

BOARD MEETING DATE: December 1, 2023

AGENDA NO. 4

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

SYNOPSIS: Since 1987, South Coast AQMD has conducted five MATES to evaluate air toxics health risks in South Coast AQMD's jurisdiction. MATES V I measurements for a wide range of air toxics are anticipated to begin the first half of 2025. The collected data will be used to conduct air toxics modeling and quantify health impacts. These actions are to transfer up to \$5,024,725 from the Clean Fuels Program Fund to the General Fund for the MATES V I program, and appropriate funding to the Monitoring & Analysis and Planning, Rule Development, and Implementation divisions' budgets over FY 2023-24 through FY 2027-28 as needed. These actions are also to issue solicitations and purchase orders to support the goals and objectives of MATES VI.

COMMITTEE: Administrative, November 9, 2023; Recommended for Approval

RECOMMENDED ACTIONS:

1. Transfer up to \$5,024,725 from the Clean Fuels Program Fund (31) to the General Fund (01) to support the MATES VI program;
2. Appropriate up to \$5,024,725 from the Undesignated (Unassigned) Fund Balance to the Monitoring & Analysis Division (MAD) and Planning, Rule Development, and Implementation (PRDI) budgets to procure additional resources needed to complete MATES V I on an as-needed basis at any time over the period of FY 2023-24 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 issue a solicitation for a tire and brake wear study, in an amount not to exceed \$850,000;
4. Authorize the Procurement Manager, in accordance with South Coast AQMD's Procurement Policy and Procedure, to issue sole source purchase orders for the following as listed in the Attachment and described in this letter:
  - a. Up to four condensation particle counters from TSI, Inc. in an amount not to exceed \$140,000;
  - b. Up to three aethalometers from Magee Scientific in an amount not to exceed \$120,000;

- c. One Xact 625i multi-metal monitor from SailBri Cooper, Inc. in an amount not to exceed \$165,000;
  - d. Up to three Xact 625i switching inlet systems from SailBri Cooper, Inc. in an amount not to exceed \$48,000;
  - e. Up to three continuous monitors for ethylene oxide from Aerodyne Research, Inc. in an amount not to exceed \$660,000;
  - f. Up to two continuous monitors for ammonia from Picarro, Inc. in an amount not to exceed \$180,000;
  - g. Up to two gas chromatograph mass spectrometer (GC-MS) instruments from Agilent Technologies in an amount not to exceed \$380,000; and
  - h. Up to four GC-MS canister autosamplers from Entech Instruments in an amount not to exceed \$88,000;
5. Authorize the Procurement Manager, in accordance with South Coast AQMD's Procurement Policy and Procedure, to issue "Prior Bid, Last Price" purchase orders, cooperative agreement or solicitation(s) as needed and, based on results, issue purchase orders for the following items, as set forth in the Attachment and described in this letter:
- a. Up to three monitoring shelters in an amount not to exceed \$270,000;
  - b. Up to two vehicles in an amount not to exceed \$190,000; and
  - c. Up to three zero air generators in an amount not to exceed \$42,000;
6. Authorize the Procurement Manager, in accordance with South Coast AQMD's Procurement Policy and Procedure, to issue solicitations and purchase orders for the following through a solicitation process, as set forth in the Attachment and described in this letter:
- a. One GC-MS thermal desorption system in an amount not to exceed \$175,000;
  - b. Up to 16 air toxics samplers in an amount not to exceed \$300,000;
  - c. Up to two gas dilution systems in an amount not to exceed \$60,000; and
  - d. One Linux computational server system in an amount not to exceed \$150,000;
7. Authorize the Procurement Manager, in accordance with South Coast AQMD's Procurement Policy and Procedure, to issue solicitations and purchase orders in an amount not to exceed \$532,250 for various tools and flow devices, instrument refurbishment maintenance and repair, laboratory and field supplies, silanized canisters, Linux storage, and supplementary laboratory services, as set forth in the Attachment.

Wayne Natri  
Executive Officer

## **Background**

MATES is a Board environmental justice initiative that started back in 1987 with MATES I. South Coast AQMD previously conducted five MATES campaigns to characterize the concentration of airborne toxic compounds within the South Coast AQMD jurisdiction and to determine the region-wide cancer risks associated with major airborne carcinogens. However, as each successive MATES campaign builds on the previous work, each iteration added additional 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 communities throughout the region. MATES continues to be the most sophisticated regional air toxics analysis conducted in the nation, taking advantage of the extensive air quality monitoring, modeling, and analysis expertise and resources at the agency.

South Coast AQMD has initiated MATES VI and will begin measurements beginning in 2025. Similar to 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. MATES VI field measurements will be conducted over a one-year period at ten fixed sites to evaluate air toxics levels. MATES VI monitoring is being extended to the Coachella Valley for the first time. In addition, two of the ten monitoring locations will be sited adjacent to freeways to capture near-road air toxics impacts. MATES VI will also include measurements of ultrafine particle (UFP) and black carbon (BC) concentrations, which can be compared to the UFP and BC levels measured in MATES IV and MATES V, continuous measurement of metals, some of which are chemical tracers for non-exhaust vehicular emissions, and measurement of ammonia, a key precursor to PM<sub>2.5</sub> formation in the region. Currently South Coast AQMD operates only one ammonia monitor in Coachella Valley and more measurements as part of MATES VI can help better understand the sources of ammonia across South Coast AQMD's jurisdiction. While MATES VI is focused on air toxic impacts, these ammonia measurements and particle speciation measurements will provide additional information about the sources and composition of PM<sub>2.5</sub>, which will assist in the design of control strategies to attain federal PM<sub>2.5</sub> standards.

In addition to the fixed site monitoring, MATES VI will include a special study to characterize emissions of ethylene oxide (EtO) in ambient air and at the near-road sites to assess the contribution of vehicular emissions to background EtO concentration levels. The TAG will assist with the overall design of this study, and a scope and project plan for this part of the MATES VI campaign will be developed through the TAG meetings.

South Coast AQMD already possesses some of the monitoring and laboratory equipment needed for MATES V I. However, additional instrumentation and replacement, repair, and calibration of some older equipment is required to complete all the proposed measurements and can be used after MATES VI for additional studies, special investigations, or community monitoring. Laboratory and field supplies are also needed to conduct MATES VI. In addition to equipment and supply needs, temporary staffing is necessary to meet the additional workload associated with MATES VI, as well as contractor support services for conducting tire-wear marker study, and to support study design, data analysis, and review.

### **Proposal**

This action is to transfer and appropriate up to \$5,024,725 to the MAD and the PRDI budgets over FY 2023-24 through FY 2027-28 to purchase the necessary equipment and supplies, and retain temporary staff for the MATES V I program. A list of resource needs is detailed in the Attachment.

### Solicitation

#### *Tire and Brake Wear Study*

Information about the chemical composition of tires and brakes used in commercial light and heavy-duty vehicles is instrumental to determine which measurements should be conducted to attribute PM mass and gas phase markers to these sources.

Measurements of these species require specialized instrumentation and expertise. This action is to issue a solicitation from qualified vendor(s), research lab(s) or educational institution(s) to assist with study design, sample analysis, provide access to database of brake and tire composition, and/or interpret measurement data. This information will be used to quantify the contribution of tire and brake wear towards ambient PM levels.

Therefore, this action is to authorize the Executive Officer to issue a solicitation for a tire and brake wear study for an amount not to exceed \$850,000.

### Proposed Sole Source Purchase Orders

#### *Condensation Particle Counters*

The MATES V I campaign will include the measurement of UFPs, which will allow for an evaluation of trends in UFP levels since MATES IV. Since the majority of the number of particles in the atmosphere is in the ultrafine mode, counting the number of atmospheric particles provides a good indicator of ultrafine particle levels. The most common method for determining ambient particle number concentrations is to use Condensation Particle Counters (CPCs). CPCs currently are deployed at existing near-road and AB 617 community monitoring stations, but additional CPCs are needed for MATES VI. Therefore, this action is to authorize the Procurement Manager to issue a sole source purchase order with TSI, Inc. for an amount not to exceed \$140,000 for the purchase of up to four CPCs.

### *Aethalometers*

Aethalometers are monitors that measure BC, which can be used to help estimate diesel particulate matter. Aethalometers are currently deployed at existing near-road and AB 617 community monitoring stations but additional aethalometers are needed for MATES V I. Therefore, this action is to authorize the Procurement Manager to issue a sole source purchase order with Magee Scientific for an amount not to exceed \$120,000 for the purchase of up to three aethalometers.

### *Xact 625i Multi-Metal Monitor*

MATES VI will include novel continuous measurement of air toxic metals. The main sources of non-exhaust vehicular emissions that contribute to road dust are tire, brake and clutch wear, road surface wear, and other vehicle and road degradation. Measurement of metals provides better understanding regarding these non-exhaust vehicular sources to regional air toxic levels across South Coast AQMD's jurisdiction. Xact 625i multi-metal monitors already have been deployed in Environmental Justice communities under the AB 617 program, but an additional one is needed for a near-road site. Therefore, this action is to authorize the Procurement Manager to issue a sole source purchase order with SailBri Cooper Inc. for an amount not to exceed \$165,000 for the purchase of one Xact 625i monitor.

### *Xact 625i Switching Inlet Systems*

The Xact 625i monitor requires the switching inlet system to be able to measure the metal content of both PM10 and PM2.5. The measurements at both size ranges can provide additional information about the potential sources of the measured air toxic metals. Therefore, this action is to authorize the Procurement Manager to issue a sole source purchase order with SailBri Cooper Inc. for an amount not to exceed \$48,000 for the purchase of up to three Xact 625i switching inlet systems to conduct particulate metal measurements.

### *Continuous Monitors for Ethylene Oxide*

Aerodyne Research, Inc. developed a continuous monitor based on Tunable Infrared Laser Direct Absorption Spectroscopy (TILDAS) for direct measurements of EtO in real- and near-real time. When operated under ideal conditions, this instrument can achieve a detection limit for EtO close to typical background levels measured in the Basin using canister sampling followed by laboratory analysis (method TO-15A). This instrument has high sensitivity, has demonstrated field performance in the Basin with minimal data loss, and can be integrated easily with one of South Coast AQMDs mobile platforms for air toxic measurements (also developed by Aerodyne Research, Inc). Aerodyne's TILDAS-FD-SC-L1 would be used to obtain near-road and community-based measurements as part of MATES VI for an assessment of EtO diurnal variation which would be more difficult using sampling and laboratory analysis techniques. The approximate cost for one TILDAS-FD-SC-L1 and associated equipment is \$220,000. Therefore, this action is to authorize the

Procurement Manager to issue a sole source purchase order with Aerodyne Research, Inc. for an amount not to exceed \$660,000 for the purchase of up to three continuous monitors for ethylene oxide.

#### *Continuous Monitors for Ammonia*

MATES VI will also include the measurement 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. Although ammonia isn't classified as an air toxic, it is recognized for causing both short-term and long-term respiratory health issues. Therefore, this action is to authorize the Procurement Manager to issue a sole source purchase order with Picarro, Inc. for an amount not to exceed \$180,000 for the purchase of up to two continuous monitors for ammonia.

#### *Gas Chromatograph Mass Spectrometer Instruments*

The laboratory currently has two gas chromatograph mass spectrometers (GC-MS) systems that are used for the measurement of ambient level gaseous air toxics. One of these instruments is approximately twenty years old and its reliability has been steadily declining. To ensure timely analysis of gaseous toxic samples collected in MATES VI, in particular for detection of toxic compounds at low concentrations, it is necessary to replace this GC-MS. Also, the laboratory has a need to expand its capability and analyze for additional semi-volatile organic compounds that are known to be associated with vehicular tire wear. This capability does not exist in the laboratory currently, and the analyses of these compounds will aid in evaluating any potential contributions of tire wear to overall risk as well as provide additional air toxics that the laboratory can identify and measure. This action is to authorize the Procurement Manager to issue a sole source purchase order with Agilent Technologies for up to two GC-MS instruments for an amount not to exceed \$380,000.

#### *GC-MS Canister Autosamplers*

The laboratory has a need for up to four additional canister autosamplers for existing gas chromatograph mass spectrometers. These autosamplers will allow for increased analytical throughput for the analysis of ambient level gaseous air toxics. This action is to authorize the Procurement Manager to issue a sole source purchase order with Entech Instruments for an amount not to exceed \$88,000 for up to four GC-MS canister autosamplers.

#### Proposed Purchase through “Prior Bid, Last Price” or Solicitation Process

##### *Monitoring Shelters*

MATES VI is expected to include measurements at near-road and ambient monitoring stations. Three monitoring shelters are required to expand the existing near-road and ambient monitoring stations to accommodate additional instrumentation and equipment. The estimated cost for up to three monitoring shelters is \$270,000. The

purchase will be made by Prior Bid, Last Price or through a solicitation process, as needed, followed by issuance of a purchase order.

Proposed Purchases through a Solicitation Process, “Prior Bid, Last Price” or Cooperative Agreement

*Vehicles*

There is a need to replace up to two of the older high-mileage vehicles. This will help with the installation of air monitoring equipment at all ten sites in preparation for MATES VI. These additional vehicles are also necessary to perform routine and non-routine calibration, maintenance, and repair of air monitoring equipment throughout this study. Staff proposes to purchase two ZEV’s (truck or van) to support field activities related to MATES VI for an amount not to exceed \$190,000. The vehicles will be selected through a solicitation process, “Prior Bid, Last Price” or Cooperative Purchasing Agreement. ZEV’s are available from vendors through cooperative purchasing under the State of California, Department of General Services, Procurement Division, and Alternative Fueled Vehicles Contract 122-23-23 A through I. These advanced technology vehicles will be assigned to field maintenance technicians and will be used for MATES VI, while supporting the agency’s commitment to use zero-emission technologies, where feasible.

*Zero Air Generators*

Zero air generators are necessary to deliver contaminant-free air required for the operation of air monitoring equipment in support of MATES VI measurements. The purchase will be made by “Prior Bid, Last Price” or through an informal solicitation, if necessary, as allowed by South Coast AQMD’s Procurement Policy and Procedure. The estimated cost for up to three zero air generators is \$ 42,000.

Proposed Purchase Through a Solicitation Process

*GC-MS Thermal Desorption System*

The laboratory has a need to expand its capability to analyze semi-volatile organic compounds (SVOCs) that are known to be associated with vehicular tire wear. Analysis of SVOCs will be performed using an EPA TO-17 based methodology and will aid in evaluating potential contributions of tire wear. This action is to authorize the Procurement Manager to release a solicitation, and based on the results, issue a purchase order for one GC-MS thermal desorption system for an amount not to exceed \$175,000.

*Air Toxics Samplers*

Air toxics samplers for measuring VOCs, carbonyls, and metals are in need of replacement. Therefore, this action is to authorize the Procurement Manager to release a solicitation, and based on the results, issue purchase orders for up to 16 air toxics samplers to measure VOCs, carbonyls, and metals for an amount not to exceed \$300,000.

### *Gas Dilution Systems*

Up to two gas dilution systems are needed for the preparation of lower concentration standards to support the analysis of air toxic gases. Each toxic compound analyzed on the GC-MS requires calibration against standards at varying concentrations which must be prepared using gas dilution systems. Currently the laboratory does not have gas dilution systems to prepare calibration standards from multiple standards. This action is to authorize the Procurement Manager to release a solicitation, and based on the results, issue purchase orders for up to two gas dilution systems for an amount not to exceed \$60,000.

### *Linux Computational Server System*

Emissions inventory and cancer risk estimation require a high-speed multi-processor performance Linux computing system and storage space due to large quantities of data and computations needed to meet the level of analysis performed for MATES VI. For example, on-road mobile source emissions processing alone requires multiple computational units to run continuously over several weeks. In addition, the process needs to be repeated for other sources of emissions as well. Chemical transport modeling and tracking specific sources of emissions demand several orders of magnitude more computational resources. MATES VI modeling analysis will utilize state-of-the art air quality model, sensor/transponder/satellite-based data to evaluate and improve the modeling performance. A comprehensive high performance computing server system is critical to cope with the ever-increasing computational demand of such state-of-the art computation tool and database. This action is to authorize the Procurement Manager to release a solicitation process, and based on the results, issue a purchase order for one Linux Computational Server System for an amount not to exceed \$150,000.

### **Outreach**

In accordance with South Coast AQMD's Procurement Policy and Procedure, a public notice advertising the solicitations and inviting bids will be published in the local newspapers to leverage the most cost-effective method of outreach to South Coast AQMD's jurisdiction. Additionally, potential bidders may be notified utilizing South Coast AQMD's own electronic listing of certified minority vendors. Notice of the RFQ\RFP will be emailed to the Black and Latino Legislative Caucuses and various minority chambers of commerce and business associations and placed on South Coast AQMD's website (<http://www.aqmd.gov>) where it can be viewed by making the selection "Grants & Bids."

### **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 purchases of the CPCs, aethalometers and Xact 625i multi-metal monitor, and switching inlet system 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. TSI is



the only manufacturer of water-based CPCs in the United States whose products have a long history of scientific evaluation and testing. Various CPC models have been extensively evaluated by South Coast AQMD staff over the past several years for the purpose of choosing the most appropriate instrument for long-term, unattended OPR measurements in studies such as MAIES. The aerosolometers are similarly available from only one distributor, Magee Scientific. No other manufacturer or distributor sells a "seven-channel" BC monitor with similar technical specifications and pricing, as it involves the use of proprietary technology. The Xact 6201 is the only field X-ray fluorescence instrument that offers an Automated Data Analysis Plotting Toolset (ADAPI) package to analyze the measurements of over 40 different metals in ambient particles in real-time. The ADAPI package includes the hardware for on-site meteorological measurement and intuitive software which is accessed in the field or remotely through the onboard computer. The software platform generates multiple graphical reports in near real-time over user selected time periods to deliver insights on the temporal and directional variability trends of the measured metals. The metal data provided by the Xact 6201 is critical to satisfying the goals and objectives of MAIES v1. In addition, the Xact 6201 monitors require the switching inlet system to be able to measure the metal content of both PM10 and PM2.5. The measurements at both size ranges can provide additional information about the potential sources of the measured air toxic metals. Salsbery Cooper Inc. is the only manufacturer of the Xact 6201 multi-metal monitor and switching inlet system.

The request for sole source purchases for continuous monitors for ethylene oxide and for ammonia from Aerodyne Research, Inc. and Picarro, Inc., respectively, are made under Section VIII.B.2.c(1)(2): The unique experience and capabilities of the contractor or contractor team, and the project involves the use of proprietary technology. The Aerodyne instrument is the only portable continuous monitor for ethylene oxide with a demonstrated capability of detecting concentrations of EtO near regional background levels on a continuous basis, with minimal instrument downtime. This continuous monitor for ethylene oxide is exclusively sold through Aerodyne Research, Inc. The Picarro instrument is the only continuous monitor for ammonia that provides a combination of portability and demonstrated capability for unattended long-term measurements of ammonia at background levels with minimal instrument downtime. This continuous monitor for ammonia is exclusively sold through Picarro, Inc.

The request for sole source purchase of the GC-MS instruments and the GC-MS canister autosamplers are made under Section VIII.B.2.d(6): Projects requiring compatibility with existing specialized equipment. Agilent Technologies is the manufacturer and supplier of the GC-MS systems currently used by South Coast AQMD to implement the NATTS program and used for analysis of samples for the ethylene oxide investigations. This system has been demonstrated to meet stringent TO-15A requirements, which are needed. Staff are trained on the use, repair, and maintenance of this equipment, facilitating cross-training and interoperability.

Consistency and compatibility amongst these GC-MS are critical to meeting the operational needs of the agency. The autosamplers manufactured by Entech Instruments are the only autosampler units compatible with the five Entech pre-concentrators operated by the laboratory.

### **Benefits to South Coast AQMD**

The MATES studies conducted by South Coast AQMD provide essential information on air toxics levels in the South Coast AQMD's jurisdiction and present 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**

Staff is requesting to transfer a total of up to \$5,024,725 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 V I 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 V I 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
Tire and Brake Wear Study Contract	PRDI	---	Services & Supplies	RFP	---	\$850,000
Condensation Particle Counters	MAD	Up to 4	Capital Outlay	Sole Source	\$35,000	\$140,000
Aethalometers	MAD	Up to 3	Capital Outlay	Sole Source	\$40,000	\$120,000
Xact 625i Multi-Metal Monitor	MAD	1	Capital Outlay	Sole Source	\$165,000	\$165,000
Xact 625i Switching Inlet Systems	MAD	Up to 3	Capital Outlay	Sole Source	\$16,000	\$48,000
Continuous Monitors for Ethylene Oxide	MAD	Up to 3	Capital Outlay	Sole Source	\$220,000	\$660,000
Continuous Monitors for Ammonia	MAD	Up to 2	Capital Outlay	Sole Source	\$90,000	\$180,000
GC-MS Instruments	MAD	Up to 2	Capital Outlay	Sole Source	\$190,000	\$380,000
GC-MS Canister Autosamplers	MAD	Up to 4	Capital Outlay	Sole Source	\$22,000	\$88,000
Monitoring Shelters	MAD	Up to 3	Capital Outlay	'Prior Bid, Last Price' or Solicitation	Varies	\$270,000
Vehicles	MAD	Up to 2	Capital Outlay	'Prior Bid, Last Price' or Solicitation	\$95,000	\$190,000
Zero Air Generators	MAD	Up to 3	Capital Outlay	'Prior Bid, Last Price' or Solicitation	Varies	\$42,000
GC-MS Thermal Desorption System	MAD	1	Capital Outlay	RFQ	\$175,000	\$175,000
Air Toxic Samplers	MAD	Up to 16	Capital Outlay	RFQ	Varies	\$300,000
Gas Dilution Systems	MAD	Up to 2	Capital Outlay	RFQ	\$30,000	\$60,000
Linux Computational Server System	PRDI	1	Capital Outlay	RFQ	\$150,000	\$150,000
Various Tools and Flow Devices	MAD	---	Services & Supplies	---	---	\$45,000

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

**Attachment (continued)**  
**Proposed Resources for MATES VI\***

<b>Description</b>	<b>Org Unit</b>	<b>Qty</b>	<b>Major Objects</b>	<b>Procurement/ Contracting Method</b>	<b>Unit Cost</b>	<b>FY 2023-24 through FY 2027-28 Estimated Expenditures</b>
Instrument Refurbishment, Maintenance, and Repair	MAD	---	Services & Supplies	---	---	\$45,000
Laboratory and Field Supplies	MAD	---	Services & Supplies	---	---	\$350,000
Silanized Canisters	MAD	Up to 30	Services & Supplies	---	\$1,000	\$30,000
Additional Linux Storage	PRDI	1	Services & Supplies	---	\$15,000	\$15,000
Supplementary Laboratory Analysis	MAD	Varies	Services & Supplies	---	Varies	\$47,250
Temporary Services	MAD	5	Services & Supplies	---	Varies	\$645,000
Mileage	MAD	45,000	Services & Supplies	---	\$0.655	\$29,475
					<b>Total</b>	<b>\$5,024,725</b>

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