

STATE OF CALIFORNIA  
**STANDARD AGREEMENT**  
 STD 213 (Rev 06/03)

AGREEMENT NUMBER <b>14-539</b>
REGISTRATION NUMBER

1. This Agreement is entered into between the State Agency and the Contractor named below:

STATE AGENCY'S NAME  
**Air Resources Board (ARB)**

CONTRACTOR'S NAME  
**SCS Tracer Environmental (Contractor)**

2. The term of this Agreement is: June 30, 2015 through June 29, 2018

3. The maximum amount of this Agreement is: **\$481,116.00**  
**Four Hundred Eighty One Thousand One Hundred Sixteen Dollars and Zero Cents**

4. The parties agree to comply with the terms and conditions of the following exhibits which are by this reference made a part of the Agreement.

Exhibit A – Scope of Work	14 pages
Exhibit A, Attachment 1 – Contractor's Technical Proposal	66 pages
Exhibit B – Budget Detail and Payment Provisions	3 pages
Exhibit B, Attachment 1, Contractor Cost Sheet	2 pages
Exhibit C* – General Terms and Conditions (GTC-610)	On-line
Exhibit D – Special Terms and Conditions	5 pages
Exhibit E – Additional Provisions	3 pages

*Items shown with an Asterisk (\*), are hereby incorporated by reference and made part of this agreement as if attached hereto. These documents can be viewed at [www.ols.dgs.ca.gov/Standard+Language](http://www.ols.dgs.ca.gov/Standard+Language)*

**IN WITNESS WHEREOF, this Agreement has been executed by the parties hereto.**

<b>CONTRACTOR</b>	
CONTRACTOR'S NAME (if other than an individual, state whether a corporation, partnership, etc.) <b>SCS Tracer Environmental (Contractor)</b>	
BY (Authorized Signature) 	DATE SIGNED (Do not type) <b>6/22/2015</b>
PRINTED NAME AND TITLE OF PERSON SIGNING <b>Tom Rappolt, Vice President, Office Director</b>	
ADDRESS <b>5963 La Place Court, Suite 207, Carlsbad, CA 92008</b>	
<b>STATE OF CALIFORNIA</b>	
AGENCY NAME <b>Air Resources Board</b>	
BY (Authorized Signature) 	DATE SIGNED (Do not type) <b>6/23/15</b>
PRINTED NAME AND TITLE OF PERSON SIGNING <b>Pam Biggins, Chief, Budgets, Contracts and Grants Branch</b>	
ADDRESS <b>1001 I Street, 20th Floor, Sacramento, CA 95814</b>	

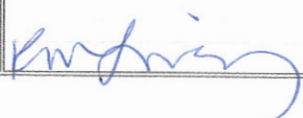
*California Department of  
General Services Use Only*

**APPROVED**

**JUL - 1 2015**

OFFICE OF LEGAL SERVICES  
DEPT. OF GENERAL SERVICES

Exempt per:



## **EXHIBIT A** **SCOPE OF WORK**

### **A. BACKGROUND/PURPOSE**

This Request for Proposal (RFP) is to solicit competitive proposals from experienced and qualified contractors to complete tasks identified by the California Air Resources Board (ARB) to collect high quality mass measurements of ambient air particulate matter with an aerodynamic diameter of 2.5 micrometers or less (PM<sub>2.5</sub>), speciated PM<sub>2.5</sub>, and associated meteorological parameters at two air monitoring stations located in Mexicali, Mexico for two (2) years beginning within six months of contract completion for 24 consecutive months.

On January 15, 2015, the Calexico monitor, located within one (1) mile of the international border with Mexicali, Mexico was designated nonattainment for the 2012 PM<sub>2.5</sub> annual National Ambient Air Quality Standard (NAAQS). Due to its proximity, Calexico is impacted daily by emissions from Mexicali. The Clean Air Act includes special provisions for areas located next to an international border which allows states to take into consideration the impacts of cross border transport of pollutants. Consistent and reliable data are needed on both sides of the border in order to demonstrate if the transport of pollutants from Mexico influences the attainment status of the Calexico monitor.

This contract outlines the roles, responsibilities and expectations of the awarded Contractor. To accomplish the primary objective, the contract recipient will configure, operate and submit reviewed/validated data to United States Environmental Protection Agency's (US EPA) Air Quality System (AQS) by:

1. Collecting consistent, comparable hourly PM<sub>2.5</sub> mass, 24-hour (midnight-midnight) PM<sub>2.5</sub> chemical speciation samples (mass, metals, ions, carbon), 24-hour (midnight-midnight) wood smoke samples, and hourly averaged wind speed, wind direction and ambient air temperature.
2. Provide near-real time air quality data to the public utilizing US EPA AirNow system.

The Contractor will be solely responsible for the operation of two (2) monitoring stations in the Mexicali, Mexico area. PM<sub>2.5</sub> mass and meteorology data will be collected continuously at two sites (University Autónoma de Benito Juárez [UABC] and Colegio de Bachilleres across from the military camp [COBACH]).

PM<sub>2.5</sub> chemical speciation samples will be collected at the UABC location on a one-in-six day schedule following the Northern Laboratory Branch speciated sampling schedule. Wood smoke samples will be collected only during October-April of each year on the same one-in-six day schedule. ARB will provide filters for (the Contractor will need to provide ARB with a US shipping address), and analysis of, chemical speciation samples (along with submittal of this data to US EPA's AQS), however the Contractor will be responsible for collecting samples and appropriate transportation/shipping of the samples back to ARB for analysis (note sampled filters must be kept below 4°C).

Data continuity, method and operational comparability between the two Mexicali sites and the ARB Calexico-Ethel station are paramount. With this in mind, it is extremely important

## **EXHIBIT A** **SCOPE OF WORK**

that the equipment, operating method, and resulting data of the Mexicali monitoring stations mirror the ARB's ambient air monitoring network as closely as possible. Current Standard Operating Procedures (SOPs) and supporting Quality Control (QC) documentation are included as **Attachments 13-27**.

The work of this contract requires 36 months with 24 full months of monitoring; no work shall begin until all required signatures and approvals are obtained.

For more than a decade, ARB has worked with the United Mexican States and the Free and Sovereign State of Baja California to monitor ambient air in the Mexicali area, either by direct onsite work (e.g., monitoring station setup, equipment purchases and other support) or indirectly via monitoring contract agreements.

For this contract, the two sites selected are University Autónoma de Benito Juárez (UABC) and Colegio de Bachilleres across from the military camp (COBACH).

UABC is located at Blvd. Benito Juárez y Calle de la Normal s/n, Col. Colonia Insurgente Este, Mexicali, C.P. 21280; 32°37'52.3"N 115°26'41.7"W.

COBACH is located at Calle Heroico Colegio Militar s/n, Col. Orizaba, Mexicali, C.P. 21110; 32°38'22.8"N 115°30'23.0"W.

It will be the Contractor's responsibility to operate these stations within the EPA guidance document, Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II. In particular an important criteria for operating the Met One Federal Equivalent Method (FEM) BAM 1020 (see Section 7.2.2 and/or Appendix D), suggests maintaining an inside operating temperature of 20-30°C, with less than 2°C standard deviation over the day.

The Contractor will need to coordinate with Baja California's Secretaria de Protección al Ambiente (SPA) to perform contract obligations.

Laws and Regulations: Contractor is required to be familiar and comply with all applicable U.S. and Mexico national and local laws, and international treaties and agreements, such as the North American Free Trade Agreement (NAFTA) that covers the work to be performed in Mexico. The State assumes no liability for Contractor's violation of applicable laws, regulations or international agreements.

For any work performed outside of the United States, it is the Contractor's sole responsibility to obtain in advance any required passports, visas, licenses, and permits necessary to perform services required under this contract. Contractor is also required to comply with all relevant customs and immigration laws (including but not limited to Mexico's General Law on Population and Constitution) to enter, visit, and exit Mexico and the State assumes no liability for any violation of these laws or any associated penalties, fees, or fines. Any violation of these laws or failure to obtain all required approvals to enter and exit Mexico as required under the contract is grounds for immediate termination by the State.

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Contract performance may require work in dangerous or austere locations. Contractor accepts the risks associated with and the State assumes no liability for contract performance in such locations.

Contractor agrees to submit to the exclusive jurisdiction of the federal and state courts located in the state of California in connection with any matters arising out of this contract.

### **B. SCOPE OF WORK**

The Scope of Work is divided into the subsequent tasks:

1. Develop and Submit Monitoring and Data Management Plan
2. Equipment Purchasing/Acceptance Testing
3. Install, Configure and Calibrate Equipment
4. Operate and Maintain Equipment
5. Data Review, Validation and Reporting
6. Quality Assurance
7. End of Project

#### **Task 1: Develop and Submit Monitoring and Data Management Plan**

Within 30 days after the start date of the contract, the Contractor must submit a Monitoring and Data Management Plan (MDMP) to the Project Team for approval.

For purposes of data continuity and comparability, the MDMP will incorporate and use the specific SOPs attached to this RFP, ARB's Air Monitoring Quality Assurance Manual Volume II (QA Vol. II link: <http://www.arb.ca.gov/airwebmanual/vol2.php>) and 40 Code of Federal Regulations (40 CFR). If the Contractor plans to deviate from these documents, the Contractor will indicate what procedures are expected to change, why the changes are necessary, and describe the alternate procedures. (See below for additional references.)

The MDMP should include the Contractor's roles, responsibilities and include details to the following topics:

1. Names/contact information for station operator(s) and key contract personnel
2. List of equipment to be purchased (provided in RFP) & used at the sites
3. List of adopted SOPs and Contractor's plan to incorporate into Mexicali network
4. Quality Assurance (QA) audit SOPs, and the Contractors plan to implement audits (subcontractor information if utilized)
5. Data management (flow, review, validation, criteria, transfer and any related practices, procedures and timelines)
6. Deliverables to ARB (e.g., site & sampler identification reports, monthly summaries)
7. Project Timeline – including dates for when equipment will be purchased, instruments installed, when data will be submitted to AirNow and to AQS, etc.

## **EXHIBIT A** **SCOPE OF WORK**

One issue of concern is data review processes and data flow. As the Contractor is responsible to supply their own data acquisition system, data review processes and flow will most likely be different than the ARB's documented procedures. The attached ARB Data Review SOP should be used as guidance and every effort should be made by the Contractor to mirror these procedures. Specific details regarding data flow (electronic formats, methods, contacts, transmission dates, etc.) will be provided by the Contractor in the MDMP.

The MDMP shall specifically delineate the method(s) to be used to minimize the occurrence of potential data quality problems and to detect problems that do occur and what corrective actions will be undertaken. The MDMP shall be developed to guarantee greater than 85% capture rate of quality data for record. Data capture rates lower than 85% may result in liquidated damages to the Contractor. Repeated data capture rates lower than 75% may result in termination of the contract. Data recovery rates for the contract will be based upon the amount of data recovered each month, as reported valid results to AQS by the Contractor.

A complete draft MDMP for this project must be submitted by the Contractor for the Project Team's review within 30 days of contract award. Once the Project Team makes comments or revisions to the plan, the Contractor has 30 days to submit a final MDMP incorporating the comments and revisions. Within 15 days of Project Team's approval of the final MDMP the Contractor will give a copy of the final MDMP to each technical staff person involved on the project. If requested, the Contractor will provide copies of the final MDMP to the Mexicali network.

Additional reference documentation:

ARB's QA Volume II also prescribes how to conduct meteorological measurements at each site in accordance with the 40 CFR 50 and 58 requirements, data for record requirements in Title 17 of the California Code of Regulations [CCR], Section 70301, and the Prevention of Significant Deterioration Guidelines. The Contractor will be responsible for acquiring these and any other reference documents from the appropriate agencies.

QC procedures are outlined in the instrument specific SOPs which are located at the following ARB Web Manual link: <http://www.arb.ca.gov/airwebmanual/index.php>. The Contractor is expected to follow the QC procedures outlined in the SOPs and respective QC Check sheets. It is imperative that the MDMP includes detail on the QC procedures, processes and documentation.

More potential sources:

CCR Title 17

US CFR, Title 40, Part 58

US EPA Guidelines for Developing Quality Assurance Project Plans, Volume I, 'Principles',  
EPA – 600/9-76-005, Section 1.4.23, 1994

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**SCOPE OF WORK**

US EPA, Quality Assurance Handbook for Air Pollution Measurement Systems, Volume II, "Ambient Air Quality Monitoring Program", 2013

<http://www.epa.gov/ttn/amtic/files/ambient/pm25/qa/QA-Handbook-Vol-II.pdf>

US EPA, Quality Assurance Handbook for Air Pollution Measurement Systems, Volume IV, "Meteorological Measurements", 2008

[http://www.epa.gov/ttn/amtic/files/ambient/met/Volume%20IV\\_Meteorological\\_Measurements.pdf](http://www.epa.gov/ttn/amtic/files/ambient/met/Volume%20IV_Meteorological_Measurements.pdf)

US EPA, Technology Transfer Network Ambient Monitoring Technology Information Center

<http://www.epa.gov/ttn/amtic/>

**Task 2: Equipment Purchasing/Acceptance Testing**

The Contractor will be solely responsible for the acquisition of all items required to perform ambient air monitoring and the associated elements as specified in this RFP. Required items include, but are not limited to, all monitoring equipment, data acquisition and telemetry equipment, certified calibration equipment, certified QC/QA equipment, and any hardware (i.e. inlets, braces, wiring, pumps, etc.).

Specifically the Contractor is required to purchase the following complete, new turn-key monitoring equipment, including documenting acceptance testing of the instrumentation to show that it meets manufacture and ARB operational criteria:

- a. Three (3) Met One FEM BAM-1020 PM2.5 mass monitors [BAM] (3<sup>rd</sup> BAM for collocation)
- b. One (1) Met One PM2.5 mass flow controlled Speciation Air Sampling System [SASS]
- c. One (1) URG 3000N Carbon sampler [URG]

Furthermore, the Contractor is required to supply or purchase the following meteorology equipment, including documenting acceptance testing of the equipment to show that it meets manufacture and ARB operational criteria:

- a. Two (2) RM Young 81000 3D sonic anemometers
- b. Two (2) Hampshire 140 inside station temperature sensors

In addition to monitoring equipment, the Contractor is responsible for supplying/purchasing a digital data acquisition system. This data system must be capable of remote data telemetry and include all necessary hardware (e.g., cables used to communicate with instruments and data acquisition equipment) to collect and upload hourly data values to a database capable of generating data files and submitting them to AirNow in near-real time and reviewed data to AQS.

The Contractor will be required to monitor and record the following hourly averaged parameters at each of the two stations:

- a. FEM BAM PM2.5 mass concentration ( $\mu\text{g}/\text{m}^3$ )
- b. Ambient (outside) temperature (Celsius from BAM air temperature sensor)
- c. Inside station temperature (Celsius)

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- d. 3D sonic horizontal and vertical wind speed (knots)
- e. 3D sonic horizontal wind direction (degrees)

Furthermore, the Contractor is required to purchase anything else needed to install and operate the instruments for two (2) years, including calibration equipment, spare parts, internet access for data telemetry, programs needed to submit data in near real-time to AirNow, anything needed to perform data review, validation and submittal to AQS, potentially refrigerator/freezer to store sampled filters and "blue ice" before shipping, and other unspecified tools and resources to perform all necessary tasks listed in the Scope of Work.

Lastly, the Contractor is responsible for importation of all needed equipment into Mexico, including paying any duties or fees associated with this process.

Task 2 shall be completed 1-8 months after completion of Task 1.

### **Task 3: Install, Configure and Calibrate Equipment**

The Contractor will coordinate with SPA to install the equipment at two sites. The installations will need to be performed in a timely manner such that the operation of all instrumentation will begin no later than 9 months after contract award. The Contractor will be solely responsible for all aspects needed to install the equipment at the two Mexicali sites.

The SASS, URG, BAM, collocated BAM, and meteorological instruments will be installed at UABC. The other BAM and meteorological instruments will be installed at COBACH. Both sites will be operated for the entire 24-months.

At a filter data capture completeness of 100%, ~61 samples per collection method annually at the UABC site. In addition, wood smoke samples will be collected during the months of October through April for both years, for a total of ~72 samples.

Field and trip blanks will be incorporated into the routine sampling procedures.

All installations, configurations and calibrations in the proposed Mexicali stations will be performed according to the associated make/model SOPs, ARB's Volume II manual, the manufacturers operation manual and the 40 CFRs (Parts 50, 53 and 58), to ensure data continuity with the Calexico-Ethel monitoring station.

The following information highlights instrument specific requirements and/or concerns.

#### **PM2.5 FEM BAM-1020:**

Grounding and Surge Protection: A 'good' station ground and an adequate surge protector are highly recommended for all monitoring equipment, it is especially significant for the proper operation of the BAM. A poor or absent BAM chassis ground, and/or surge

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protection, can cause temporary or permanent damage to the BAM monitor. The inlet tube should also be grounded to the BAM chassis.

Physical requirements: The BAM has specific physical requirements that should be considered prior to installation. The BAM central unit and pump is neither waterproof nor water-resistant and must be protected from moisture. The BAM was designed to operate in a weather proof and temperature-controlled enclosure, where humidity is not condensing and relative humidity does not exceed 90 percent. The monitoring station environment will have a set point temperature of 25°C, remaining within the range of 20°C to 30°C. The inside temperature should **not drift more than 2°C within each hour**. The effort towards maintaining a consistent temperature for the BAM throughout each day is to help ensure excellent data comparability with PM2.5 mass data collected on the California side of the Border, to limit known effects of station temperature variation and potentially limit any unknown variables that may exist in an uncontrolled environment.

Inlet: The BAM aluminum inlet tube must be installed in a perfect vertical position. The upper PM10 particle size inlet must be installed 2 meters above the roofline (approximately 6 feet). Provisions must be made during installation to allow future removal, maintenance and re-installation of all equipment. Total inlet tube length should not exceed more than 16 feet (two 8' lengths with coupling).

Inlet radius clearance & Collocation: The BAM inlet must have a 1 meter radius free of any objects that may influence airflow characteristics, including the airflow radius of another instrument. Airflows from another instrument must not overlap except for a collocated PM2.5 BAM or a parallel PM2.5 FRM sampler (collocated criteria is 1-2 meters apart). As stated in Appendix A to Part 58, of 40 CFR, section 3.2.5.6 "The two collocated monitors must be within 4 meters of each other and [snip] at least 1 meter apart for samplers having flow rates less than 200 liters/min to preclude airflow interference." In addition, one BAM at UABC will be designated as the primary monitor whose concentrations will be used to report air quality for the site (to both AQS and AirNow), and designate the other BAM as the collocated monitor.

Siting criteria: Specifications for siting a BAM will mirror the Federal EPA PM2.5 criteria listed in the CFR (40 CFR, Part 58). Siting should reflect the proper distance from roadways, tree drip-lines and other interferences/influences.

Inside BAM install height: The minimum distance between BAM and station ceiling should be at least eight inches. This distance is necessary to safely accommodate the SMART heater.

### **PM2.5 Met One SASS & URG 3000N Carbon samplers:**

Siting of the SASS and URG sampler will be similar to the criteria utilized to site the Met One BAM inlet probe. Ideally, the SASS and URG inlets should be between 1 and 2 meters from the BAM inlets and each other, and certainly no greater than 4 meters. The upper inlet height of the SASS, URG and BAMs should be at equal height above the roofline (2



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meters). Ensure the sampler inlet has good separation from any objects or walls and has unobstructed airflow in all directions.

If a refrigerator or freezer is needed for sampled filters or “blue ice” storage, this will need to be installed.

### **Meteorology:**

Proper operation of any meteorological sensor is directly related to the siting of the sensor. An ideal installation is free of obstructions and where the operator can safely access the sensor. The 3D wind sensor should be placed at 10 meters above the ground and oriented to true north relationship (declination corrected).

### **Data Acquisition:**

In addition, the Contractor is responsible for installing & configuring the data acquisition equipment to record hourly averages from the BAM, inside ambient temperature, outside temperature, vertical/horizontal wind speed and horizontal wind direction. The data acquisition equipment should be capable of data telemetry, to allow remote access of this data.

### **Communications:**

The Contractor is required to pursue and wherever possible supply remote access capabilities at each station either with phone lines, university internet servers, or any other effective means for remote access of data. With remote access, hourly averages of BAM & meteorological data shall be available to be accessed remotely, via a data acquisition system, by the Contractor.

### **Time Configuration and Calibration:**

All equipment clocks will be set to Pacific Standard Time (PST). All monitoring equipment will be configured and calibrated per their respective ARB SOP. All calibration and QC equipment shall have current certification dates. All QC procedures will be performed per the respective SOP and QC dates/results documented.

### **Transfer Standard:**

Calibration equipment used as a transfer standard (for flow, temperature and pressure) must have traceability to NIST or other primary standard, and to be recertified according to EPA requirements.

### **Site, Project, & Sampler Identification Reports:**

The Site Initiation & Site Identification Reports need to be completed for each site. For each instrument, Pollutant/Project Identification and Probe/Sampler Identification Reports need to be completed. These are included in **Attachments 13-17**. In addition, general site

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documentation should include photos of installation (both inside and outside) of all equipment, and any nearby obstructions.

Task 3 shall be completed within 2 months after completion of Task 2.

### **Task 4: Operate and Maintain Equipment**

The objective is to collect consistent and comparable hourly ambient FEM PM<sub>2.5</sub> mass concentrations, ambient 24-hour PM<sub>2.5</sub> chemical speciation and wood smoke samples, inside station temperature, outside ambient temperature, vertical/horizontal wind speed and horizontal wind direction. The duration of monitoring will be for a period of 24 continuous months (two years). The MDMP shall be developed (Task 1) to guarantee greater than 85% capture rate of quality data for record. Data/filter capture rates lower than 85% will result in liquidated damages to the Contractor. Repeated data/filter capture rates lower than 75% may result in termination of the contract. (Refer to Exhibit B, Section 2)

The Contractor will assume full responsibility for instrument operations, and responsibility for interfacing with the appropriate Mexican government authorities and/or its contractor with regard to the monitoring equipment and data system. Operation and maintenance procedures will be performed in accordance to the ARB SOPs and instrument manuals.

The Contractor shall be responsible for all on-site operations. This is to include the maintenance, operation, calibration and repair of instrumentation, collection of particulate mass and chemical speciation and wood smoke samples, remediation of malfunctions in systems operations, data reviewing, data reporting, and quality control. The Contractor will perform repairs and maintain valid certifications of all calibration equipment. Ultimate responsibility for maintaining all equipment and the responsibility for data capture rates lie with the Contractor. All repairs will be performed immediately. These repairs may require spare parts and may require re-calibration of equipment.

The Contractor shall be responsible for checking data/instruments at each site (either remotely or on-site) on a daily basis (Monday – Friday) to ensure there are no concerns. If there is a problem, the Contractor shall document in a clear and easily read format, site and instrument specific information on symptoms noted, a brief description of the suspected problem(s), the planned corrective action(s), and the time frame for this action. It shall be followed by clearly documented information confirming what was found to be the actual problem, what action was taken to remedy the situation. This information shall be included in the next monthly summary report submitted by the Contractor.

The Contractor will assure that all SOP, QC & QA procedures are being followed (for example temperature control of the station, and/or purchasing freezer to store sampled filters), instruments are being operated and maintained properly, samples are being collected correctly and at the proper times, data review is being conducted properly, data is being submitted to AirNow and to AQS in a timely manner, and all support activities provided by the Contractor are documented. The plan to accomplish this task will be outlined by the Contractor in their general MDMP included in the proposal response.

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The Contractor is responsible for all costs associated with operating the stations including air monitoring equipment, instrument calibrations and associated travel. For instance, these costs may include, but are not limited to, establishing and maintaining the data acquisition telemetry systems, phone bills incurred as a result of polling stations, consumable parts, and any other equipment or services necessary to operate the instrument, including repairs and spare parts. Consumable items and support equipment in which the Contractor will be responsible include, but are not limited to, the following: handling, storage and shipping of sampled filters in an appropriate manner (e.g., purchasing refrigerator/freezer, "blue ice", overnight shipping), spare parts, instrument pumps, and other items of this type. Please note that ARB will not be responsible for any cost overruns associated with difficulties the Contractor may incur in operating the sites.

The Contractor will provide all instrumentation necessary to operate the stations as well as all equipment necessary for calibration of the stations (i.e. required US EPA protocol certified calibration equipment). The Contractor will be responsible for acquiring all parts and performing all repairs of the instruments (i.e. BAM, SASS, URG and meteorology), data acquisition, and telemetry equipment. The Contractor will also be responsible for supplying calibration equipment. The Contractor will be responsible for certification, repair, and replacement of the calibration equipment, (e.g., certified Chinook or BGI tetraCal temperature/pressure/actual flow calibrator) and for the annual sonic anemometer re-certification.

The Contractor is responsible for the care and condition of all sampling equipment for the duration of this contract. Additionally, the Contractor must maintain the equipment in acceptable operating condition through the end of the contract term (i.e. undamaged, operational and clean). Any instruments/equipment deemed unrepairable shall be replaced by the Contractor. All equipment, hardware, and software purchased with contract funds are the property of the US EPA Region 9.

Upon request from the Project Team, the Contractor will provide escorted access to all the air monitoring stations.

Routine site visits are to include documentation of all onsite activities as well as recording of specific operational parameters and actual or potential threats to data recovery. Documentation shall be provided on forms prepared by the Contractor. Data shall be collected on a daily basis for review. This shall include review of biweekly flow check results for assessment of system performance.

The Contractor is required to learn and understand the ARB calibration procedures and will use these procedures in all instrument calibrations. Liquidated damages will be assessed for any calibrations that need to be repeated due to lack of proper instrument maintenance or station quality control procedures. (Refer to Exhibit B, Section 2.)

Chemical speciated & wood smoke PM<sub>2.5</sub> (SASS, URG) samples shall be collected on a one-in-six day sampling schedule following ARBs schedule (e.g., sampling isn't conducted on a Friday due to lack of recovery, so it is sampled the Tuesday before). The Contractor shall recover all particulate samples within 48 hours of sampling, and ship filters within 96

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hours (unless delivery would occur on a weekend) following ARB SOPs. The Contractor shall bear any associated transportation and shipping costs for these samples (which could include purchasing a refrigerator/freezer for short term storage at the UABC location, or other location, before the samples are shipped back to ARB).

Task 4 shall be completed in 24 months after completion of Task 3.

### **Task 5: Data review, validation and reporting.**

The operational goal is consistent, comparable PM<sub>2.5</sub> and meteorological data. In addition to supplying AirNow with near real-time data, the Contractor is responsible to review, validate, and report ambient air quality data gathered from the air monitoring stations located in Mexicali, Mexico for two years and submit to AQS on a monthly basis. It is essential for the successful execution of this contract that representative, reliable, defensible, air monitoring data-for-record be collected from each site during the allowable time frame of this contract. (Representativeness is described in the California Code of Regulations – Title 17.)

The MDMP must identify the specific procedure(s) that will be used to review and validate data before submittal to AQS. These procedure(s) should be included in the general MDMP (Refer to section VII Other Proposal Requirements of the RFP).

All data retrieved from the Mexicali stations shall not be disseminated by the Contractor in any manner except to AirNow and AQS without written authorization by the Project Team. Once the data is reported to AQS it is considered public information.

The Contractor shall designate a person, or group, to perform a review and validation on all data that is collected and designated to be uploaded to AQS on a monthly basis and within 90 days (from the end of the month of data to be submitted). The Contractor shall provide justification and supporting documentation of any proposed data deletions to the Project Team. At a minimum, hourly data reviews/edits will incorporate an initial review by the station operator and a secondary review by another Contractor designee who calibrates or oversees work performed by the operator.

During the course of the contract, a system audit may be conducted by ARB to determine what, if any, changes need to be made to bring the network to the needed level to meet all EPA regulations as data for record. Performance audits may be conducted by US EPA to assess the quality of the air monitoring data generated by the network.

The Contractor shall supply the Project Team with daily files, at the request of ARB, from the stations on an as needed basis (to be determined by episodes of exceedances of California State or National Ambient Air Quality Standards, or to support a research study) in a timely manner. It will be the duty of the Contractor to capture daily data for this requirement preferably by remote capabilities, or by use of staff making daily visits.

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### Monthly Summary Report:

Within 15 days after the end of each month, it shall be the Contractor's responsibility to provide the Project Team with monthly, site-specific, summaries including the instrument monthly check sheets, along with an explanation of any corrective action necessary, and an invalidation report that documents specifically why and when for each data value that is invalid or missing. If any QC check criterion is exceeded, the Contractor will document and email what action was taken or planned. The monthly site-specific summary shall consist of the following:

- Associated monthly QC check sheets for each instrument
- Status of data uploaded to AQS (e.g., what has been uploaded, what is pending review)
- Percent of valid data for each individual component submitted to AQS (i.e. BAM & meteorology)
- Invalidation report for data submitted to AQS – documenting specifically when and why each data point is missing or invalid for each parameter
- Percent of valid filters for each instrument returned to ARB for analysis (i.e. SASS & URG)
- Monthly comparison of reviewed collocated BAM data to reviewed primary BAM data
- Data that is not sent to AQS, for example:
  - Raw downloaded BAM data including errors, data, and configurations files
  - Hourly averaged inside temperature data
- Results of any manual and automated quality control checks performed
- Copies of the certificate of the transfer standard used for quality control checks
- Copies of calibration reports conducted
- Copies of the certificate of the transfer standard used in these calibrations
- Copies of the station log books to include documentation of site operator activities
- Documentation of any reasons or explanations for all missing or invalidated data below 85% for any individual parameter, for any site, for any month (whether data has been submitted to AQS or not)
- Documentation of any reasons or explanations for all missing or invalidated filters, for any month (including whether filters have been returned to ARB, and if filter makeups were performed)
- Documentation describing any/all causes and/or explanations for missing or invalidated data, other aspects affecting normal station operation, and the corrective actions and results. Qualitative and quantitative information should be included
- If any QC check criterion is exceeded, the Contractor will document and include what action was taken or planned

Within 90 days from collecting the data, the Contractor will upload the validated air quality data to US EPA's AQS database on a monthly basis. The Contractor will be responsible for correcting any problems associated with uploading the data to AQS. Not until the data has been successfully loaded onto AQS is it considered final. Data recovery rates for the contract will be based upon the amount of data recovered each month, as reported with the invoice and monthly summaries, and may be corrected based on the amount of valid data successfully loaded to AQS by the Contractor.

## **EXHIBIT A** **SCOPE OF WORK**

Task 5 shall be completed within 24 months after completion of Task 3.

### **Task 6: Quality Assurance**

Quality Assurance (QA) typically incorporates the services of an outside (unbiased) monitoring group to challenge the accuracy of the monitoring equipment and to assure that all equipment was properly sited, installed, operated and maintained. ARB SOPs specific to the equipment operated are located in the ARB Volume V Quality Assurance Manual (<http://www.arb.ca.gov/aqgm/qa/qa-manual/vol5/vol5.htm>). The Contractor will outline in their MDMP how these QA audit SOPs will be utilized, who will perform the audits, what will be audited, how many audits will be performed and when audits will occur. [It might be useful to see: CFR 40, Part 58 Appendix A, Section 1.1.2 -- The annual performance evaluations (described in section 3.2.2 of this appendix) must be conducted by personnel different from those who perform routine span checks and calibrations.]

At least two independent audits must be performed at each site (4 total); one is due 3 months (plus or minus 1 month) after both sites are operational, and second one is due a year after the first audit (plus or minus 1 month, ~15 months after sites are operational). If deficiencies are identified, the Contractor will perform the necessary steps to fix the issue(s).

### **Task 7: End of Project**

Within 45 days of the end of the monitoring (unless contract is extended, or turned over to another entity), the Contractor will remove all of their equipment from the sites. Title to all equipment purchased with state funds remains with the State and the Contractor will leave all equipment, hardware and software purchased with contract funds onsite, unless directed to do otherwise. At a minimum, the BAMs, SASS and URG monitoring equipment will be purchased with state funds and left onsite, unless the contractor is directed otherwise.

## **B. MEETINGS**

1. Initial meeting – During the first 30 days of the contract, the Contractor will meet with the Project Team to discuss:
  - The submitted MDMP
  - Any necessary changes to the MDMP
  - Details of performing the tasks
  - The project timeline
  - Items related to staffing or changes in staffing
  - Details of data formats
  - Contact information and responsibilities
  - Any other issues that may need to be resolved regarding the program
  
2. SOPs, QA & QC Meeting – During the first 60 days of site operation, the Contractor will meet with the Project Team to discuss any necessary changes to the SOPs, QA & QC procedures. The Contractor will incorporate any requested changes into the

**EXHIBIT A**  
**SCOPE OF WORK**

MDMP, and submit a revised MDMP to the Project Team within 30 days of the meeting.

3. Progress Meetings – Every calendar quarter following the SOPs, QA & QC meeting the Contractor will meet with the Project Team or their designee to discuss the progress of the project, if needed via phone conference.
4. End of Project Meeting – Within “90 days/to be decided” after the completion of the two full years of sampling the Contractor will meet with the Project Team to summarize the project and the data collected, along with reporting on the status and location of equipment, if needed via phone conference.

**C. CONTRACT REPRESENTATIVES**

Project Managers during the term of this Agreement shall be:

Agency: Air Resources Board	Contractor: SCS Tracer Environmental
Division: Monitoring and Laboratory Division	Unit: Air Quality Monitoring
Attention: Megan McKay	Attention: Paul Schafer
Address: 1927 13 <sup>th</sup> Street, Sacramento, CA 95814	Address: 3117 Fite Circle, Suite 108 Sacramento, CA 92069
Phone: (916) 327-0885	Phone: (916) 361-1297 ext. 24
Email: <a href="mailto:Megan.McKay@arb.ca.gov">Megan.McKay@arb.ca.gov</a>	Email: <a href="mailto:pschafer@scsengineers.com">pschafer@scsengineers.com</a>

Direct all inquiries to the Project Managers.

The parties may change their Contract Representative(s) upon providing a ten (10) days written notice to the other party’s Contract Representative(s). The notifying party shall provide complete contact information for the replacement Contract Representative(s) to include the information provided above.

Environmental Consultants  
and Contractors

3117 Fite Circle  
Suite 108  
Sacramento, CA 92069

916-361-1297  
www.scsengineers.com

## SCS TRACER ENVIRONMENTAL

Formerly Tracer Environmental Sciences & Technologies, Inc., now a part of SCS Engineers.

June 10<sup>th</sup>, 2015

Air Resources Board  
Contracts Section  
Attn: Sue Bayoneta  
1001 I Street, 20<sup>th</sup> Floor  
Sacramento, CA 95814

 ORIGINAL

Regarding: *PROPOSAL: Ambient Air Quality Monitoring in Mexicali, Mexico for PM2.5 (Mass Speciation) and Meteorology including Data Submittal to AQS and AirNow*

Ms. Bayoneta,

Please find enclosed one original and five copies of SCS Tracer Environmental's proposal as referenced above. SCS Tracer Environmental (SCS) is pleased to present this proposal to the Air Resources Board (ARB) for ambient air quality monitoring and sampling in Mexicali, Baja California, Mexico. This proposal has been prepared in response to RFP No. 14-539 issued May 12, 2015 by ARB. Our proposal is for a total sum of \$481,116.00.

SCS Tracer and its subcontractors feel uniquely qualified to successfully complete this project for a number of reasons. Among these are:

- The prior experience of our personnel in establishing and successfully operating the two monitoring sites identified in the RFP.
- Identification of a local subcontractor with prior experience operating the Mexicali air quality network.
- Teaming with an outside audit firm that has specialized in auditing air quality monitoring operations.

Thank you for your consideration and please let me know if you have questions regarding any aspect of our proposal.

Sincerely,  
SCS Tracer Environmental



Paul Schafer  
Project Director



ORIGINAL

# SCS TRACER ENVIRONMENTAL



 ORIGINAL

Proposal

## Ambient Air Quality Monitoring in Mexicali, Mexico for PM<sub>2.5</sub> (Mass & Speciation) and Meteorology including Data Submittal to AQS and AirNow

RFP No. 14-539

Presented to:

**Air Resources Board**

California Environmental Protection Agency  
 **Air Resources Board**

Contracts Section  
1001 I Street, 20<sup>th</sup> Floor  
Sacramento, CA 95814

Presented by:

**SCS Tracer Environmental**  
5963 La Place Ct., Suite 207  
Carlsbad, CA 92008

June 10, 2015

Offices Nationwide  
[www.scsengineers.com](http://www.scsengineers.com)

ORIGINAL

**A Proposal to Conduct  
Ambient Air Quality Monitoring in Mexicali, Mexico for PM2.5  
(Mass & Speciation) and Meteorology including Data Submittal to  
AQS and AirNow**

Presented To:

**Air Resources Board**  
Contracts Section  
1001 I Street, 20<sup>th</sup> Floor  
Sacramento, CA 95814

Presented From:

**SCS Tracer Environmental**  
5963 La Place Ct., Suite 207  
Carlsbad, CA 92008  
1-760-744-9611

June 10, 2015

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- Appendix A: Payee Data Record
- Appendix B: Darfur Contracting Act Certification
- Appendix C: Contractor Certification Clauses
- Appendix D: Bidder Declaration
- Appendix E: EPA Form 6100-4

## 1 SUMMARY

SCS Tracer Environmental (SCS) is pleased to present this proposal to the Air Resources Board (ARB) for ambient air quality monitoring and sampling in Mexicali, Baja California, Mexico. This proposal has been prepared in response to RFP No. 14-539 issued May 12, 2015 by ARB.

EPA has designated Calexico, California as non-attainment for the National Ambient Air Quality Standard (NAAQS) for particulate matter with an aerodynamic diameter of less than 2.5 microns (PM<sub>2.5</sub>). As a result of its proximity to Mexicali (metro population of ~ 1 million), Calexico is undoubtedly impacted by emissions from Mexicali.

The purpose of this project is to collect a two-year data set of PM<sub>2.5</sub> and meteorology at two existing monitoring sites in Mexicali. The PM<sub>2.5</sub> data set will include continuous PM<sub>2.5</sub> as well as discrete samples that will be analyzed for certain chemical species. This data set will assist in the determination of the extent of the effect fine particulate emissions in Mexicali have on air quality in Calexico.

SCS Tracer and its subcontractors feel uniquely qualified to successfully complete this project for a number of reasons. Among these are:

- The prior experience of our personnel in establishing and successfully operating the two monitoring sites identified in the RFP.
- Identification of a local subcontractor with prior experience operating the Mexicali air quality network.
- Teaming with an outside audit firm that has specialized in auditing air quality monitoring operations.

In addition to this Summary, our proposal consists of the following sections:

- Section 2: Required Attachments
- Section 3: References
- Section 4: Subcontractors
- Section 5: Technical Portion
  - Project Management Plan
  - General Monitoring and Data Management Plan
  - Work Plan Schedule (Technical Approach)
  - Personnel
- Section 6: Cost Proposal

## 2 REQUIRED ATTACHMENTS

All completed attachments listed in Attachment 1 of the RFP are included in the Appendices.

### Required Attachment Checklist

- X   Attachment 1 – Required Attachment Checklist (*this form*)
- X   Attachment 2 – Proposer References
- X   Attachment 3 – Payee Data Record (STD. 204) (*or equivalent*)
- X   Attachment 5 – Bidder Declaration (GSPD-05-105)
- X   Attachment 6 – Contractor Certification Clauses (CCC 307)
- X   Attachment 7 – Certification of Compliance with the Darfur Contracting Act
- N/A   Attachment 8 – Iran Contracting Act (*if applicable*)
- X   Project Management Plan (III. A. 9. a)
- X   General Monitoring and Data Management Plan (III. A. 9. b)
- X   Work Plan Schedule (III. A. 9. c)
- X   Attachment 9 – EPA form 6100-4
- NA   Attachment 10 – EPA Form 6100-3
- X   Attachment 11 – Contractor Cost Sheet



### 3 REFERENCES

The following tables provide the requisite information on the Proposer's Reference Form (Attachment 2 of the RFP).

**Table 3-1: Proposer Reference Form**

<b>Reference 1</b>			
Name of Firm: Department of Parks and Recreation, OHMVR Division			
Street Address: 340 James Way, Suite 270			
City: Pismo Beach	State: CA	Country: USA	Zip Code: 93449
Contact Person: Ronnie Glick		Title: Senior Environmental Scientist	
Email Address: <a href="mailto:Ronnie.Glick@parks.ca.gov">Ronnie.Glick@parks.ca.gov</a>		Telephone Number: 805-773-7180	
Dates of Service: April 11 <sup>th</sup> , 2014 - Present		Value or Cost of Service: Approx \$95,928.49	
<p><b>Brief Description of Service Provided:</b>                      OD SVRA is subject to the San Luis Obispo County (SLO) Air Pollution Control District's (APCD) Rule 1001, Coastal Dunes Dust Control Requirements (Dust Rule). The Dust Rule requires the OD SVRA to implement dust reduction activities and assess the reduction in Particulate Matter (PM). This project was part of an effort to measure the effectiveness of dust control activities that have been implemented with the goal of reducing ambient particulate matter. Measurement equipment included 5 E-BAM monitoring stations and approximately 12 Saltation Monitoring Stations. All data recovery goals on this project were met and final deliverables were provided prior to the period of performance end date. This project was similar in size and scope to Bid # C1453016.</p>			
<b>Reference 2</b>			
Name of Firm: Los Angeles World Airports (LAWA)			
Street Address: 7301 World Way West, 3 <sup>rd</sup> Floor			
City: Los Angeles	State: CA	Country: USA	Zip Code: 90045
Contact Person: Norene Hastings		Title: Environmental Supervisor	
Email Address: <a href="mailto:NHASTINGS@lawa.org">NHASTINGS@lawa.org</a>		Telephone Number: (424) 646-6487	
Dates of Service: 2011 - 2012		Value or Cost of Service: \$450,000	
<p><b>Brief Description of Service Provided:</b>                      SCS Tracer oversaw the design and installation of a multi-station network of ambient air monitors around Los Angeles International Airport. Installation included attainment of permits, procurement of samplers and monitoring hardware, site assessments, system installations, equipment integration, as well as calibration. Seasonal collection of multiple data parameters was used in a source-apportionment modeling study. SCS Tracer was directly responsible for the installation and field calibration of all samplers and sensors including PSD quality meteorological sensors and MetOne BAMs. SCS Tracer also managed data logging, review, and reporting of all field data.</p>			

**Reference 3**

Name of Firm: Los Angeles Department of Water & Power (subcontractor to ESA Associates)

Street Address: 626 Wilshire Blvd., Suite 1100

City: Los Angeles	State: CA	Country: USA	Zip Code: 90017
-------------------	-----------	--------------	-----------------

Contact Person: Jason Ricks	Title: Senior Managing Associate
-----------------------------	----------------------------------

Email Address: jricks@esaassoc.com	Telephone Number: 213-599-4300
------------------------------------	--------------------------------

Dates of Service: 2012-2013	Value or Cost of Service: Approx \$22,000
-----------------------------	---

**Brief Description of Service Provided:**  
 SCS Tracer provided air sampling and monitoring support to ESA Associates as part of LADWP's River Supply Conduit Project. The project consisted of the operation of two PM<sub>10</sub> samplers surround a street excavation in the vicinity of Ivanhoe Elementary School in the Silverlake district of Los Angeles. Additionally, a BAM 1020 continuous PM<sub>10</sub> monitor was operated during the duration of the excavation project on the elementary school grounds.

## 4 SUBCONTRACTORS

The following table provides the requisite information on the Proposer's Reference Form (Attachment 5 of the RFP). See appendix D for the signed form.

### Bidder Declaration

#### 1. Prime bidder information

- a. Identify current California certification(s) (MB, SB, NVSA, DVBE): \_\_\_\_\_ or None
- b. Will subcontractors be used for this contract? Yes  No \_\_\_\_\_ (If yes, indicate the distinct element of work your firm will perform in this contract) e.g, list the proposed products produced by your firm, state if your firm owns the transportation vehicles that will deliver the products to the State, Identify which solicited services your firm will perform, etc.)  
-All Services outlined in the RFP except for the QA audits and day to day site operations.
- c. If you are a California certified DVBE: (1) Are you a broker or agent? Yes \_\_\_\_\_ No \_\_\_\_\_  
 (2) If the contract includes equipment rental, does your company own at least 51% of the equipment provided in this contract (quantity and value)?  
 Yes \_\_\_\_\_ No \_\_\_\_\_ N/A \_\_\_\_\_

#### 2. Subcontractors used for this contract

Subcontractor Name, Contact Person, Phone Number & Fax Number	Subcontractor Address and Email Address	CA Certification (MB, SB, NVSA, DVBE or None)	Work performed or goods provided for this contract	Corresponding % of bid price	Good Standing?	51% Rental?
Servicios y Análisis Integrados de Mexicali, S. C., Jose Landeros, 686-273-6826	jglanderos@syasc.com	None	Daily operations and maintenance of air quality monitoring sites in Mexicali, Mexico.	11.2%	N/A	N/A
T&B Systems, David Bush (530) 644-4811; fax (530)644-4803	davebush@tbsys.com	SB	Quality Assurance Audits	2.5%	Y	N/A

## 5 TECHNICAL PORTION

### 5.1 PROJECT MANAGEMENT PLAN

#### **Project Organization**

This section describes the organization we are proposing for this program. This includes an overview of the company, the management structure, procedures and facilities.

#### **SCS Tracer Environmental**

SCS Tracer is a comprehensive provider of environmental engineering, technical consulting, and unique monitoring services related to atmospheric sciences and the movement of chemicals through the atmosphere. These services are rendered through highly experienced personnel working out of the SCS Tracer offices in Carlsbad, San Marcos and Santa Maria, California as well as its satellite operations at other SCS offices throughout the United States.

To meet the needs of our clients, SCS Tracer maintains a staff of highly trained, highly motivated professional staff who utilize state-of-the-art proprietary and regulatory driven techniques to solve complex problems in air quality monitoring, risk management, and atmospheric transport.

#### **Relevant Capabilities**

SCS Tracer offers a wide range of environmental capabilities including:

- Air Quality Compliance and Permitting;
- Ambient Air Monitoring;
- Environmental Construction;
- Risk Management and Safety; and
- Tracer Sciences and Dispersion Modeling.

SCS Tracer's headquarters near San Diego, California occupy a modern facility consisting of technical offices, fabrication areas, and analytical laboratories dedicated to air measurement programs. The facility provides storage and maintenance for the majority of SCS Tracer's laboratory and air quality monitoring field equipment. SCS Tracer is a leading commercial provider of services for performing specialized and routine air quality measurement programs in the United States. In addition, SCS Tracer has developed and constructed several prototype gas detection systems for the U.S. Department of Defense, the Department of Energy, and industrial clients for specialized applications.



SCS Tracer's Air Quality Monitoring Group provides air measurement capabilities that span over 25 years and include the full complement of ambient air monitoring services - Monitoring System Design and Site Selection; Station Operation; Air Toxics and Emissions Testing; Quality Assurance/Quality Control (general conformity to EPA-450/4-87-007); Data Reporting; and Data Interpretation and Expert Testimony. SCS Tracer has established numerous successful monitoring networks that have provided detailed continuous records of concentrations of criteria pollutants (ozone, nitrogen oxides, oxides of sulfur, particulates (PM<sub>10</sub> and PM<sub>2.5</sub>), total hydrocarbons, non-methane hydrocarbons, volatile organic compounds, heavy metals and toxic organic compounds. The company employs methods established by USEPA (40 CFR 52), NIOSH, and the TO compendium series of organic compound sampling methods established by USEPA. SCS Tracer currently processes nearly 2 million parameter-hours per year of company generated ambient monitoring data for regulatory compliance programs.

### **Facilities and Equipment**

SCS Tracer's main facility in San Marcos, California consists of 12,000 sq-ft of instrumentation and analytical laboratories, shop facilities, data processing and quality control centers. Our staff of engineers and scientists is among the finest in the field with years of experience in dealing with complex chemical and environmental processes. The following laboratory sections can support specific project needs:

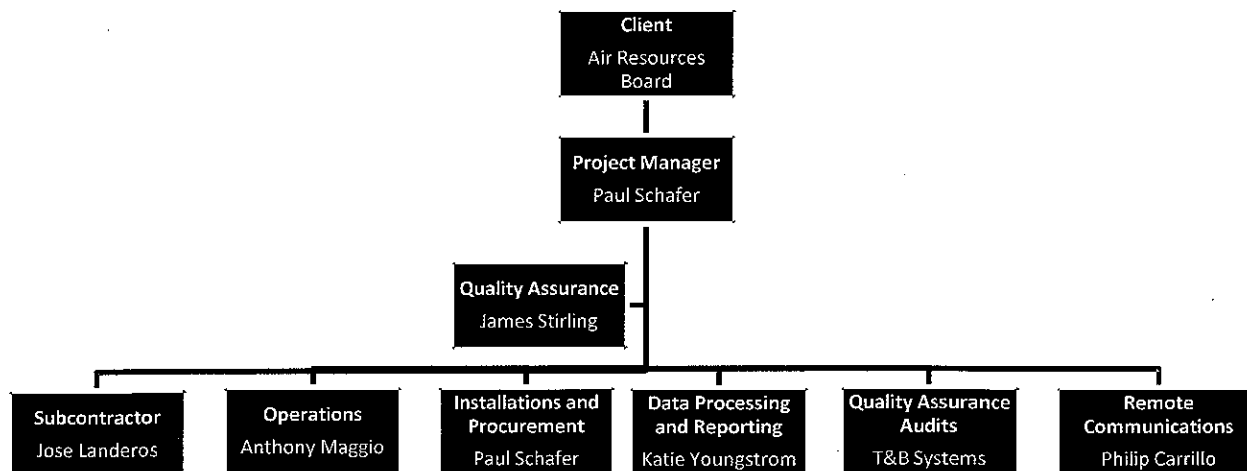
- Particulate Filter and Gravimetric Laboratory
- Air Quality Services Laboratory (AQSL)
- Tracer Research and Development Laboratory (TRDL)
- Air Quality Data Processing Facility
- Gas Chromatography Laboratory
- Fabrication/Prototyping Shop

In Santa Maria, California, SCS maintains a storage and warehouse facility which houses over a million dollars of air quality monitoring equipment that are utilized and maintained in support of our programs conducted across the nation. In addition, SCS has regional field services centers that maintain a variety of field sampling and test equipment. These field offices incorporate every region of the continental United States.

### **Project Management Structure**

As with all field projects managed and conducted by SCS Tracer, a vertical project organization is implemented. It has been our experience that this vertical structure approach is vital to effectively implementing large scale monitoring efforts. This approach enables a single point of contact regarding project management and field operations to successfully execute the project plan. Figure 5-1 provides an organizational chart for this project.

**Figure 5-1: Project Organization Chart**



SCS Tracer has identified several key personnel for the successful execution of the monitoring program. Each of the key people and their roles are provided in the remainder of this section. Résumés for each of these people are provided later in this document.

**Project Manager**

Mr. Paul Schafer will serve as the Project Manager for SCS. In this capacity, Mr. Schafer will be responsible for oversight and direction of all personnel assigned to the project. He will also be responsible for budgetary oversight and interaction with designated ARB personnel.

Mr. Schafer will be personally involved in the acquisition of equipment as well as the installation and initial calibration of the equipment. Mr. Schafer will also be responsible for the coordination and oversight of vendors and subcontractors on this project.

Mr. Schafer has overseen numerous air quality and meteorological monitoring programs over the past decade-and-a-half.

**Quality Assurance (Tasks 1, 5 & 6)**

Mr. James Stirling will serve as the Quality Assurance Officer for this program. In this capacity his responsibilities will include oversight of quality control/quality assurance activities, from field measurements to data validation, and for implementation of quality assurance policies and procedures. He will also be responsible for the development and submittal of the Monitoring and Data Management Plan (MDMP).

Mr. Stirling will have direct oversight of three separate technical tasks on this project. These include the following:

- Task 1: Monitoring and Data Management Plan
- Task 5: Data Review, Validation and Reporting

- Task 6: Quality Assurance

### **Remote Communications**

Mr. Philip Carrillo will be responsible for the establishment of remote communications with the two monitoring sites. He will also be responsible for insuring the proper operation of the real time retrieval and upload process for the submittal of continuous PM<sub>2.5</sub> data to AirNow.

### **Installation and Procurement**

Mr. Paul Schafer will be responsible for ordering all equipment needed for the project. This includes analyzers, sensors, support equipment and utilities. He will ensure that all equipment is ordered with abundant lead time to ensure timely delivery. Mr. Schafer will also insure that the monitoring and sampling equipment is installed according to manufacturer's recommendations and EPA siting criteria.

### **Operation, Maintenance & Onsite Data Collection**

A local subcontractor (Servicios y Análisis Integrados de Mexicali, S.C.) will be contracted to perform the majority of the onsite operations and maintenance. This subcontractor is a sole-proprietorship owned and operated by José Landeros. Sr. Landeros was responsible for the day-to-day field operations of the Mexicali ambient air monitoring network from 1998-2008.

For this project Sr. Landeros will be responsible for regularly scheduled site visits and quality control checks, routine maintenance, sample collection and shipment of samples to ARB.

### **Operations**

Anthony (Tony) Maggio will help facilitate the transfer of equipment into Mexico including paying any required duties and/or fees. Tony is bilingual and has extensive experience working in Mexico and specifically with the transfer of goods to Mexico from the United States. Tony will also help facilitate the set up of contracts with Mexican utility service providers if necessary.

### **Data Processing and Reporting**

Ms. Katie Youngstrom will be responsible for the processing and reporting of data. Her responsibilities will include the following:

- Daily review of continuous data
- Daily review of AirNow
- Preparation of Monthly Summary reports
- Uploading of continuous data onto AQS after validation.

## Quality Assurance Audits

SCS Tracer will use the services of a subcontractor (T&B Systems) to perform the two required audits. T&B Systems will coordinate with SCS Tracer on scheduling these audits and will be responsible for maintaining the traceability of their audit standards.

## 5.2 GENERAL MONITORING AND DATA MANAGEMENT PLAN

*SCS Tracer Environmental recognizes that clients require solutions be cost effective as well as compatible with their operational objectives.* To achieve this balance, SCS Tracer uses its technical capabilities and experience to develop strategies based upon each client's objectives. Next, a cost benefit analysis is conducted to determine the optimal project strategy. SCS Tracer's engineers then work with clients and regulators to resolve any complex issues in a timely, efficient manner. This approach translates into a quality product at a competitive price.

The goal of every monitoring program that SCS Tracer Environmental manages is high quality, traceable and defensible data. In order to insure this, SCS Tracer Environmental maintains traceability on all of the standards it uses.

### Task 1: Develop and Submit Monitoring and Data Management Plan

The first deliverable for the project is a Monitoring and Data Management Plan (MDMP). A draft MDMP will be developed and submitted within 30 days of contract award.

To ensure the overall completeness of the MDMP, it is our intention to follow the template for Quality Assurance Project Plans (QAPP) as set forth in EPA Requirements for Quality Assurance Project Plans (EPA/240/B-01/003). The outline of this document is provided below.

#### A. Project Management

- A.1 Title of Plan and Approval
- A.2 Table of Contents
- A.3 Distribution List
- A.4 Project Organization
- A.5 Project Background
- A.6 Project Description
  - A.6.1 Equipment
  - A.6.2 Schedule
- A.7 Quality Objectives and Criteria
- A.8 Special Training
- A.9 Documents and Records

#### B. Data Generation and Acquisition

- B.1 Sampling Process Design
- B.2 Sampling Methods
  - B.2.1 Continuous PM<sub>2.5</sub> (BAM 1020)
  - B.2.2 Discrete PM<sub>2.5</sub> (SASS Speciation Sampler)
  - B.2.3 Carbon Sampling (URG 3000N)



- B.2.4 Meteorology (RM Young 81000 Sonic)
- B.3 Sample Handling and Custody
- B.4 Analytical Methods
- B.5 Quality Control
- B.6 Instrument Testing, Inspection and Maintenance
- B.7 Instrument Calibration and Frequency
- B.8 Inspection of Supplies and Consumables
- B.9 Non-Direct Measurements
- B.10 Data Management
  
- C. Assessment and Oversight
  - C.1 Assessments and Response Actions
  - C.2 Reports to Management
  
- D. Data Validation
  - D.1 Data Review, Verification and Validity
  - D.2 Verification and Validation Methods
  - D.3 Reconciliation with User Requirements

Specific SOPs for the instruments used in the project will be included as Appendices. We fully anticipate adopting the ARB SOPs for these instruments.

Should ARB personnel have comments or revisions for the MDMP, we will revise the document and resubmit within the 30 days specified in the RFP.

**Task 2: Equipment Purchasing and Acceptance Testing**

SCS will purchase the required equipment identified in the RFP for the performance of ambient air monitoring and associated elements. This includes all monitoring equipment, data acquisition and telemetry equipment, certified calibration equipment, certified standards, as well as miscellaneous items such as hardware, signal cables, masts, braces, etc.. Major hardware components that are to be purchased are provided below.

**Table 5-1: Major Hardware Components**

Equipment	Make and Model	Site (Location)
PM-2.5 Sensor	Met One BAM 1020	UABC
PM-2.5 Sensor (Co-located)	Met One BAM 1020	UABC
PM-2.5 Sensor	Met One BAM 1020	COBACH
Wind Sensor	RM Young 81000 3D Sonic Anemometer	UABC
Wind Sensor	RM Young 81000 3D Sonic Anemometer	COBACH
Inside Temperature Sensor	Hampshire 140	UABC

Inside Temperature Sensor	Hampshire 140	COBACH
PM 2.5 Speciation	Met One Speciation Air Sampling System (SASS)	UABC
Carbon	URG 3000N	UABC
Sample Refrigerator	TBD	UABC

Acceptance testing is generally performed upon receipt of instruments from the manufacturer. For example, relative to the BAM 1020 analyzer, acceptance testing will consist of at least the following:

- A complete physical inspection after unpacking;
- a leak check of the entire flow system;
- electronics and flow test;
- temperature and relative humidity verification;
- 48 hour zero tests; and
- Tape system tests and self tests.

Digital data logging systems will also be purchased and installed. We anticipate purchasing the BAM 1020's with independent data logging capabilities. We will use Agilaire's AirVision software for the polling and reporting of data.

In addition to the hardware and software mentioned above, SCS will purchase anything else required for the operation of the stations for 24 months. This includes, but is not limited to, telephone line installations, internet access, sample handling equipment, sample coolers and blue ice, and tools.

SCS Tracer will also be responsible for importing all of the equipment into Mexico and paying the associated duties and fees. SCS Tracer will utilize our operations manager Anthony Maggio for this task. Anthony is bi-lingual and has extensive experience with importation of equipment to Mexico from the United States. All equipment will be shipped directly to our subcontractor in Mexicali.

**Task 3: Install Configure and Calibrate Equipment**

Following importation and acceptance testing, SCS Tracer will install configure and calibrate the equipment relative to the UABC and COBACH sites. SCS Tracer will coordinate with SPA in a timely manner so that this task is accomplished no later than 9 months following contract award. Installation will conform to the requirements of the developed Monitoring and Data Management Plan (MDMP), manufacturer operation manuals, ARB SOPs, and 40 CFR 50, 53 and 58. Siting criteria will be adhered to the best extent possible. All data logging and equipment clocks will be set to Pacific Standard Time (PST).

## Field Deployment

Commissioning will include a minimum of the following steps and will be consistent with the project MDMP:

- Calibration and Alignment of Wind Sensors
- Flow Calibration and Leak Test of BAM-1020's
  - Delta-Cal
- Confirmation of Temperature Sensor Operation
  - NIST Traceable Thermometer or Primary
  - Certified Rh Sensor
- Confirmation of Data Logger Operation and Sensor Connections
  - Digital Multi-Meter
- Telemetry Testing and Third Party Verification

Following installation, Site, Project and Sampler Identification reports will be completed for each site. Reports will include instrument, pollutant/project identification, and probe/sampler identification reports. The sites will also be documented with photographs of the equipment (indoors and outdoors) as well as nearby obstructions.

Installation of remote data polling systems will be handled by Philip Carrillo. Philip has extensive knowledge in remote monitoring and control systems and has installed several systems in Mexico. The system will include AirVision software and data submittal to the AirNow system and generation of AQS data sets.

### **Task 4: Operate and Maintain Equipment**

SCS Tracer will operate and maintain the air pollution monitoring sites at UABC and COBACH for 24 continuous months. The main objective is the collection of data parameters consistent and comparable to data collected in Calexico by ARB. SCS will be required to meet data capture rates of 85% or face the possibility of liquidated damages. SCS Tracer will not agree to liquidated damages in situations where issues outside of SCS Tracer's control result in the non-attainment of data capture objectives. All monitoring will conform to the MDMP developed in Task 1.

Monitoring will also include daily (Monday – Friday) reviews of site data and operational parameters during each work day (Monday-Friday). SCS Tracer will be responsible for setting up the remote data polling system.

Day to day station activities will be handled by Servicios y Análisis Integrados de Mexicali, S.C. (Jose Landeros). Jose has extensive experience operating ambient air monitoring locations in Mexicali. In fact, Jose along with SCS Tracer staff, installed the first ever BAM-1020's in UABC and COBACH. Site visits will be made at a frequency necessary for meeting data capture rates. At a minimum, each site will be visited three times weekly.

The activities that need to be accomplished each and every site visit include the following:

- Completion of station logbook.
- Completion of operator checklists.
- Checking for correct air flow settings.
- Quality Assurance Checks
- Checking for instrument malfunctions.
- Collection and set up of filters media (if scheduled).
- Notation of any unusual odors or sounds.
- Observations of any local conditions that might affect measured data (i.e. fires, idling vehicles, etc.).

Any required repairs will be made immediately pending availability of spare parts. Failures of non-routine parts may require delivery of parts from the equipment manufacturer. In these cases SCS Tracer will not be held to data capture requirements.

### **Task 5: Data Review, Validation and Reporting**

Procedures for the review, validation and reporting of data collected for this project will be detailed in the MDMP that will be developed upon contract award. For this proposal, we provide a general approach to this task. An example data flow chart is provided in Figure 5-2.

#### **Data Review**

Review of continuous PM<sub>2.5</sub> and meteorological data will occur in two ways as described below:

1. Field review by site technician and
2. Daily review by QA/QC manager or designated representative

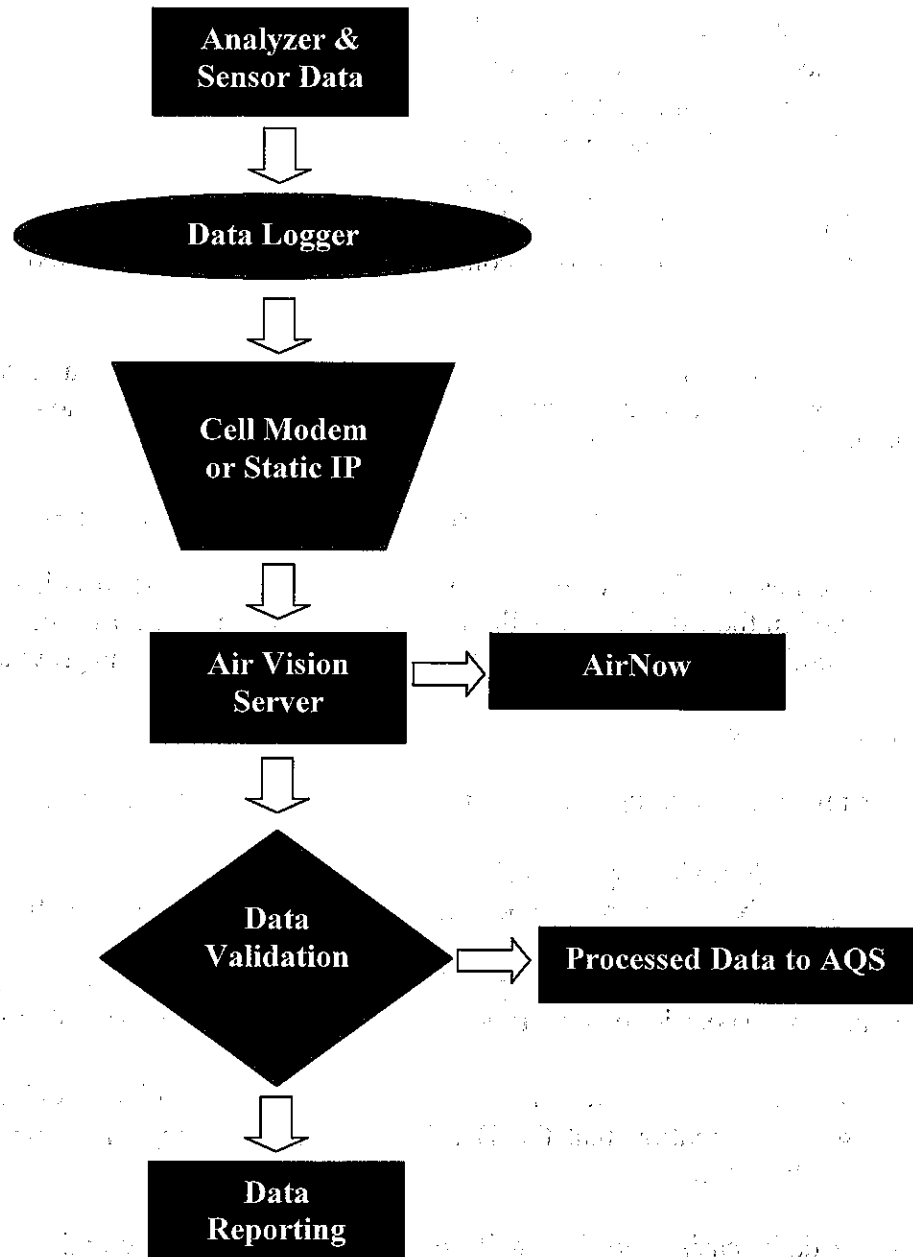
Field review will occur during each and every site visit by the site technician. The MDMP will contain the specific review tasks but they will generally consist of the following:

- Review of instrument data and metadata going back to previous site visit
- Confirmation that the BAM 1020s are operating properly; specifically with regard to filter tape.

On a daily basis, site data will be polled for data review and subsequent storage. This daily review will focus on the following:

- A review of mass concentration values. Any outliers or extraordinary values will be investigated.
- A review of collocated mass concentration values. Statistically significant differences will be investigated.
- A review of BAM 1020 flow rates. Values outside a range of 16.7 lpm ( $\pm 5\%$ ) will require follow-up as detailed in the MDMP.
- A check of any error flags such as power, flow or tape.

Figure 5-2: Data Flow Chart



## **Data Validation**

The data validation process encompasses all aspects of the air monitoring programs. Data validation procedures begin in the field and continue until the final report is submitted and apply to field and data processing personnel.

One of the responsibilities of the site technician during site visits is to review previously collected data. After the data is received at the data processing facilities, it is subjected to further checks to ensure its reliability. The checks performed on the data include objective criteria as well as subjective criteria used to assess the validity of the data. These checks fall into the following categories:

- Internal and Historical Consistency Checks (outliers and other anomalies);
- Review of Calibration Data (flow checks, leak checks, etc.)
- Performance of Required Calibrations

## **Data Reporting**

Data reporting will consist of three separate types of reporting. These include the following:

- Near real-time data submitted to AirNow on a near-continuous basis;
- Monthly PM<sub>2.5</sub> and meteorological data submitted to AQS; and
- Monthly metadata submitted to ARB

## **AirNow**

Upon contract award, SCS Tracer will work with ARB and EPA to obtain access for submitting data to EPA's AirNow system. Each site will have remote access capabilities (most likely through internet servers) that will allow continuous polling of each site's data loggers. Through a software package, the polled PM<sub>2.5</sub> data will be converted to the proper format and submitted to AirNow.

It is important to note that the data posted to AirNow will only be preliminary and will not have been validated. Thus, it will not be shared with any outside entities other than ARB without the explicit approval of ARB.

## **Submittal to AQS**

As was mentioned in the previous subsection, data submitted to AirNow will only be preliminary in nature and will not have undergone a thorough validation review. Following the validation process, continuous data (BAM and meteorological) will be uploaded onto EPA's Air Quality System (AQS). This submittal will be hourly averages for a given month and will be uploaded within 90 days of the end of the reporting month.

The reporting to AQS will be a three-step process consisting of the following steps:

1. Validation of hourly data

2. Conversion of data to the AQS format
3. Upload to AQS.

As with AirNow, it will be an early priority for the project to obtain an account with EPA that will allow uploading of data onto AQS.

### **Monthly Summary Report**

In addition to the monthly uploading of continuous data onto AQS, a monthly summary report will be provided to ARB. The summary report will be provided within 15 days of the end of the reporting month.

Separate summary reports will be prepared for each site and will consist of the following:

- A narrative describing all significant events during the month (invalid data, instrument malfunctions, maintenance, etc.)
- Instrument QC check forms
- AQS upload status
- Recovery rates for all continuous parameters
- Invalid data summaries and causes
- Recovery rates for discrete samples
- Review of collocated BAM data
- Raw downloaded BAM files
- Internal station temperature data
- Documentation of calibration standards
- Station logbooks

### **Task 6: Quality Assurance**

SCS Tracer has teamed with T&B Systems for the performance of the two required audits for this program. The first audit will be conducted within 3 months after the field program has been established. The second audit will occur one year after the first.

Most importantly, these audits will be conducted using personnel and audit standards that are not a part of the overall operation of the monitoring program.

A brief summary of the scope of work proposed by T&B is given below.

- Conduct performance audits of two air quality sites in Mexicali, Mexico. An initial audit set would be conducted in approximately three months following installation of the monitoring sites, with a second set of audits conducted one year following first audits.
- Audits will be conducted on the following equipment: BAM 1020 for PM<sub>2.5</sub> (3), Met One SASS, URG 3000N carbon sampler, RM Young 81000 3D sonic anemometers (2), Hampshire 140 temperature sensors (2).

- All audits will be conducted using certified standards.
- The audit of the sonic anemometers will be conducted using the collocation method. A calibrated RM Young wind sensor in conjunction with a Campbell data logger will be collocated with the sonic anemometer, to collect several days of data. The RM Young and sonic data will then be compared using criteria established by the USEPA. In choosing the audit data logger, we are assuming that sigma theta is not a concern. Two systems (one for each site) will be set up during the audit visit. The systems will be allowed to run for several days, at which point SCS Tracer will download the collocated data and email it to T&B Systems prior to disassembling met systems and shipping them back to T&B.

### **Task 7: End of Project**

Within 45 days of the end of the monitoring (unless the contract is extended or turned over to another entity), SCS Tracer will remove all of their equipment from the sites. Title to all equipment purchased with state funds will remain with the State and SCS Tracer will leave all equipment, hardware, and software purchased with contract funds onsite, unless directed to do otherwise. At a minimum, the BAMs, SASS, and URG monitoring equipment will be purchased with state funds and left onsite, unless SCS Tracer is directed otherwise.







### 5.3 WORK PLAN SCHEDULE

The following table provides a rough schedule for the specific tasks outlined in this project. A more detailed schedule with subtasks has been provided in the previous section.

**Table 5-2: Project Schedule**

Task	Responsible Person(s)	Schedule
Develop and Submit Monitoring and Data Management Plan	James Stirling	Draft due 30 days following award
Equipment Purchasing and Acceptance Testing	Paul Schafer Anthony Maggio	The process will begin immediately following award and will end no later than 9 months following award. Paul Schafer will be responsible for procurement and acceptance testing. Anthony Maggio will be responsible for importation of equipment to Mexico.
Install, Configure, and Calibrate Equipment	Paul Schafer Jose Landeros	Once accepted equipment is delivered to Mexico Paul Schafer and Jose Landeros will insure equipment is installed according to the MDMP. This process will be completed no later than 2-months following the completion of Task 2.
Operate and Maintain Equipment	Jose Landeros Paul Schafer Air Monitoring Staff	Jose Landeros will be responsible for the day to day operations of the site with support from Paul Schafer as well as SCS Tracer's pool of air monitoring technicians. This task will begin upon completion of Task 3 and will continue for 24 months following.
Data Review, Validation, and Reporting	Katie Youngstrom James Stirling Philip Carrillo	Katie Youngstrom will review the data daily for any indications of failures or out of spec. data. In the event an issue is observed the site operator will be notified immediately and steps will be taken to rectify the issue. James Stirling will also be in charge of assuring data is properly submitted to AirNow and AQS. Monthly data reports will also be provided according to the requirements of the MDMP. Philip Carrillo will be in charge of ensuring seamless data transfer. This task will begin upon completion of Task 3 and will continue for 24 months following.
Quality Assurance	T&B Systems Jose Landeros	T&B Systems will be contracted for the performance of third party audits on site. Jose Landeros will escort T&B Systems from the US/Mexico border to the project sites. Two audits will take place. The first will occur approximately 3 months following installations, and the 2 <sup>nd</sup> , 1-year later.
End of Project	Paul Schafer Jose Landeros	Within 45 days of the end of the monitoring (unless the contract is extended or turned over to another entity), SCS Tracer will remove all of their equipment from the sites. Title to all equipment purchased with state funds will remain with the State and SCS Tracer will leave all equipment, hardware, and software purchased with contract funds onsite.

## 5.4 PERSONNEL AND EXPERIENCE

### Personnel Resumes

#### Paul W. Schafer

##### Education:

B.S. Chemical Engineering

*University of California, Santa Barbara*

##### Professional Registrations and Certifications:

Council-certified Indoor Environmental Consultant (CIEC #1012011)

Climate Action Reserve (CAR) Lead Verifier

U.S EPA Method 9 Visible Emissions Evaluator (VEE) Certified (ID # 22868)

OSHA HAZWOPER 40-hour Trained (OSHA 29 CFR 1910.120)

##### Professional Experience:

Mr. Paul Schafer is a Project Director at SCS Tracer Environmental (SCS Tracer) and is currently in charge of managing all air monitoring related projects. During his technical career at SCS Tracer, Mr. Schafer has assumed key roles on several nationally significant monitoring efforts, including Program Manager of measurement services involving waste handling and soils remediation. Paul is also SCS Tracer's lead investigator of new monitoring technologies and is thus responsible for understanding the strengths and weaknesses of a multitude of air monitoring methodologies.

Mr. Schafer has in-depth experience in interfacing with regulatory agencies regarding the performance of monitoring systems, source emission tests, and continuous process monitors which are operated for our clientele. He has had direct working experience with the South Coast AQMD, Santa Barbara APCD, San Luis Obispo County APCD, San Diego County APCD, California Air Resources Board, EPA Region IX, and the General Services Administration regarding monitoring programs and air quality impact assessments.

Paul has authored several Quality Assurance/Quality Control Plans, Quality Assurance Project Plans, and Monitoring Plans for clientele that define how ambient air quality monitoring sites are operated. These plans have been accepted by the relative regulatory agencies and are designed to meet or exceed the requirements put forth by the relative local, state and federal regulatory agencies.

Paul also handles data reporting and community outreach in regards to publicly scrutinized monitoring projects. This includes attending community working group meetings and presenting data results from air monitoring projects. Paul also has given several educational presentations related to air monitoring to better help the community understand the capabilities as well as limitations intrinsic to air monitoring projects.

Mr. Schafer offers decisive management skills, which contribute to the success of monitoring programs under his purview. Cost control management and defensible technical performance are primary goals integral to all long term monitoring programs managed by Mr. Schafer. Paul has developed close business relationships with manufacturers and suppliers in the ambient air quality monitoring field.

## **James J. Stirling**

### **Education:**

M.S. Atmospheric Sciences  
B.S. Atmospheric Sciences

*University of California, Los Angeles*  
*University of California, Los Angeles*

### **Professional Experience:**

Mr. Stirling is an air quality meteorologist with over 25 years of direct experience in design, implementation and management of ambient monitoring and meteorological measurement programs. During his technical career at SCS Tracer Environmental, Mr. Stirling has assumed key roles on several nationally significant monitoring efforts described below.

**Air Quality Monitoring in Mexico:** Mr. Stirling oversaw a multiyear program that established multiple ambient air quality and meteorological networks in northern Baja California, Mexico under contract to the Air Resources Board (ARB). These networks were established to assess air quality in the border region and lend insight to cross-border air pollution. Establishment of the networks consisted of selection of suitable sites, regulatory approval, development of agreements with host sites along with security and electrical considerations. Following establishment, Mr. Stirling oversaw the operation and maintenance of the network along with processing and assessment of the data collected.

**US Navy Clean Projects:** Mr. Stirling managed a number of sampling programs at US Navy facilities undergoing remediation activities. These projects included design of upwind/downwind sampling networks as well as selection of sampling methods based on the nature and extent of soil contamination.

**Los Angeles World Airports (LAWA) Source Apportionment:** Mr. Stirling oversaw the development of a multi-station network of ambient air monitors around Los Angeles International Airport. Seasonal collection of this data will be used in a source-apportionment modeling study. In addition to overall project management, Mr. Stirling was directly involved in the development of QA/QC documents as well as quality assurance of all collected data.

Mr. Stirling has considerable experience in interfacing with regulatory agencies regarding the performance of monitoring systems which are operated for our clientele. He has had direct working experience with the South Coast AQMD, Santa Barbara County APCD, San Diego County APCD, California Air Resources Board, EPA Region IX, and the General Services Administration regarding monitoring programs and air quality impact assessments.

Coupled with his technical expertise in Atmospheric Sciences, Mr. Stirling offers decisive management skills which contribute to the success of monitoring programs under his purview. Cost control management and defensible technical performance are primary goals integral to all long term monitoring programs managed by Mr. Stirling.

## **Philip Carrillo**

### **Education**

B.S. Applied Computing

*California State University, Monterey Bay*

### **Specialty Certifications**

Occupational Safety and Health Administration (OSHA) Hazardous Waste Operations  
Emergency Response (HAZWOPER) 40-Hour Training Certification

### **Professional Experience**

Mr. Carrillo is a Systems Integrator in SCS's Remote Monitoring and Control business unit with 15 years of experience in solid waste and landfill gas (LFG) management, including remote monitoring, Supervisory Control and Data Acquisition (SCADA), control systems, and the operation and maintenance (O&M) of LFG collection and treatment systems (LFGCCSs) – the past 5 with SCS. He has managed all aspects of LFGCCSs, including wellfields and flares, and LFG-to-energy (LFGE) controls, design, O&M, and construction management. His unique combination of field operations management experience and control systems technical expertise adds tremendous value to any SCS team assigned to an OM&M project.

Mr. Carrillo has designed over 50 remote monitoring and SCADA systems that have comprehensive control logic (Programmable Logic Controllers [PLCs]) and Human Machine Interface (HMI) capabilities. He understands the complex issues that must be addressed to optimize LFG system performance and to maintain regulatory compliance. He has performed, installation, and repair of LFG control systems, and has been responsible for implementing upgrades to computer and communication systems vital to compliance management. This has included troubleshooting system components, coordinating with field technical personnel, interfacing with vendors and landfill operations personnel, ordering materials and equipment, and overseeing LFGCCS repairs and upgrades.

### **State-of-the-Art O&M Data Management Technologies**

Mr. Carrillo leads development of SCS's pioneering suite of state-of-the-art hardware and custom applications that benefit our clients in their efforts to optimize data management efficiencies. Instrumental in designing **SCS Remote Monitoring and Control®**, a proprietary, user-friendly, secured Web-based data management application brought to market in 2011, this technology quickly became the industry standard for LFG data management and is currently utilized at over 50 landfills across the United States. The SCS Remote Monitoring and Control application supports SCS's internal Compliance Audit Program, which was developed specifically to validate data and verify regulatory compliance of environmental control facilities operated by SCS. Our internal Compliance Audit Program reviews data acquisition procedures, instrument calibration, data permit compliance, regulatory-required follow-up testing and remediation, testing schedules, and reporting.

In recent years, Mr. Carrillo has collaborated with SCS Field Services Senior Vice President, Galen Petoyan, and other SCS senior technical staff, including Ken Brynda, to develop and bring to market further advances in data management technology: **SCS Remote Monitoring and Control®** (RMC), **SCSeTools™**, and **SCS MobileTools™**. SCS Remote Monitoring and Control automates the collection of data at a site and electronically transmits the data to SCS eTools, an online application platform for collecting, monitoring, viewing, charting, graphing, and managing data from a variety of sites in a variety of industries. SCS MobileTools is an electronic replacement for the labor-intensive task of completing, reading, and correcting hand-written forms. SCS MobileTools is compatible with a wide range of devices that use the Android and Apple operating platforms.



## **Katie L. Youngstrom**

### **Education**

B.A. Biology

*California State University, Channel Islands*

### **Specialty Certifications**

U.S EPA Method 9 Visible Emissions Evaluator (VEE) Certified (ID #47266)

OSHA HAZWOPER 40-hour Trained (OSHA 29 CFR 1910.120)

AHERA Asbestos Building Inspector Certification

### **Professional Experience**

Ms. Youngstrom is a Project Professional for SCS Tracer Environmental (SCS Tracer). During her technical career at SCS Tracer, Ms. Youngstrom has supported numerous field projects including employee exposure monitoring, ambient air monitoring, indoor air quality monitoring, noise monitoring, soil sampling, and water sampling. Ms. Youngstrom's responsibilities include the routine operation and inspection of air monitoring stations, calibration and operation of pollutant analyzers, meteorological sensors, chart recorders, data acquisition systems, computers and their associated software and peripherals. Ms. Youngstrom's responsibilities also include producing monthly air monitoring reports for eight air monitoring stations that are submitted to the Santa Barbara County APCD.

Ms. Youngstrom assists with the operation and maintenance of a PSD and meteorological monitoring network in support of permit conditions for an onshore and offshore oil and gas recovery program. Continuous air quality measurements include NO/NO<sub>2</sub>/NO<sub>x</sub>, H<sub>2</sub>S, TRS, THC, SO<sub>2</sub>, and O<sub>3</sub>. This multi-year monitoring program satisfies permit to operate conditions for the County of Santa Barbara.

Ms. Youngstrom has also conducted exposure monitoring related to various oil field working groups. In this capacity she managed the calibration of air samplers, field sampling, documentation and record keeping, and planning of all field sampling activities. Sampling methodologies included EPA methods such as TO-17 and TO-15, NIOSH methods (0600, 7300, 6004, 6013, 7400, 6009, 5503, 5506) and ASTM (D-5504) methods.

## **Anthony J. Maggio, RG, REA, CHG**

### **Education**

B.A. Geology  
M.S. Geology

*California State University, Humboldt*  
*California State University, Long Beach*

### **Professional Licenses**

Registered Geologist – California (No. 4377)  
Certified Hydrogeologist – California (No. 453)

### **Professional Experience**

Mr. Maggio is a Project Director at SCS Engineers and is an Environmental Auditor and Senior Hydrogeologist. Mr. Maggio is responsible for due diligence related environmental assessments and environmental compliance, audits in the U.S., Mexico, and Latin America, environmental, health and safety audits at facilities in the U.S. and Mexico, development of environmental management programs in the U.S. and Mexico, development of assessment and closure plans for Brownfield Sites through EPA Region IX Brownfield Demonstration Pilot Program Grant, groundwater contamination and site characterization studies, water resource assessments, wellhead protection studies, groundwater basin balance studies, monitoring and water supply well design, and water resource management planning.

Before joining SCS Engineers, Mr. Maggio was the Director of Technical Services, Latin America, for Groundwater Technology's International Group. In that capacity, he managed operations and business development activities in Mexico, Argentina, Peru, and Brazil. He was responsible for locating and negotiating teaming agreements with local partners, strategic planning, budgeting, and organizing bilingual teams to carry out assignments. Services offered included hydrogeologic studies, contaminant assessments in soil and groundwater, remediation projects, and environmental auditing.

Mr. Maggio also worked as an independent geologist for hydrogeologic consulting firms in Reno, NV, and Los Angeles, CA, and as an assistant geologist/engineer for Chevron USA. His duties for those firms included geophysical studies, field mapping, well design, field supervision of well installation, analysis of pumping test data on domestic water supply wells, hydrologic studies of naturally occurring springs, and developing groundwater budgets for specific basins. As an assistant engineer for Chevron USA, he worked in several urban oilfields throughout the Los Angeles Basin, as part of a team evaluating older oil fields for tertiary recovery.

## 6 COST PROPOSAL

The following tables provide the information required in the Contractors Cost Sheet. All tasks include labor, personnel, overhead direct costs, general and administrative costs, travel, meetings, supplies, parts, standards, reports, applicable taxes, subcontractors, and all applicable items for completion of the tasks below.

### Attachment 11 Contractor Cost Sheet

#### Task Cost Tables

<b>Task 1 - Develop and Submit Monitoring and Data Management Plan</b>	
<b>Total Task 1</b>	<b>\$8,500.00</b>

<b>Task 2 - Equipment Purchasing/Acceptance Testing</b>			
Price below includes both total purchase price and acceptance testing costs.			
Contractor must purchase new BAMs, SASS, and URG monitoring equipment for this contract.			
	<b>Quantity</b>	<b>Price</b>	<b>Total</b>
MetOne FEM BAM-1020 PM2.5 mass monitors[BAM] (3rd BAM used for co-location)	3	\$28,000.00	\$84,000.00
MetOne PM2.5 mass flow controlled Speciation Air Sampling System [SASS]	1	\$17,160.00	\$17,160.00
URG 3000N Carbon Sampler [URG]	1	\$18,400.00	\$18,400.00
RM Young 81000 3D sonic anemometers	2	\$4,500.00	\$9,000.00
Hampshire 140 inside station temperature sensors	2	\$500.00	\$1,000.00
Agilaire Data Acquisition System: AirVision	1	\$13,656.00	\$13,656.00
Additional Equipment (Hardware, cables, cal. standards, etc..)	1	\$5,000.00	\$5,000.00
<b>Total Equipment</b>			
<b>Total Task 2</b>			<b>\$148,216.00</b>

Air Resources Board

<b>Task 3 - Install, Configure, and Calibrate Equipment</b>	
<b>Total Task 3</b>	<b>\$10,000.00</b>

<b>Task 4 - Operate and Maintain Equipment</b>			
<b>Monthly Rate</b>	<b>No. of Months</b>	<b>Name of Site</b>	<b>Cost for Task 4</b>
\$5,000.00	24	UABC	\$120,000.00
\$3,000.00	24	COBACH	\$72,000.00
<b>Total Task 4</b>			<b>\$192,000.00</b>

<b>Task 5 - Data Review, Validation &amp; Reporting</b>			
<b>Monthly Rate</b>	<b>No. of Months</b>	<b>Name of Site</b>	<b>Cost For Task 5</b>
\$2,800.00	24	UABC	\$67,200.00
\$1,800.00	24	COBACH	\$43,200.00
<b>Total Task 5</b>			<b>\$110,400.00</b>

<b>Task 6 - Quality Assurance</b>					
	<b>Site Audit</b>		<b>No. of Visits</b>		<b>Cost for Task 6</b>
UABC	3500	X	2	=	\$7,000.00
Cobach	2500	X	2	=	\$5,000.00
<b>Total Task 6</b>					<b>\$12,000.00</b>

**Combined Tasks 1-6 Total  
 Cost**

	<b>Total</b>
Task 1 - Develop Monitoring and Data Management Plan	\$8,500.00
Task 2 - Equipment Purchase/Acceptance Testing	\$148,216.00
Task 3 - Install, Configure, and Calibrate Equipment	\$10,000.00
Task 4 - Operate and Maintain Equipment	\$192,000.00
Task 5 - Date Review, Validation and Reporting	\$110,400.00
Task 6 - Quality Assurance (Site Visits)	\$12,000.00
<b>Grand Total Contract Amount</b>	<b>\$481,116.00</b>

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# Appendix A

## Payee Data Records









# Appendix B

## Darfur Contracting Act Certification



**ATTACHMENT 7  
DARFUR CONTRACTING ACT CERTIFICATION**

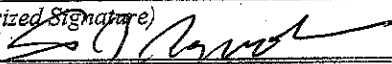
Public Contract Code Sections 10475 -10481 applies to any company that currently or within the previous three years has had business activities or other operations outside of the United States. For such a company to bid on or submit a proposal for a State of California contract, the company must certify that it is either a) not a scrutinized company; or b) a scrutinized company that has been granted permission by the Department of General Services to submit a proposal.

If your company has not, within the previous three years, had any business activities or other operations outside of the United States, you do **not** need to complete this form.

**OPTION #1 - CERTIFICATION**

If your company, within the previous three years, has had business activities or other operations outside of the United States, in order to be eligible to submit a bid or proposal, please insert your company name and Federal ID Number and complete the certification below.

I, the official named below, CERTIFY UNDER PENALTY OF PERJURY that a) the prospective proposer/bidder named below is **not** a scrutinized company per Public Contract Code 10476; and b) I am duly authorized to legally bind the prospective proposer/bidder named below. This certification is made under the laws of the State of California.

<i>Company/Vendor Name (Printed)</i> SCS Tracer Environmental		<i>Federal ID Number</i> 54-0913440
<i>By (Authorized Signature)</i> 		
<i>Printed Name and Title of Person Signing</i> Thomas J. Rappolt, Vice President		
<i>Date Executed</i> 6/9/2015	<i>Executed in the County and State of</i> San Diego	

**OPTION #2 - WRITTEN PERMISSION FROM DGS**

Pursuant to Public Contract Code section 10477(b), the Director of the Department of General Services may permit a scrutinized company, on a case-by-case basis, to bid on or submit a proposal for a contract with a state agency for goods or services, if it is in the best interests of the state. If you are a scrutinized company that has obtained written permission from the DGS to submit a bid or proposal, complete the information below.

We are a scrutinized company as defined in Public Contract Code section 10476, but we have received written permission from the Department of General Services to submit a bid or proposal pursuant to Public Contract Code section 10477(b). A copy of the written permission from DGS is included with our bid or proposal.

<i>Company/Vendor Name (Printed)</i>	<i>Federal ID Number</i>
<i>Initials of Submitter</i>	
<i>Printed Name and Title of Person Initialing</i>	



# Appendix C

## Contractor Certification Clauses

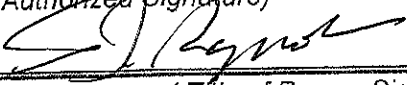


**ATTACHMENT 6**  
**Contractor Certification Clauses**

CCC-307

**CERTIFICATION**

I, the official named below, CERTIFY UNDER PENALTY OF PERJURY that I am duly authorized to legally bind the prospective Contractor to the clause(s) listed below. This certification is made under the laws of the State of California.

Contractor/Bidder Firm Name (Printed)		Federal ID Number	
SCS Tracer Environmental		54-0913440	
By (Authorized Signature)			
			
Printed Name and Title of Person Signing			
Thomas J. Rappolt, Vice President			
Date Executed		Executed in the County of	
6/9/2015		San Diego	

1. **STATEMENT OF COMPLIANCE:** Contractor has, unless exempted, complied with the nondiscrimination program requirements. (Gov. Code §12990 (a-f) and CCR, Title 2, Section 8103) (Not applicable to public entities.)

2. **DRUG-FREE WORKPLACE REQUIREMENTS:** Contractor will comply with the requirements of the Drug-Free Workplace Act of 1990 and will provide a drug-free workplace by taking the following actions:

- a. Publish a statement notifying employees that unlawful manufacture, distribution, dispensation, possession or use of a controlled substance is prohibited and specifying actions to be taken against employees for violations.
- b. Establish a Drug-Free Awareness Program to inform employees about:
  - 1) the dangers of drug abuse in the workplace;
  - 2) the person's or organization's policy of maintaining a drug-free workplace;
  - 3) any available counseling, rehabilitation and employee assistance programs; and,
  - 4) penalties that may be imposed upon employees for drug abuse violations.
- c. Every employee who works on the proposed Agreement will:
  - 1) receive a copy of the company's drug-free workplace policy statement; and,
  - 2) agree to abide by the terms of the company's statement as a condition of employment on the Agreement.

Failure to comply with these requirements may result in suspension of payments under the Agreement or termination of the Agreement or both and Contractor may be ineligible for award of any future State agreements if the department determines that any of the following has occurred: the Contractor has made false certification, or violated the certification by failing to carry out the requirements as noted above. (Gov. Code §8350 et seq.)

3. **NATIONAL LABOR RELATIONS BOARD CERTIFICATION:** Contractor certifies that no more than one (1) final unappealable finding of contempt of court by a Federal court has been issued against Contractor within the immediately preceding two-year period because of Contractor's failure to comply with an order of a Federal court, which orders Contractor to comply with an order of the National Labor Relations Board. (Pub. Contract Code §10296) (Not applicable to public entities.)



*[Faint handwritten text, possibly a signature or date]*

4. CONTRACTS FOR LEGAL SERVICES \$50,000 OR MORE- PRO BONO REQUIREMENT: Contractor hereby certifies that Contractor will comply with the requirements of Section 6072 of the Business and Professions Code, effective January 1, 2003.

Contractor agrees to make a good faith effort to provide a minimum number of hours of pro bono legal services during each year of the contract equal to the lessor of 30 multiplied by the number of full time attorneys in the firm's offices in the State, with the number of hours prorated on an actual day basis for any contract period of less than a full year or 10% of its contract with the State.

Failure to make a good faith effort may be cause for non-renewal of a state contract for legal services, and may be taken into account when determining the award of future contracts with the State for legal services.

5. EXPATRIATE CORPORATIONS: Contractor hereby declares that it is not an expatriate corporation or subsidiary of an expatriate corporation within the meaning of Public Contract Code Section 10286 and 10286.1, and is eligible to contract with the State of California.

6. SWEATFREE CODE OF CONDUCT:

a. All Contractors contracting for the procurement or laundering of apparel, garments or corresponding accessories, or the procurement of equipment, materials, or supplies, other than procurement related to a public works contract, declare under penalty of perjury that no apparel, garments or corresponding accessories, equipment, materials, or supplies furnished to the state pursuant to the contract have been laundered or produced in whole or in part by sweatshop labor, forced labor, convict labor, indentured labor under penal sanction, abusive forms of child labor or exploitation of children in sweatshop labor, or with the benefit of sweatshop labor, forced labor, convict labor, indentured labor under penal sanction, abusive forms of child labor or exploitation of children in sweatshop labor. The Contractor further declares under penalty of perjury that they adhere to the Sweatfree Code of Conduct as set forth on the California Department of Industrial Relations' website located at [www.dir.ca.gov](http://www.dir.ca.gov), and Public Contract Code Section 6108.

b. The Contractor agrees to cooperate fully in providing reasonable access to the Contractor's records, documents, agents or employees, or premises if reasonably required by authorized officials of the contracting agency, the Department of Industrial Relations, or the Department of Justice to determine the Contractor's compliance with the requirements under paragraph (a).

7. DOMESTIC PARTNERS: For contracts over \$100,000 executed or amended after January 1, 2007, the Contractor certifies that Contractor is in compliance with Public Contract Code section 10295.3.

### DOING BUSINESS WITH THE STATE OF CALIFORNIA

The following laws apply to persons or entities doing business with the State of California.

1. CONFLICT OF INTEREST: Contractor needs to be aware of the following provisions regarding current or former state employees. If Contractor has any questions on the status of any person rendering services or involved with the Agreement, the awarding agency must be contacted immediately for clarification.

Current State Employees (Pub. Contract Code §10410):

1). No officer or employee shall engage in any employment, activity or enterprise from which the officer or employee receives compensation or has a financial interest and which is sponsored or funded by any state agency, unless the employment, activity or enterprise is required as a condition of regular state employment.

[The main body of the page contains extremely faint and illegible text, likely bleed-through from the reverse side of the document. The text is too light to transcribe accurately.]

2). No officer or employee shall contract on his or her own behalf as an independent Contractor with any state agency to provide goods or services.

Former State Employees (Pub. Contract Code §10411):

1). For the two-year period from the date he or she left state employment, no former state officer or employee may enter into a contract in which he or she engaged in any of the negotiations, transactions, planning, arrangements or any part of the decision-making process relevant to the contract while employed in any capacity by any state agency.

2). For the twelve-month period from the date he or she left state employment, no former state officer or employee may enter into a contract with any state agency if he or she was employed by that state agency in a policy-making position in the same general subject area as the proposed contract within the 12-month period prior to his or her leaving state service.

If Contractor violates any provisions of above paragraphs, such action by Contractor shall render this Agreement void. (Pub. Contract Code §10420)

Members of boards and commissions are exempt from this section if they do not receive payment other than payment of each meeting of the board or commission, payment for preparatory time and payment for per diem. (Pub. Contract Code §10430 (e))

2. LABOR CODE/WORKERS' COMPENSATION: Contractor needs to be aware of the provisions which require every employer to be insured against liability for Worker's Compensation or to undertake self-insurance in accordance with the provisions, and Contractor affirms to comply with such provisions before commencing the performance of the work of this Agreement. (Labor Code Section 3700)

3. AMERICANS WITH DISABILITIES ACT: Contractor assures the State that it complies with the Americans with Disabilities Act (ADA) of 1990, which prohibits discrimination on the basis of disability, as well as all applicable regulations and guidelines issued pursuant to the ADA. (42 U.S.C. 12101 et seq.)

4. CONTRACTOR NAME CHANGE: An amendment is required to change the Contractor's name as listed on this Agreement. Upon receipt of legal documentation of the name change the State will process the amendment. Payment of invoices presented with a new name cannot be paid prior to approval of said amendment.

5. CORPORATE QUALIFICATIONS TO DO BUSINESS IN CALIFORNIA:

a. When agreements are to be performed in the state by corporations, the contracting agencies will be verifying that the Contractor is currently qualified to do business in California in order to ensure that all obligations due to the state are fulfilled.

b. "Doing business" is defined in R&TC Section 23101 as actively engaging in any transaction for the purpose of financial or pecuniary gain or profit. Although there are some statutory exceptions to taxation, rarely will a corporate Contractor performing within the state not be subject to the franchise tax.

c. Both domestic and foreign corporations (those incorporated outside of California) must be in good standing in order to be qualified to do business in California. Agencies will determine whether a corporation is in good standing by calling the Office of the Secretary of State.

6. RESOLUTION: A county, city, district, or other local public body must provide the State with a copy of a resolution, order, motion, or ordinance of the local governing body which by law has authority to enter into an agreement, authorizing execution of the agreement.

7. AIR OR WATER POLLUTION VIOLATION: Under the State laws, the Contractor shall not be: (1) in violation of any order or resolution not subject to review promulgated by the State Air Resources Board or an air



pollution control district; (2) subject to cease and desist order not subject to review issued pursuant to Section 13301 of the Water Code for violation of waste discharge requirements or discharge prohibitions; or (3) finally determined to be in violation of provisions of federal law relating to air or water pollution.

8. PAYEE DATA RECORD FORM STD. 204: This form must be completed by all Contractors that are not another state agency or other governmental entity.

<http://www.ols.dgs.ca.gov/Standard+Language/default.htm>



# Appendix D

## Bidder Declaration





**ATTACHMENT 5**

State of California—Department of General Services, Procurement Division  
GSPD-05-105 (REV 8/09)

Solicitation Number RFP No. 14-539

**BIDDER DECLARATION**

1. Prime bidder information (Review attached Bidder Declaration Instructions prior to completion of this form):

- a. Identify current California certification(s) (MB, SB, NVSA, DVBE): \_\_\_\_\_ or None
- b. Will subcontractors be used for this contract? Yes  No \_\_\_\_\_ (If yes, indicate the distinct element of work your firm will perform in this contract e.g., list the proposed products produced by your firm, state if your firm owns the transportation vehicles that will deliver the products to the State, identify which solicited services your firm will perform, etc.). Use additional sheets, as necessary.

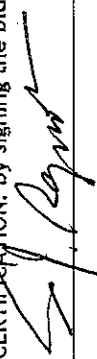
*- All services outlined in the RFP except for QA audits and day to day site operations.*

- c. If you are a California certified DVBE: (1) Are you a broker or agent? Yes \_\_\_\_\_ No \_\_\_\_\_  
(2) If the contract includes equipment rental, does your company own at least 51% of the equipment Provided in this contract (quantity and value)? Yes \_\_\_\_\_ No \_\_\_\_\_ N/A \_\_\_\_\_

2. If no subcontractors will be used, skip to certification below. Otherwise, list all subcontractors for this contract. (Attach additional pages if necessary):

Subcontractor Name, Contact Person, Phone Number & Fax Number	Subcontractor Address & Email Address	CA Certification (MB, SB, NVSA, DVBE or None)	Work performed or goods provided for this contract	Corresponding % of bid price	Good Standing?	51% Rental?
T & B Systems	25570 Rye Canyon Rd. Unit J Valencia, CA 91355	None	QA Audits	11.2%	N/A	N/A
Servicios y Analisis Integrados de Mexicali	Blvd. Anahuac No. 1498-2 Fracc. Jardines del Lago CP 21330 Mexicali, BC	None	Onsite Field Support	2.5%	Y	N/A

CERTIFICATION: By signing the bid response, I certify under penalty of perjury that the information provided is true and correct.



State of California—Department of General Services, Procurement Division



# Appendix E

## EPA Form 6100-4



Attachment 9  
 EPA Form 6100-4



OMB Control No: 2090-0030  
 Approved: 8/ 13/2013  
 Approval Expires: 8/ 31/2015

**Disadvantaged Business Enterprise (DBE) Program  
 DBE Subcontractor Utilization Form**

This form is intended to capture the prime contractor's actual and/or anticipated use of identified certified DBE<sup>1</sup> subcontractors<sup>2</sup> and the estimated dollar amount of each subcontract. An EPA Financial Assistance Agreement Recipient must require its prime contractors to complete this form and include it in the bid or proposal package. Prime contractors should also maintain a copy of this form on file.

Prime Contractor Name SCS Tracer Environmental		Project Name PM2.5 and Meteorological Monitoring in Mexicali	
Bid/ Proposal No. RFP No. 14-539	Assistance Agreement ID No. (if known)	Point of Contact Paul Schafer	
Address 5963 La Place Ct., Suite 207, Carlsbad, CA 92008			
Telephone No. 760-744-9611		Email Address pschafer@scsengineers.com	
Issuing/Funding Entity:			

I have identified potential DBE certified subcontractors	<input type="checkbox"/> YES	<input checked="" type="checkbox"/> NO	
If yes, please complete the table below. If no, please explain: Scope of Work is very specialized with no known certified local DBEs able to provide services.			
<b>Subcontractor Name/ Company Name</b>	<b>Company Address/ Phone/ Email</b>	<b>Est. Dollar Amt</b>	<b>Currently DBE Certified?</b>

Continue on back if needed

<sup>1</sup> A DBE is a Disadvantaged, Minority, or Woman Business Enterprise that has been certified by an entity from which EPA accepts certifications as described in 40 CFR 33.204-33.205 or certified by EPA. EPA accepts certifications from entities that meet or exceed EPA certification standards as described in 40 CFR 33.202.

<sup>2</sup> Subcontractor is defined as a company, firm, joint venture, or individual who enters into an agreement with a contractor to provide services pursuant to an EPA award of financial assistance.

EPA FORM 6100-4 (DBE Subcontractor Utilization Form)



Attachment 9  
EPA Form 6100-4



OMB Control No: 2090-0030  
Approved: 8/13/2013  
Approval Expires: 8/31/2015

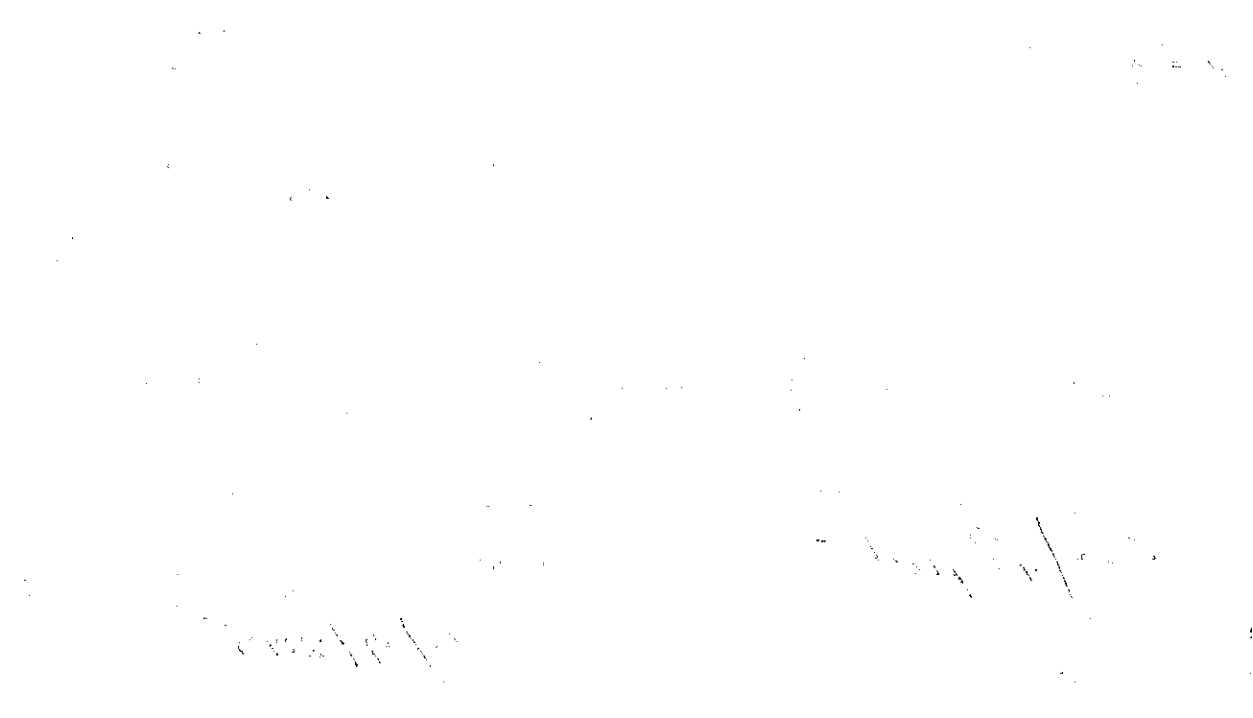
**Disadvantaged Business Enterprise (DBE) Program  
DBE Subcontractor Utilization Form**

I certify under penalty of perjury that the forgoing statements are true and correct. Signing this form does not signify a commitment to utilize the subcontractors above. I am aware of that in the event of a replacement of a subcontractor, I will adhere to the replacement requirements set forth in 40 CFR Part 33 Section 33.302 (c).

Prime Contractor Signature	Print Name
	Thomas J. Rappolt
Title	Date
Vice President	6/9/2015

The public reporting and recordkeeping burden for this collection of information is estimated to average three (3) hours per response. Send comments on the Agency's need for this information, the accuracy of the provided burden estimates, and any suggested methods for minimizing respondent burden, including through the use of automated collection techniques to the Director, Collection Strategies Division, U.S. Environmental Protection Agency (2822T), 1200 Pennsylvania Ave., NW, Washington, D.C. 20460. Include the OMB control number in any correspondence. Do not send the completed form to this address.





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**EXHIBIT B**  
**BUDGET DETAIL AND PAYMENT PROVISIONS**

**1. Invoicing and Payment**

- A. For services satisfactorily rendered, and upon receipt and approval of the invoices, the State agrees to compensate the Contractor for costs and in accordance with the costs specified in Exhibit B, Attachment 1, Contractor Cost Sheet.

**Task 1: Shall be paid upon completion in arrears when the Monitoring and Data Management Plan is accepted and approved by ARB.**

**Task 2: Shall be paid no more frequently than monthly in arrears, if accepted and approved by ARB, after each of the equipment is purchased and acceptance tested in accordance with Exhibit B, Attachment 1, Contractor Cost Sheet.**

**Task 3: Shall be paid upon task completion in arrears when all equipment have been installed, configured, and calibrated, and accepted and approved by ARB.**

**Tasks 4 & 5: Shall be paid no more frequently than monthly 1/24 of each task total in arrears, and will be paid only upon review and approval by ARB of the Monthly Summary Reports as described in Task 5 of Exhibit A.**

**Task 6: Shall be paid in arrears after each site audit is conducted and is submitted to and approved by ARB.**

**The total costs for each project task as listed on the cost sheet shall not be exceeded.**

All costs, on the Contractor Cost Sheet, must include items such as labor, travel, subcontractors, meetings, supplies/materials, reports, tax, and any other items necessary to perform and complete the tasks of this project.

All costs incurred shall be payable in arrears. Contractor shall provide invoices with detailed descriptions of all costs incurred (for the current reporting period and total by task), by staff and task, while working toward completion of each task. An associated progress report that summarizes work performed during the reporting period, any problems encountered, plus planned work for the next reporting period will be provided with each invoice until routine monitoring commences and the Monthly Summary Reports start, which include this information. The amount invoiced for work performed toward completing any individual task must be commensurate with the cost and rates listed in Exhibit B, Attachment 1, Contractor Cost Sheet.

- B. Invoices shall include the Agreement Number and shall be in duplicate (1 original and 1 copy) and submitted in arrears to the address below:

Air Resources Board  
Accounting Section  
P.O. Box 1436  
Sacramento, CA 95812

**EXHIBIT B**  
**BUDGET DETAIL AND PAYMENT PROVISIONS**

C. Progress Payments:

Progress payments are permitted for work performed under this contract. Pursuant to Public Contract Code Section 10346, contracts shall provide for progress payments to Contractors for work performed or costs incurred in the performance of the contract. Not less than 10 percent of the contract amount shall be withheld pending final completion of the contract. If the contract consists of the performance of separate and distinct tasks, then any funds so withheld with regard to a particular task may be paid upon completion of that task.

For Tasks 1, 2, 3, & 6: There will not be a withhold for these tasks.

For Tasks 4 & 5: Ten percent (10%) of each invoiced amount shall be withheld pending final completion of the contract, and receipt and acceptance by the ARB Project Manager of a final invoice.

**2. Liquidated Damages**

The parties agree that in the event of a breach as listed below, the State would suffer damages and it would be impractical and extremely difficult to determine the amount of actual damages. Accordingly, in lieu of actual damages, the Contractor agrees that liquidated damages will be assessed and recovered by the State without being required to present any evidence of the amount or character of actual damages sustained by reason thereof. Contractor will not be subject to liquidated damages in the event of a Force Majeure event described in Exhibit D Section 8 including and in addition to the representative examples stated in Exhibit D Section 8, loss of power to Contractor's equipment or Contractor's inability to access such equipment for any reason outside of Contractor's control.

Thus the parties agree that:

- A. If the Contractor breaches the agreement by submitting final data to AQS more than four months from the last day of the month, the Contractor shall be liable to the State for liquidated damages in the sum of \$100 per business day for each station's data that has not been reported.
- B. If the Contractor is later than 2 weeks past a deadline for submitting of reports as specified in the SOW, or provides incomplete Monthly Summary Report (see Task 6), the Contractor shall be liable to the State for liquidated damages in the sum of \$100 per business day for each item either delayed or incomplete.
- C. If the Contractor breaches the agreement by obtaining data capture rates lower than 85% (less than 20 valid hours reported each day) Contractor shall be liable to the State for liquidated damages in the sum of \$100 each incomplete day per parameter per month. Data capture rates consistently lower than 75% (longer than three months) may result in termination of the contract.

**EXHIBIT B**  
**BUDGET DETAIL AND PAYMENT PROVISIONS**

- D. If the Contractor breaches the agreement by obtaining filter capture rates lower than 80% Contractor shall be liable to the State for liquidated damages in the sum of \$100 for each filter with a capture rate lower than 80%. Filter capture rates consistently lower than 75% (longer than three months) may result in termination of the contract.
- E. If the Contractor breaches the agreement by performing a calibration or required monthly checks with non-certified calibration equipment (e.g., not NIST traceable, or not still certificated) as required by US EPA procedures, or for lack of performing routine instrument maintenance as outlined in the instrument manual and/or SOPs, Contractor shall be liable to the State for liquidated damages in the sum of \$1000 per infraction.

The State shall notify the Contractor in writing, of any breach specified herein, and liquidated damages shall be paid by the Contractor within thirty (30) calendar days of the notice. Contractor agrees that the State may also, in its discretion, recover any liquidated damages assessed by offsetting it against any amounts due to the contractor under the contract.

The amount of liquidated damages assessed for any breaches occurring during a particular month will not exceed the combined monthly rate for Tasks 4 & 5 for that particular month as listed in Exhibit B Attachment 1 – Contractor Cost Sheet. The parties agree that the amounts above are a reasonable estimate of any actual damages and intend this provision to constitute liquidated damages pursuant to California Civil Code Section 1671.

The State's failure to assess liquidated damages under this clause no way modifies or waives the State's right to assess liquidated damages for other similar occurrences.

**3. Budget Contingency Clause**

- A. It is mutually agreed that if the Budget Act of the current year and/or any subsequent years covered under this Agreement does not appropriate sufficient funds for the program, this Agreement shall be of no further force and effect. In this event, the State shall have no liability to pay any funds whatsoever to Contractor or to furnish any other considerations under this Agreement and Contractor shall not be obligated to perform any provisions of this Agreement.
- B. If funding for any fiscal year is reduced or deleted by the Budget Act for purposes of this program, the State shall have the option to either cancel this Agreement with no liability occurring to the State, or offer an agreement amendment to Contractor to reflect the reduced amount.

**4. Prompt Payment Clause**

Payment will be made in accordance with, and within the time specified in, Government Code Chapter 4.5, commencing with Section 927.

**Attachment 11  
 Contractor Cost Sheet**

Task Cost Tables

<b>Task 1 - Develop and Submit Monitoring and Data Management Plan</b>	
<b>Total Task 1</b>	<b>\$8,500.00</b>

<b>Task 2 - Equipment Purchasing/Acceptance Testing</b>			
Price below includes both total purchase price and acceptance testing costs.			
Contractor must purchase new BAMs, SASS, and URG monitoring equipment for this contract.			
	<b>Quantity</b>	<b>Price</b>	<b>Total</b>
MetOne FEM BAM-1020 PM2.5 mass monitors[BAM] (3rd BAM used for co-location)	3	\$28,000.00	\$84,000.00
MetOne PM2.5 mass flow controlled Speciation Air Sampling System [SASS]	1	\$17,160.00	\$17,160.00
URG 3000N Carbon Sampler [URG]	1	\$18,400.00	\$18,400.00
RM Young 81000 3D sonic anemometers	2	\$4,500.00	\$9,000.00
Hampshire 140 inside station temperature sensors	2	\$500.00	\$1,000.00
Agilaire Data Acquisition System: AirVision	1	\$13,656.00	\$13,656.00
Additional Equipment (Hardware,cables, cal. standards, etc..)	1	\$5,000.00	\$5,000.00
<b>Total Equipment</b>			
<b>Total Task 2</b>			<b>\$148,216.00</b>

<b>Task 3 - Install, Configure, and Calibrate Equipment</b>	
<b>Total Task 3</b>	<b>\$10,000.00</b>

<b>Task 4 - Operate and Maintain Equipment</b>			
<b>Monthly Rate</b>	<b>No. of Months</b>	<b>Name of Site</b>	<b>Cost for Task 4</b>
\$5,000.00	24	UABC	\$120,000.00
\$3,000.00	24	COBACH	\$72,000.00
<b>Total Task 4</b>			<b>\$192,000.00</b>

<b>Task 5 - Data Review, Validation &amp; Reporting</b>			
<b>Monthly Rate</b>	<b>No. of Months</b>	<b>Name of Site</b>	<b>Cost For Task 5</b>
\$2,800.00	24	UABC	\$67,200.00
\$1,800.00	24	COBACH	\$43,200.00
<b>Total Task 5</b>			<b>\$110,400.00</b>

<b>Task 6 - Quality Assurance</b>					
	<b>Site Audit</b>		<b>No. of Visits</b>		<b>Cost for Task 6</b>
UABC	3500	X	2	=	\$7,000.00
Cobach	2500	X	2	=	\$5,000.00
<b>Total Task 6</b>					<b>\$12,000.00</b>

**Combined Tasks 1-6 Total  
Cost**

	<b>Total</b>
Task 1 - Develop Monitoring and Data Management Plan	\$8,500.00
Task 2 - Equipment Purchase/Acceptance Testing	\$148,216.00
Task 3 - Install, Configure, and Calibrate Equipment	\$10,000.00
Task 4 - Operate and Maintain Equipment	\$192,000.00
Task 5 - Date Review, Validation and Reporting	\$110,400.00
Task 6 - Quality Assurance (Site Visits)	\$12,000.00
<b>Grand Total Contract Amount</b>	<b>\$481,116.00</b>

**EXHIBIT D**  
**SPECIAL TERMS AND CONDITIONS**

**1. Excise Tax**

The State of California is exempt from federal excise taxes, and no payment will be made for any taxes levied on employees' wages. The State will pay for any applicable State of California or local sales or use taxes on the services rendered or equipment or parts supplied pursuant to this Agreement. California may pay any applicable sales and use tax imposed by another state.

**2. Settlement of Disputes**

- A. In the event of a dispute, Contractor shall file a "Notice of Dispute" with ARB within ten (10) days of discovery of the problem. Within ten (10) days, the ARB shall meet with the Contractor and Project Representative for purposes of resolving the dispute.
- B. Any dispute concerning a question of fact arising under the terms of this Agreement which is not disposed of within a reasonable period of time by Contractor and State employees normally responsible for the administration of this Agreement shall be brought to the attention of the Executive Officer or designated representative of each organization for resolution. The decision of the State Executive Officer or designated representative shall be final.
- C. In the event of a dispute, the language contained within this Agreement shall prevail over any other language including that of the proposal.
- D. The existence of a dispute not fully resolved shall not delay Contractor to continue with the responsibilities under this Agreement which is not affected by the dispute.

**3. Potential Subcontractors**

Nothing contained in this Agreement or otherwise, shall create any contractual relation between the State and any subcontractors, and no subcontract shall relieve the Contractor of its responsibilities and obligations hereunder. The Contractor agrees to be as fully responsible to the State for the acts and omissions of its subcontractors and of persons either directly or indirectly employed by any of them as it is for the acts and omissions of persons directly employed by the Contractor. The Contractor's obligation to pay its subcontractors is an independent obligation from the State's obligation to make payments to the Contractor. As a result, the State shall have no obligation to pay or to enforce the payment of any moneys to any subcontractor.

**4. Stop Work Order**

State reserves the right to issue an order to stop work in the event that a dispute should arise, or in the event that State gives Contractor a notice that the Agreement will be terminated. The stop-work order will be in effect until the dispute has been resolved or the Agreement has been terminated.

**EXHIBIT D**  
**SPECIAL TERMS AND CONDITIONS**

**5. Termination**

- A. In addition to the rights under Exhibit C of the Standard Agreement, State reserves the right to terminate this Agreement at its sole discretion at any time upon thirty (30) days prior written notice to Contractor.
- B. In the case of early termination, Contractor shall submit an invoice in triplicate and a report in triplicate covering services to termination date, following the invoice and progress report requirements of this Agreement. A copy and description of any data collected up to termination date shall also be provided to State.
- C. Upon receipt of the invoice, progress report, and data, a final payment will be made to Contractor. This payment shall be for all State-approved, actually-incurred costs that in the opinion of State are justified, and shall include labor, and materials purchased or utilized (including all non-cancellable commitments) to termination date, and pro rata indirect costs as specified in the proposal budget.
- D. ARB has the option to terminate contract at any time if project is completed within the 36 month contract term.

**6. Amendments**

- A. No amendment or variation of the terms of this Agreement shall be valid unless made in writing, signed by the parties, and approved as required. No oral understanding or agreement not incorporated in this Agreement is binding on any of the parties.
- B. ARB reserves the right to amend this Agreement through a formal written amendment, signed by the parties, for additional time and/or funding.

**7. Insurance**

Insurance Requirements – Contractor shall comply with all requirements outlined in the (1) General Provisions section and (2) Contract Insurance Requirements outlined in this section. No payments will be made under this contract until contractor fully complies with all requirements.

1. General Provisions Applying to All Policies

- a. Coverage Term – Coverage needs to be in force for the complete term of the contract. If insurance expires during the term of the contract, a new certificate must be received by the State at least ten (10) days prior to the expiration of this insurance. Any new insurance must comply with the original contract terms.
- b. Policy Cancellation or Termination & Notice of Non-Renewal – Contractor is responsible to notify the State within 5 business days of any cancellation, non-renewal or material change that affects required insurance coverage. New



**EXHIBIT D**  
**SPECIAL TERMS AND CONDITIONS**

certificates of insurance are subject to the approval of the Department of General Services and the Contractor agrees no work or services will be performed prior to obtaining such approval. In the event Contractor fails to keep in effect at all times the specified insurance coverage, the State may, in addition to any other remedies it may have, terminate this Contract upon the occurrence of such event, subject to the provisions of this Contract.

- c. Premiums, Assessments and Deductibles – Contractor is responsible for any premiums, policy assessments, deductibles or self-insured retentions contained within their insurance program.
  - d. Primary Clause – Any required insurance contained in this contract shall be primary, and not excess or contributory, to any other insurance carried by the State.
  - e. Insurance Carrier Required Rating – All insurance companies must carry an AM Best rating of at least “A–” with a financial category rating of no lower than VI. If the Contractor is self insured for a portion or all of its insurance, review of financial information including a letter of credit may be required.
  - f. Endorsements – Any required endorsements requested by the State must be physically attached to all requested certificates of insurance and not substituted by referring to such coverage on the certificate of insurance.
  - g. Inadequate Insurance – Inadequate or lack of insurance does not negate the contractor’s obligations under the contract.
  - h. Use of Subcontractors - In the case of Contractor’s utilization of subcontractors to complete the contracted scope of work, contractor shall include all subcontractors as insured’s under Contractor’s insurance or supply evidence of subcontractor’s insurance to The State equal to policies, coverages, and limits required of Contractor.
  - i. All Certificates shall state coverage while in Mexico and its territories.
2. Contract Insurance Requirements  
Contractor shall display evidence of the following on an Acord certificate of insurance evidencing the following coverages:
- a. Commercial General Liability – Contractor shall maintain general liability on an occurrence form with limits not less than \$1,000,000 per occurrence for bodily injury and property damage liability combined with a \$2,000,000 annual policy aggregate. A “per project aggregate” endorsement is required. The policy shall include coverage for liabilities arising out of premises, operations, independent contractors, products, completed operations, personal & advertising injury, and liability assumed under an insured contract. This insurance shall apply separately to each insured against whom claim is made or suit is brought subject

**EXHIBIT D**  
**SPECIAL TERMS AND CONDITIONS**

to the Contractor's limit of liability. Certificate shall show coverage while in Mexico and its territories.

The policy must name The State of California, its officers, agents, and employees as additional insured, but only with respect to work performed under the contract.

- b. Automobile Liability – Contractor shall maintain business automobile liability insurance for limits not less than \$1,000,000 combined single limit. Such insurance shall cover liability arising out of a motor vehicle including owned, hired and non-owned motor vehicles. Should the scope of the Contract involve transportation of hazardous materials, evidence of an MCS-90 endorsement is required. Certificate Shall Show Coverage while in Mexico and its territories.

The policy must name The State of California, its officers, agents, and employees as additional insured, but only with respect to work performed under the contract.

- c. Workers Compensation and Employers Liability – Contractor shall maintain statutory worker's compensation and employer's liability coverage for all its employees who will be engaged in the performance of the Contract. In addition, employer's liability limits of \$1,000,000 are required. By signing this contract, Contractor acknowledges compliance with these regulations. Certificate shall state coverage while in Mexico and its territories. .

A Waiver of Subrogation or Right to Recover endorsement in favor of the State of California must be attached to certificate.

**8. Force Majeure**

Except for defaults of subcontractors, neither party shall be responsible for delays or failures in performance resulting from acts beyond the control of the offending party. Such acts shall include but shall not be limited to acts of God, fire, flood, earthquake, other natural disaster, nuclear accident, strike, lockout, riot, freight embargo, public regulated utility, or governmental statutes or regulations superimposed after the fact. If a delay or failure in performance by the Contractor arises out of a default of its subcontractor, and if such default of its subcontractor, arises out of causes beyond the control of both the Contractor and subcontractor, and without the fault or negligence of either of them, the Contractor shall not be liable for damages of such delay or failure, unless the supplies or services to be furnished by the subcontractor were obtainable from other sources in sufficient time to permit the Contractor to meet the required performance schedule.

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**9. Federal Requirements Regarding Disadvantaged Business Enterprises (DBEs)**

The Contractor shall not discriminate on the basis of race, color, national origin or sex in the performance of this contract. The Contractor shall carry out applicable requirements of 40 CFR Part 33 (including, but not limited to, the Six Good Faith Efforts in 40 CFR Part 33.301 and Contract Administrative Requirements in 40 CFR Part 33.302) in the award and administration of contracts awarded under EPA financial assistance agreements. Failure by the Contractor to carry out these requirements is a material breach of this contract which may result in the termination of this contract or other legally available remedies.

**EXHIBIT E**  
**ADDITIONAL PROVISIONS**

**1. Computer Software**

Contractor certifies that it has appropriate systems and controls in place to ensure that State funds will not be used in the performance of this contract for the acquisition, operation or maintenance of computer software in violation of copyright laws.

**2. Ownership of Work and Copyrightable Materials**

Any works developed during and/or pursuant to this agreement by Contractor, including all related copyrights and other proprietary rights therein, as may now exist and/or which hereafter come into existence, shall belong to State upon creation, and shall continue in State's exclusive ownership upon termination of this agreement. Contractor further intends and agrees to assign to State all right, title and interest in and to such materials as well as all related copyrights and other proprietary rights therein.

Contractor's obligations under this provision shall survive the expiration or termination of this Agreement.

**3. Copyrightable Materials**

- A. ARB reserves the right to any copyrightable materials developed under this Agreement. Upon acceptance of the copyrightable materials developed under this Agreement, and payment of the sums then due under the terms of the Agreement, ARB shall have the sole and exclusive right, title, and interest (including trade secret and copyright interests) in the copyrightable materials. Contractor and his or her subcontractors hereby assign(s) all rights, title, and interest (including trade secret and copyright interest) in any copyrightable materials developed under this Agreement to ARB.
- B. ARB, at its discretion, may grant a nonexclusive and paid-up license to Contractor and his or her subcontractors to use said copyrightable materials. Contractor and his or her subcontractors agree to cooperate with and assist ARB to apply for and to execute any applications and/or assignments reasonably necessary to obtain any patent, copyright, trademark, or other statutory protection for all copyrightable materials.
- C. Contractor and his or her subcontractors shall not disclose any copyrightable materials, any of the deliverables thereof, or any portion thereof, to any other organization or person without the written consent of ARB.
- D. Contractor and his or her subcontractors shall not use the copyrightable materials, any of the deliverables thereof, or any portion thereof, in any other work performed by this Agreement subject to any license granted without the written consent of ARB.
- E. Contractor's obligations under this provision shall survive the expiration or termination of this Agreement.

**EXHIBIT E**  
**ADDITIONAL PROVISIONS**

**4. Confidentiality of State Information**

It is expressly understood and agreed that information Contractor receives from State in performing its obligations under this Agreement may be deemed confidential by State. Therefore, Contractor agrees to:

- A. Observe complete confidentiality with respect to such information, including without limitation, agreeing not to disclose or otherwise permit access to such information by any person or entity in any manner whatsoever.
- B. Ensure that Contractor's employees, agents, representatives, and independent Contractors are informed of the confidential nature of such information and ensure by agreement or otherwise that they are prohibited from copying or revealing, for any purpose whatsoever, the contents of such information or any part thereof, or from taking any action otherwise prohibited under this section.
- C. Not use such information or any part thereof in the performance of services to others or for the benefit of others in any form whatsoever whether gratuitously or for valuable consideration, except as permitted under this Agreement.
- D. Notify State promptly and in writing of the circumstances surrounding any possession, use or knowledge of such information or any part thereof by any person other than those authorized by this paragraph.

**5. Confidentiality of Data and Working Documents**

- A. Contractor shall not disclose data or documents or disseminate the contents of the final or any preliminary report without express written permission of ARB's Contract Manager.
- B. Permission to disclose information or documents on one occasion or at public hearings or workshops held by ARB relating to the same shall not authorize Contractor to further disclose such information or documents on any other occasion.
- C. Contractor shall not comment publicly to the press or any other media regarding the data or documents generated, collected, or produced in connection with this Contract, or ARB's actions on the same, except to ARB staff, Contractor's own personnel involved in the performance of this Contract, at a public hearing, or in response to questions from a legislative committee.
- D. Contractor shall require each of its employees or officers who will be involved in the performance of this Contract to agree to the above terms.
- E. Each subcontract shall contain the foregoing provisions related to the confidentiality of data and nondisclosure of the same.

**EXHIBIT E**  
**ADDITIONAL PROVISIONS**

**6. Evaluation of the Contractor**

Pursuant to Public Contract Code (PCC) Sections 10367 and 10369, the Contractor providing consultant services of \$5,000 or more shall be advised in writing that the performance will be evaluated. The evaluation shall be prepared on a Contract/Contractor Evaluation Sheet (STD. 4), within 60 days after completion of the agreement and maintained in the Agreement file. Any negative evaluations will be sent to the Department of General Services, Office of Legal Services (DGS/OLS) and a copy sent to the Contractor within 15 days. The Contractor shall have 30 days to prepare a statement defending his or her performance under the contract and to send it to ARB and DGS/OLS.

**7. DVBE Audit**

Contractor agrees that the State or its delegate will have the right to review, obtain, and copy all records pertaining to Contractor's compliance with the Disabled Veteran Business Enterprise (DVBE) requirements as contained in Public Contract Code sections 10115 et. seq. Contractor agrees to provide State or its delegate with any relevant information requested and shall permit State or its delegate access to its premises, upon reasonable notice, during normal business hours for the purposes of interviewing employees and inspecting and copying such books, records, accounts, and other material that may be relevant to a matter under investigation for the purpose of determining compliance with the DVBE requirements. Contractor further agrees to maintain such records for a period of three years after final payment under this Agreement.