BOARD MEETING DATE: May 2, 2014 AGENDA NO. 9

PROPOSAL: Appropriate Funding and Authorize Enhancements to SCAQMD's Air Toxics Monitoring Program

SYNOPSIS: Air toxics monitoring at SCAQMD continues to be an integral part of ongoing efforts to better characterize air toxics exposure and assess the effectiveness of air toxics reduction programs. While such monitoring efforts are given the highest priority, their effectiveness and staff efficiency can be greatly enhanced by investing in new and updated laboratory and field equipment and data management software that would allow for rapid response and near-real time monitoring, data processing and reporting. This action is to: 1) transfer and appropriate funding to the Science & Technology Advancement FY 2013-14 and/or FY 2014-15 Budget and 2) release RFQs and issue purchase orders for laboratory and field equipment.

COMMITTEE: Administrative, April 11, 2014; Recommended for Approval

RECOMMENDED ACTIONS:

1. Transfer and appropriate funding up to $1,327,450 from the BP ARCO Settlements Projects Fund (46) to the Science & Technology Advancement FY 2013-14 and/or FY 2014-15 Budget (Org 44) Capital Outlays Major Object and Services and Supplies Major Object; and
2. Authorize the Procurement Manager to:
   a) Release RFQs in the amount of $762,450 and issue subsequent purchase orders, in accordance with Procurement Policy and Procedures, for laboratory and field equipment not to exceed the amounts as listed in Table 1; and
   b) Issue sole source purchase orders in the amount of $565,000 for laboratory and field equipment not to exceed the amounts as listed in Table 2.

Barry R. Wallerstein, D.Env.
Executive Officer

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Background
Air toxics monitoring at SCAQMD continues to be an integral part of ongoing efforts to better characterize air toxic exposure and assess the progress and effectiveness of toxic air contaminant reduction programs. Currently, staff is completing the MATES IV fixed site monitoring program data evaluation and conducting active monitoring and analysis for toxics at several facilities including TAMCO, Exide, Carlton Forge Works, Allenco, Hixson, Mecca, and Ridgeline. Additionally, samples are collected and analyzed to assess the impact of oil extraction operations, as well as source tests of toxic emissions from facilities such as Quemetco. With the ever improving public awareness of air pollution in general, and air toxics in particular, requests for similar monitoring at other facilities is only expected to grow in the future.

In addition to the local initiatives and efforts to reduce and monitor toxic air contaminants, there are ongoing federal monitoring programs for toxics, such as U.S. EPA's National Air Toxics Trends Sites (NATTS) program and near-road monitoring, which are also being conducted locally by staff. There are currently 188 hazardous air pollutants (HAPs), or air toxics, regulated under the Clean Air Act that are associated with a wide variety of adverse health effects, including cancer and neurological effects. The U.S. EPA Government Performance Results Act specifies a goal of reducing air toxics emissions by 75% from 1993 levels to significantly reduce the health risks. The NATTS Program was developed to fulfill the need for long-term national HAP monitoring data. In 2007, U.S. EPA expanded the NATTS Program and awarded Section 103 grant funds to conduct monitoring for toxic air contaminants at two existing SCAQMD monitoring sites--Central Los Angeles and Rubidoux. The air toxics data compiled through these monitoring efforts serves as a continuum between past and future air toxics measurements programs, such as MATES, and allows for more accurate evaluation of toxic trends on a regional basis.

While these programs are given the highest priority, SCAQMD's response time, in terms of final data reporting, public dissemination of information and data capture rates, can be enhanced with new and updated laboratory instrumentation, monitoring equipment, and vehicles. Further, given current resource constraints, staff efficiency can be enhanced with the employment of new data management software that will allow the automation of certain aspects of data processing.

Proposal
In an effort to further upgrade and continue to modernize SCAQMD's air toxics monitoring capability and improve efficiency, this action is to appropriate up to $1,327,450 for the purchase of the following laboratory and field equipment, vehicles and software upgrades through a combination of competitive and sole source purchases, as described below and summarized in Tables 1 and 2.

Proposed Purchases through an RFQ Process

Inductively Coupled Plasma/Mass Spectrometer (ICP/MS)

ICP/MS systems are analytical laboratory-based instrumentation utilized to generate data for the NATTS and other air toxics monitoring programs. Presently, the laboratory has one functional ICP/MS which is used for all special metals monitoring programs such as Exide, Carlton Forge Works (CFW), TAMCO and the ambient lead monitoring network. Additionally, this instrument is used for analyzing samples collected during source tests at Exide, Quemetco, TAMCO and CFW. Since there is no back-up for this instrument, when it is down for repairs, we lose the ability to analyze metals until it is repaired. An additional ICP/MS would double the current metals analyses capacity and provide uninterrupted analytical capability when one instrument is inoperable. This instrument can be purchased for approximately $220,000.

Gas Chromatograph/Mass Spectrometer (GC/MS)

One of the GC/MS instruments that is used to analyze canister samples for ambient toxic VOCs is ten years old, and the current operating system and associated PC is no longer supported by the vendor nor are upgrades available. As a result, this GC/MS PC has been taken off the network, thereby eliminating staff's ability to check the instrument's performance after hours or electronically transfer data for review, validation and report generation. Additionally, this older instrument is not capable of meeting EPA's newly mandated NATTS lower detection limits. A new upgraded GC/MS system costs approximately $145,000.

Mobile Monitoring Platform

An ambient near-real time metals monitor is being proposed for purchase (see Table 1). A trailer and/or medium-duty vehicle (mobile monitoring platform) will be needed to house and deploy this new metals monitor. The mobile platform would need to be equipped with a generator, meteorological system, communications capability, and the ability to carry and support a variety of rack mounted instruments. The estimated cost for a vehicle, with instruments (excluding the metals monitor), is approximately $100,000.

Data Processing Software

The SCAQMD conducts three particulate monitoring programs; total suspended particulates (TSP) for lead, PM_{10} and $PM_{2.5}$ for mass and speciation. Combined, these networks generate over 10,000 filters annually. The TSP and PM_{10} networks use samplers whose technology has remained fundamentally unchanged for at least three decades. Recent updates have allowed for the electronic capture of sample elapsed time and flow rate data of TSP and PM_{10} samples consistent with the $PM_{2.5}$ samples; however, paper-based chain-of-custody information must still be manually entered into a database and later manually quality assured. Data processing software is now available that will automatically populate data fields, include sampler location, perform

first level quality assurance checks, and format the data for uploading to other databases including the Laboratory's Information Management System (LIMS). Data processing software has been in use by local, state and federal agencies and is accepted by the U.S. EPA. The data generated by the PM programs ultimately resides in US EPA's Air Quality System (AQS) database.

Employment of such software will greatly enhance data processing accuracy of efficiency by allowing for the elimination of the current paper-chains-of-custody generated at ambient monitoring stations and integrate everything into digital format. It will also facilitate the transfer of data between field and laboratory staff, doing away with the time-consuming transcription of data and manual checking for errors. The cost of the software, which would be installed on laptops currently utilized by field personnel, is approximately $90,000.

High Volume Samplers

Typically, ambient concentrations of metals such as lead, nickel, manganese, cadmium and particulate arsenic have been determined by filter-based sampling followed by laboratory analysis. High volume TSP samplers are the Federal Reference Method (FRM) for lead and are being used by the SCAQMD to determine other metals in ambient air at various sites throughout the Basin such as battery recyclers and metal forging facilities. Six additional samplers are needed to conduct routine metals monitoring at an increasing number of locations. The cost of one High Volume TSP air sampler is $7,075 so the total cost of six samplers would be approximately $42,450.

Hydrocarbon Analyzer

Hydrocarbon analyzers are currently being used at special monitoring locations near VOC sources. These sources include oil production facilities, materials recovery facilities and landfills. The hydrocarbon analyzers provide continuous measurements of total non-methane hydrocarbons. The instrument's output is a data file providing total hydrocarbon data including toxic air contaminants as a function of time. As with other continuous monitors, when combined with wind speed and direction data, the information generated provides a powerful tool to assess a facility's impact on a nearby community as well as the potential to determine specific processes that may be causing hydrocarbon emissions through use of the time stamp. The analyzer has also been configured to trigger a canister sample which can then be brought to the laboratory for detailed chemical speciation. Further, the analyzer can be mounted in the SCAQMD Community Response Trailer or in one of the SCAQMD air monitoring stations to greatly enhance SCAQMD's ability to rapidly respond to community concerns. The cost of a non-Methane Hydrocarbon Analyzer is approximately $20,000.

Audit Vehicle

In accordance with 40 CFR Part 58 Appendix A regulations, SCAQMD's Quality Assurance (QA) branch conducts performance evaluation audits on all monitors that

report data to U.S. EPA's AQS database. The audits are performed to assure that all data uploaded to AQS is of sufficient quality to meet all Federal programs objectives. Currently, the QA branch conducts all required annual and semi-annual audits for all continuous monitors at 32 air monitoring sites. U.S. EPA's and CARB's preferred method of auditing involves the use of an audit vehicle. The audit vehicle is used to transport the audit instruments to each of the air monitoring sites in shock-absorbing racks that prevent damage to the instruments. The vehicle is also being used to safely transport multiple cylinders of calibration and carrier gases used during an audit. An audit vehicle is preferred in that it increases efficiency and minimizes the potential of contamination in the auditing system by eliminating the need to set-up and disassemble instruments and gas lines.

Currently, there is only one field auditor in the QA branch assigned to perform the required monitor and site audits. The purchase of an audit vehicle would improve efficiency greatly. Finally, the audit vehicle could be used for quick deployment of instrumentations by other SCAQMD groups, when needed. The cost for an audit vehicle is approximately $70,000.

Source Testing Vehicle

Source test trucks are used for transporting SCAQMD source testing personnel and sampling equipment to and from facilities that are being tested for emissions. Currently, the two 1990 model trucks in use require regular repairs and a replacement vehicle is needed. The replacement truck would need to keep the same features of the current vehicles, specifically crew cab (six person seating capacity) with dual rear tires, one ton suspension, and an 11-foot length enclosable and lockable utility bed. The bed must be enclosed and lockable for equipment and sample storage and chain-of-custody purposes. A clean fuel and low-emission vehicle is preferred. The estimated cost of the source testing vehicle is $75,000.

Proposed Purchases through Sole Sources

Ambient Near-Real Time Metals Monitor

An ambient near-real time metals monitor on a mobile platform will provide SCAQMD with the ability to take measurements of ambient metals concentrations in intervals as short as 15 minutes and deploy the instrument within a matter of hours. Data can be reported to field staff and back to headquarters in near-real time. While the instrument is not capable of chrome VI analysis, it is able to measure a wide range of metals simultaneously. Metals that can be monitored include lead, nickel, manganese, arsenic, and chromium, which have been of most concern in recent projects. In combination with wind data, this near-real time capability will provide a powerful tool to better pinpoint potential sources and estimate exposure to toxic metal emissions. The cost of the ambient metals monitor shall not exceed $290,000 and is manufactured only by

Cooper Scientific Instruments. This instrument is the same as the monitor being considered on a lease-to-own basis for fixed-site monitoring near Exide and Quemetco.

Fast Mobility Particle Sizer

The Fast Mobility Particle Sizer (FMPS) spectrometer measures particles in the range from 5.6 to 560 nm, and produces particle-size-distribution measurements in real time (i.e. one-second time resolution). The FMPS is easy to transport, set up, and operate. Because of its versatility and fast response, the FMPS is ideal for special monitoring applications and for measuring the particle-size distribution near freeways, airports, refineries, and other sources. Other potential applications include: particle formation and growth studies, indoor air-quality measurements, and transient emission studies from stacks, boilers, and wood burners. The FMPS can be operated inside a fixed monitoring station or mounted inside an electric vehicle for mobile measurements. The purchase of an FMPS would greatly enhance the monitoring capabilities of the atmospheric measurement and special monitoring groups. The cost of an FMPS unit shall not exceed $90,000 and is currently manufactured only by TSI Instruments.

Automated Data Loggers

Air monitoring data acquisition and storage is a vital function in assuring that data is completely and accurately recorded and transmitted to SCAQMD's air monitoring data server and website in near-real time. Continuous air monitoring instruments are operating at 37 air monitoring stations throughout the Basin. Most data from these instruments is generated on a minute basis, 24 hours a day. Air monitoring data are subject to multiple layers of quality control to assure data completeness, and thus measures are needed to provide added security from data loss such as data storage backup. For over a decade, data loggers have been the primary means of redundant data storage at each air monitoring site. In the event there is an interruption of the data stream or issues with the centralized data at the primary server, the instrument data at the stations is stored on the data logger and can be retrieved later as needed. The current data loggers are over ten years old and are no longer being supported by the manufacturer. In addition, modern air monitoring instruments use digital output for which the old data loggers do not support. To support the data acquisition and recording of the newer instrumentation, Agilaire 8872 data loggers have already been installed at 11 existing air monitoring stations to succeed the existing data loggers and provide the appropriate digital interface for data storage and video functionality. They are compatible with the AirVision data acquisition system currently in use at SCAQMD. Twenty six additional units are needed to complete the full network upgrade at each station with continuous air monitoring instruments. A purchase order to Agilaire for these 26 additional units shall not exceed $125,000.

Black Carbon Monitor

Aethalometers are used to measure levels of black carbon in air. Black carbon is emitted from all types of combustion, but most notably from diesel exhaust. It has long

been recognized that diesel emissions are carcinogenic. There is, however, no direct measurement technique of diesel emissions available. As such, black carbon, also known as elemental carbon, is the surrogate that is used to estimate diesel emissions. Black carbon is measured either through filter-based analysis or in real time with the use of aethalometers. The SCAQMD owns several aethalometers already and any new units should be compatible technologically such that site-to-site comparisons can be accurately made. At this time one additional unit is needed to be able to characterize local area impacts as part of a broader effort to characterize toxics throughout the basin. A purchase order to Teledyne/API for one additional aethalometer shall not exceed $25,000.

Laboratory Data Entry Software

The Laboratory uses the LIMS for logging in of samples for analysis. LIMS also serves as the primary data storage hub as well as report generator for many of the lab's analysis. Data is often entered into the LIMS manually due to the lack of ability to electronically upload data generated by analytical instrumentation. Within the past few years commercially available software has matured to the point where most laboratory instruments can be reliably interfaced with LIMS. LimsLink® is one such software that has reduced errors and costs associated with manual data entry in the laboratory by ensuring that instrument generated results and sample information are accurately and efficiently transferred in real time between instruments, instrument data systems and the LIMS. LimsLink® has also automated the many routine manual tasks that chemists carry out on a daily basis, such as ensuring QC standards meet specific criteria and making certain duplicate runs of samples are completed and within specification. Several LimsLink® licenses were procured two years ago and have since proven to reduce manual transcription errors, increase throughput and expedite accessing and reporting analytical data. Ten additional licenses are requested and shall not exceed a total cost of $35,000.

Outreach

In accordance with SCAQMD's Procurement Policy and Procedure, a public notice advertising the RFQs and inviting bids will be published in the Los Angeles Times, the Orange County Register, the San Bernardino Sun, and Riverside County Press Enterprise newspapers to leverage the most cost-effective method of outreach to the South Coast Basin.

Additionally, potential bidders may be notified utilizing SCAQMD's own electronic listing of certified minority vendors. Notice of the RFQs will be e-mailed to the Black and Latino Legislative Caucuses and various minority chambers of commerce and business associations, and placed on the Internet at SCAQMD's website (http://www.aqmd.gov where it can be viewed by making menu selections "Inside AQMD"/"Employment and Business Opportunities"/"Business Opportunities" or by

going directly to http://www.aqmd.gov/rfp/index.html). Information is also available on SCAQMD's bidder's 24-hour telephone message line (909) 396-2724.

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 through Cooper Scientific Instruments and TSI Instruments are made under Section VIII.B.2(1) The unique experience and capabilities of the proposed contractor or contractor team. Additionally, Section VIII.B.2.d(6) of the SCAQMD's Procurement Policy and Procedure allows for sole source purchases in which: "Other circumstances exist which in the determination of the Executive Officer require such waiver in the best interests of the SCAQMD. Such circumstances may include but are not limited to: Projects requiring compatibility with existing specialized equipment." The purchase of the additional LimsLink® licenses are proposed under this section because the Laboratory already has LimsLink® licenses in use in the lab and additional licenses will ensure compatibility with the existing licenses. Likewise, the purchase of the Agilaire data loggers and Teledyne/API aethalometer is also proposed under this section since identical items are already in use in SCAQMD's air monitoring network stations and have been integrated well with a history of reliability.

Benefits to SCAQMD
The purchase of new laboratory and field equipment and data management software will provide for greater efficiency and accuracy of data collection and reduced costs over time.

Resource Impacts
There is adequate funding in the BP ARCO Settlements Projects Fund (46) to cover the proposed purchases, which are listed in Tables 1 and 2 below. The proposed amounts for any items not encumbered in FY 2013-14 may be appropriated in FY 2014-15. Purchase orders and contracts will be executed by the Chairman or Executive Officer in accordance with Procurement Policy and Procedures in amounts not to exceed those listed below

Table 1

Proposed Purchases through RFQ Process

Description	Qty	Total Amount
Inductively Coupled Plasma/Mass Spectrometer (ICP/MS)	1	$220,000
Gas Chromatograph/Mass Spectrometer (GC/MS)	1	$145,000
Mobile Monitoring Platform	1	$100,000

Data Processing Software	1	$90,000
High Volume Samplers	6	$42,450
Hydrocarbon Analyzer	1	$20,000
Audit Vehicle	1	$70,000
Source Testing Vehicle	1	$75,000
Total Proposed Purchases through RFQ Process		$762,450

Table 2

Proposed Purchases through Sole Sources

Description	Qty	Total Amount
Ambient Near-Real Time Metals Monitor	1	$290,000
Fast Mobility Particle Sizer (FMPS)	1	$90,000
Agilaire 8872 Data Loggers	26	$125,000
Black Carbon Monitor	1	$25,000
Laboratory Data Entry Software (LimsLink® Licenses)	10	$35,000
Total Proposed Purchases through Sole Sources		$565,000