g., NATTS, PM2.5 Speciation Network) and other monitoring investigations (e.g., Cr VI). Additional units are required to ensure that all MATES VI sites are properly equipped. Staff are trained on the use, repair, and maintenance of these samplers, facilitating cross-training and interoperability. Consistency and compatibility amongst these samplers are critical to meeting the operational needs of the agency. This sole source purchase allows for full compatibility and comparability of additional required samplers with those already deployed at MATES VI sites.

The request for sole source purchase with the WSLH for passive ammonia sampling is made under Section VIII.B.2.c(1): The unique experience and capabilities of the proposed contractor; and VIII.B.2.c(2): The items are available from only one source, and the project involves the use of proprietary technology. WSLH is the only body that provides such services for ammonia measurements through the NADP. NADP is a unique research program which measures, assesses and reports on the exposure of natural and cultural resources to atmospheric chemical deposition throughout North America. The NADP Program Office will provide the coordination, provision of chemical analysis and data validation, site operator support and training, limited equipment repair, quality assurance, and management of NADP database and website.

The request for a sole source award with UC Riverside is made under provision B.2.d.(8): Research and development efforts with educational institutions or nonprofit organizations. UC Riverside is an educational institution and the College of Engineering - Center for Environmental Research and Technology (CE-CERT) is a research center with multidisciplinary resources to engage in diverse environmental and transportation research programs including advanced vehicle technologies and systems; emission measurements, analyses and control technologies; atmospheric measurements and modeling; and renewable energy.

The request for sole source purchase with Eastern Research Group, Inc. (ERG) for PAH analysis is made under Section VIII.B.2.c(1): The unique experience and capabilities of the proposed contractor. ERG is the EPA national contract lab that is currently performing PAH analysis at two sites in the South Coast Basin. To ensure consistency with the existing sampling methodologies, instrumentation, and data workflow, it is critical that their lab perform analysis on samples obtained from two additional sites during the MATES VI study.

Benefits to South Coast AQMD

The MATES campaigns conducted by South Coast AQMD provides essential information on air toxics levels in South Coast AQMD's jurisdiction and presents a unique opportunity to evaluate long-term trends in air toxics and their health impacts. South Coast AQMD continues to work toward reducing air toxics emissions through

supporting cleaner technologies (including cleaner diesel technologies), rulemaking to address toxic emissions from mobile and stationary sources and implementing air toxics monitoring and enforcement initiatives. The MATES VI program complements these efforts and provides information to track progress on reducing air toxics in the region along with the identification of sources contributing to the air pollution health risk.

Resource Impacts

Sufficient funds are available to transfer a total of up to \$1,138,956 from the Clean Fuels Program Fund (31) to be used on an as-needed basis over FYs 2023-24 through FY 2027-28 to cover the cost of resources shown in the Attachment. Section 40448.5(e) of the California Health and Safety Code provides that “when considering which clean fuels projects to promote, South Coast AQMD shall consider, among other factors potential effects on public health, ambient air quality, visibility within the region, and other factors determined to be relevant by South Coast AQMD.” MATES VI will help establish an emissions baseline and toxic air contaminant risks for mobile sources, from which the benefits of clean fuel programs can be calculated.

The activities paid for by these funds are very closely related to emissions from mobile sources. Results from MATES V indicate that after scaling by cancer potency, about 88 percent of the carcinogenic air toxics emissions are attributed to mobile sources, with the remainder attributed to toxics emitted from stationary sources, which include large industrial operations such as refineries and power plants as well as smaller businesses such as gas stations and chrome plating facilities. Diesel exhaust, primarily emitted by mobile sources, accounted for approximately 50 percent of the total estimated air toxics risk, based on the MATES V monitoring data.

MATES VI will provide an update on the impact of mobile emission sources on air toxic exposure. The study will provide additional information for South Coast AQMD staff to promote clean fuel projects that will advance the commercialization of clean mobile source technologies.

Attachment

Proposed Resources for MATES VI

**Attachment
Proposed Resources for MATES VI***

Description	Org Unit	Qty	Major Objects	Procurement/ Contracting Method	Unit Cost	FY 2023-24 through FY 2027-28 Estimated Expenditures
Secondary EtO Study	TAO	---	Services & Supplies	Sole Source	---	\$176,956
Mass Hunter	MAD	1	Capital Outlay	Sole Source	\$175,000	\$175,000
Canister Cleaning System	MAD	1	Capital Outlay	Sole Source	\$50,000	\$50,000
Ion Chromatograph	MAD	1	Capital Outlay	Sole Source	\$80,000	\$80,000
Acid Microwave	MAD	1	Capital Outlay	Sole Source	\$52,000	\$52,000
Aethalometers	MAD	2	Capital Outlay	Sole Source	\$50,000	\$100,000
Data Loggers	MAD	5	Capital Outlay	Sole Source	\$18,000	\$90,000
Air Toxics Samplers	MAD	20	Capital Outlay	Sole Source	Varies	\$305,000
Supplemental Lab Ammonia	MAD	---	Capital Outlay	Sole Source	---	\$35,000
Vacuum Pumps	MAD	2	Capital Outlay	RFQ	\$15,000	\$30,000
Computational Storage	PRDI	1	Services & Supplies	Requisition with Prequalified Vendor	\$20,000	\$20,000
Temporary Services	MAD	1	Services & Supplies	---	Varies	\$180,000
Laboratory Supplies	MAD	---	Services & Supplies	---	Varies	\$50,000
					Total	\$1,343,956

*Expenditures may be appropriated as Capital Outlays or Services and Supplies Major Object, as warranted.

*Includes \$205,000 of unused funds for Air Toxics Sampler solicitation from December 1, 2023 (Agenda No. 4) MATES board letter.