Scope of Work

The Harbor Department's air monitoring program began in April 2005. The four air quality monitoring stations measure ambient air pollution levels in the vicinity of the Port. The program includes a number of real-time air quality measurements: ozone (O_3), sulfur dioxide (SO_2), nitrogen dioxide (NO_2), carbon monoxide (CO), two sizes of particulate matter (PM_{10} or coarse particles, and $PM_{2.5}$ or fine particles), black carbon, and ultrafine particles. In addition, 24-hour integrated samples of particulates and elemental carbon (EC) are collected on filters following the appropriate United States Environmental Protection Agency (USEPA) sampling schedule and sent to a certified laboratory for detailed chemical analyses. As part of the program, meteorological monitoring stations operate adjacent to each air monitoring station, to help interpret the air quality data and for use in other Harbor Department programs. Each meteorological monitoring station collects wind speed, wind direction, and temperature data and one station also collects solar radiation, relative humidity, and barometric pressure data. Current and historical real-time data can be found at http://caap.airsis.com/ and historical filter-based data can be found at http://portoflosangeles.org/environment/air_quality.asp.

The monitoring stations are strategically located within the Port's Region of Influence at (1) the Outer Harbor area at Berth 47 near the south end of the Port, (2) the Terminal Island Treatment Plant (TITP) in the center of Port operations, (3) within the San Pedro community near the intersection of South Harbor Boulevard and 3rd Street, and (4) within the Wilmington community at the Sts. Peter & Paul Elementary School.

A) Required Tasks

Task 1 – Operations and Maintenance

Operate and maintain the Harbor Department's air quality monitoring network, consisting of four air quality monitoring stations. At each station, this program will include:

- Monitoring 24-hour integrated particulate matter of 2.5 microns or less ($PM_{2.5}$) levels every three days with filter-based sequential filter sampling (SFS), or equivalent sampling method, in accordance with the Environmental Protection Agency (EPA) nationwide schedule and existing Port Monitoring Protocol. The filters will be analyzed for $PM_{2.5}$ concentrations and elemental and organic carbon (EC/OC) levels. All filters should be archived at the analytical laboratory for detailed chemistry analyses and for future potential use.

- Monitoring 24-hour integrated particulate matter of 10 microns or less (PM_{10}) levels every three days at the Sts. Peter and Paul School (SPPS) and the Outer Harbor (Coastal Boundary) stations with filter-based SFS, or equivalent sampling method, in accordance with the EPA nationwide schedule and existing Port Monitoring Protocol. All filters will be archived

at the analytical laboratory for detailed chemistry analyses and for future potential use.

- Monitoring $PM_{2.5}$ and PM_{10} at the Sts. Peter and Paul School station using Federal Reference Method (FRM) monitors in accordance with the existing Port Monitoring Protocol. These FRM monitors are only used to measure PM concentrations, but are useful as a Quality Assurance/Quality Control (QA/QC) check on the SFS filter-based monitors deployed at each site.

- Providing $PM_{2.5}$ and PM_{10} filters to be delivered to and analyzed at a laboratory certified to provide the analytical services prescribed in the Work Plan.

- Monitoring NO_2, O_3, CO, SO_2, $PM_{2.5}$, PM_{10}, ultrafine particles, and black carbon on a continuous basis.

- Monitoring meteorological conditions on a continuous basis.

- Hosting and maintaining the presentation of the real-time data on the Clean Air Action Plan (CAAP) website. The proposed program should include software filters that will exclude extremely high pollutant levels from being displayed on the CAAP website (because almost all of the extremely high concentrations are a result of analyzer problems).

- Submitting all real-time and filter-based data to be archived in an Access database for analysis, review and future use.

- Developing QA/QC protocol to provide routine calibration and maintenance of the monitoring equipment as well as daily data integrity checks.

- Performing routine repair on equipment. It should be noted that all equipment is owned by the Harbor Department.

- Conducting external audits of the monitoring systems with the use of an independent 3rd party at six-month intervals. The audits will evaluate the operation of the continuous pollutant monitors, 24-hour integrated samplers, and meteorological sensors, and will check flows on the real-time $PM_{2.5}$ and PM_{10} monitors.

- Providing routine updates of the monitoring network operation to designated Port staff in routine conference calls, including the discussion of monitoring problems and issues as they arise.

- Supporting Harbor Department staff in public presentations/meetings, as requested.

Task 2 – Data Review and Quality Assurance

In addition to the standard review procedures to examine the operation of the individual analyzers and data loggers at each station, the operator shall routinely compare the Harbor Department's monitoring data to historical trends, as well as data from other nearby stations (i.e., the Port of Long Beach (POLB) and South Coast Air Quality Management District (SCAQMD) networks). This provides useful perspective on the data and assists in the analytical interpretation and identification of unusual data points ("outliers") which may be biased due to instrument-related problems or part of a larger regional influence. This task will include:

- Conducting daily reviews of the data acquisition and handling system, and website presentation. This includes review of the data as well as the operational performance of the system.

- Conducting monthly QA/QC reviews of the data collected by the monitoring stations. This review process involves an in-depth review by a field manager responsible for the day-to-day operations of the project and the technical director/QA officer who conducts a second detailed review of the data to ensure that the QA process is followed and that any questionable data are dealt with appropriately.

- Conducting quarterly QA/QC review of the particulate filter analytical results.

- Providing the filter data to the Harbor Department in a format suitable for uploading to the Port's website.

Task 3 – Annual Report

An annual summary and data analysis report are to be provided to the Harbor Department on a timely basis for review. Following revision and acceptance by the Harbor Department's environmental staff, the annual report will be uploaded to the Port's website.

B) Optional Task

Conduct special studies and/or analyses as requested by staff. Examples of special studies and analyses may include source apportionment, data validation, regulatory agency sampling co-location, site evaluation studies, and short-term monitoring and analysis of additional pollutants of interest.