Air Monitoring Station Operation and Maintenance Support

REQUEST FOR PROPOSALS

Issued by the Ports of Los Angeles and Long Beach

June 20, 2024

RAMP ID #215605

June 20, 2024

Prospective Consultants:

SUBJECT: REQUEST FOR PROPOSALS FOR AIR MONITORING STATION OPERATION AND MAINTENANCE SUPPORT

The Harbor Departments of the Cities of Los Angeles and Long Beach (the Port of Los Angeles and the Port of Long Beach, known collectively as "the Ports") invite the submittal of proposals to provide day-to-day operation, maintenance, and project management of the Ports' existing air monitoring stations, in accordance with each Port's Air Quality Monitoring Plan/Protocol and Air Monitoring Quality Assurance Plan.

Instructions and forms to be used in preparing the qualifications are found in the information included in the Request for Proposals (RFP).

The current contracts for air monitoring services will expire on December 31, 2024. The Ports will contract separately with the selected Consultant. It is the Ports' intent to continue utilizing the services of one expert Consultant to operate and maintain all the Ports' air monitoring stations. In order to ensure continuous operations and a seamless transition from the expired contract to the new contract, the following proposal submittal and review schedule is proposed:

Request for Proposals Published	Thursday, June 20, 2024
Questions Due	Tuesday, July 9, 2024 by 3pm
Responses Posted	Tuesday, July 16, 2024
Proposals Due	Tuesday, July 30, 2024 by 3pm

If your firm cannot agree to the requirements exactly as set forth in this RFP, please do not submit a proposal.

For questions regarding this RFP, please contact Tanisha Herr by email at THerr@portla.org. Questions must be submitted by 3pm, Tuesday, July 9, 2024. Responses will be posted on each Port's website by Tuesday, July 16, 2024:

- The Port of Los Angeles at https://www.portoflosangeles.org/business/contracting-opportunities/requests-for-proposals
- The Port of Long Beach at its POLB Vendor Portal at https://www.planetbids.com/portal/portal.cfm?CompanyID=19236, which requires vendor registration to access

It is the responsibility of any proposers to review the Ports' websites for any RFP revisions, addenda, or answers to questions prior to submitting a proposal in order to ensure their proposal is complete and responsive.

In addition to providing information requested in this RFP, it should be noted that there are administrative documents that must be submitted with the proposal. Please refer to Section 3.3 Proposal Content, Sections 7 Port of Long Angeles Business Enterprise Programs and Contract Administrative Requirements and 8 Port of Long Beach Small Business Enterprises/Very Small Business Enterprises Program and Contract Administrative Requirements of this RFP which outlines the administrative requirements for each Port. **In order for your proposal to be deemed responsive, these documents MUST be included with your proposal.**

All Consultants and Subconsultants must be registered on RAMP at the time proposals are due. If selected for award, for-profit companies and corporations must comply with RAMP's demographic reporting requirements, per the Mayor's Executive Directive 35.

Sincerely,

Tanisha Herr

TANISHA HERR
Contracts and Purchasing Division

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1. INTRODUCTION

1.1 Brief Overview of the Project

The Port of Los Angeles's air monitoring program began in April 2005. The Port of Long Beach's air monitoring program began in 2006. There is a combined total of six air quality monitoring stations that measures real-time ambient air pollution levels in the vicinity of the San Pedro Bay Port Complex. Four air monitoring stations are operated by Port of Los Angeles (POLA) and two are operated by Port of Long Beach (POLB). Please refer to a map of the air monitoring station locations on the joint air monitoring website, https://monitoring.cleanairactionplan.org/map-view/. The goals of the Ports' air monitoring programs are to collect data that is representative of air quality in the area of the Ports and nearby surrounding communities, compare Ports' area air quality data with the federal and state ambient air quality standards, and to communicate that information to the public in a timely manner. The data collected at the stations is accessible via the internet (https://monitoring.cleanairactionplan.org/) and allows the public to view, in real-time, air quality and weather conditions in the Ports.

The air monitoring stations collect the following parameters:

- Real-time measurement of ambient air quality concentrations for nitrogen dioxide (NO2), Ozone (O3), carbon monoxide (CO), sulfur dioxide (SO2), two sizes of particulate matter (PM10 or coarse particles, and PM2.5 or fine particles), black carbon (BC), and ultrafine particles (POLA only).
- Integrated 24-hour ambient measurement of elemental carbon (EC), PM10 and PM2.5 concentrations, using traditional filter-based samples.
- Real time measurement of meteorological parameters, including wind direction, wind speed, ambient temperature, humidity, barometric pressure, precipitation, and solar radiation.

The duration of the contract awarded as a result of this RFP is expected to be for three (3) years with the opportunity to extend if the Ports and selected Consultant agree. Each Port will contract separately with the selected Consultant, resulting in two separate contracts. Each Port will have a contract duration from January 1, 2025 through December 31, 2027 on their respective contracts.

1.2 The Port of Los Angeles

The Port of Los Angeles is America's Port®, the nation's premier gateway for international commerce and the busiest seaport in the Western Hemisphere. Located in San Pedro Bay, 25 miles south of downtown Los Angeles, the Port encompasses 7,500 acres of land and water along 43 miles of waterfront.

POLA features both passenger and cargo terminals, including cruise, container, automobile, breakbulk, dry and liquid bulk, and warehouse facilities that manage billions of dollars' worth of cargo each year. One of the world's busiest seaports and leading gateway for international trade in North America, POLA has ranked as the number one container port

in the United States each year since 2000. In 2023, the Port handled a total of 8.6 million container units.

POLA is managed by the Los Angeles Harbor Department, a department of the City of Los Angeles, and is governed by the Los Angeles Board of Harbor Commissioners, a panel appointed by the Mayor of Los Angeles. Although POLA is a City department, it is not supported by City taxes. Operating as a landlord port with more than 200 leaseholders, POLA instead generates its revenues from leasing and shipping service fees. POLA's jurisdiction is limited to the Harbor District, which includes property in San Pedro, Wilmington, and Terminal Island.

1.3 The Port of Long Beach

The Port of Long Beach is The Port of Choice and one of America's premier seaports and a trailblazer in goods movement and environmental stewardship.

Trade valued annually at more than $200 billion moves through Long Beach, making it the third-busiest seaport in the United States. Everything from clothing and shoes to toys, furniture and consumer electronics arrives at the POLB before making its way to store shelves throughout the country. Specialized terminals also move petroleum, automobiles, cement, lumber, steel and other products.

A major economic force, the POLB supports more than 51,090 jobs in Long Beach, 575,000 jobs throughout Southern California and 2.6 million jobs throughout the United States. It generates about $126.6 billion in annual trade-related wages statewide.

With a Green Port Policy guiding efforts to minimize or eliminate negative environmental impacts, the POLB is also a catalyst for innovative environmental programs. Serving as a model for ports around the world, the Port of Long Beach pioneered such programs as the Green Flag vessel speed reduction air quality program, Green Leases with environmental covenants and, together with POLA, the San Pedro Bay Ports Clean Air Action Plan.

2. PROJECT DESCRIPTION

2.1 Project Scope of Work

Air Monitoring Station RFP Scope of Work for the Ports of Los Angeles and Long Beach.

Please note that the selected Consultant will enter into **TWO** separately administered consulting contracts with different requirements; one with each Port. Separate rate sheets should be provided for each Port.

The selected firm will be the prime Consultant for the contract and will be responsible for assuming the day-to-day operation, maintenance, and project management of the Ports' existing air monitoring stations, in accordance with the Ports' Air Quality Monitoring Plan/Protocol and Air Monitoring Quality Assurance Plan (included as Exhibits O thru R). The plans will need to be updated, and all references in the plans to specific personnel with

the current prime consulting firm or their Subcontractors will need to be revised as necessary, following award of these contracts. Under these contracts, the selected Consultant will be required to provide the following services:

Required Tasks

Task 1 – Operations and Maintenance

- Operate and maintain the Ports' air quality monitoring network, consisting of six air quality monitoring stations (4 POLA and 2 POLB). A list of each Port's equipment is listed below.

POLA Air Monitoring Equipment as of November 2023

Parameter	Monitoring Station			
	Wilmington Community Station	**Coastal Boundary Station**	**San Pedro Community Station**	**Source-Dominated Station**
$PM_{2.5}$ Sequential Filter Sampler ($PM_{2.5}$ mass and EC/OC)	X	X	X	X
$PM_{2.5}$ Continuous Monitor ($PM_{2.5}$ mass)	X	X	X	X
PM_{10} Continuous Monitor (PM_{10} mass)	X	X	X	X
$PM_{2.5}$ FRM Filter Monitor ($PM_{2.5}$ mass)	X	Not Applicable		
PM_{10} FRM Filter Monitor (PM_{10} mass)	X			
Ultrafine Particle Counter	X	X	X	X
Aethalometer (Black Carbon)	X	X	X	X
CO Analyzer	X	X	X	X
NO_2 Analyzer	X	X	X	X
O_3 Analyzer	X	X	X	X
SO_2 Analyzer	X	X	X	X
Meteorological Instruments (ambient temperature, wind speed & direction, relative humidity)	X	X	X	X

POLB Air Monitoring Equipment

Parameter	Monitoring Station	
	Inner Harbor Station	**Outer Harbor Station**
$PM_{2.5}$ Continuous Monitor ($PM_{2.5}$ mass)	X	X
PM_{10} Continuous Monitor (PM_{10} mass)	X	X
$PM_{2.5}$ FRM Filter Monitor ($PM_{2.5}$ mass)	X	--
PM_{10} FRM Filter Monitor (PM_{10} mass)	X	X
Aethalometer (Black Carbon)	X	X
CO Analyzer	X	X
NO_2 Analyzer	X	X
O_3 Analyzer	X	X
SO_2 Analyzer	X	X
Meteorological Instruments (ambient temperature, wind speed & direction, relative humidity)	X	X

- Perform on-site maintenance and routine calibration of the monitoring equipment in accordance with each Port's Air Quality Monitoring Plan/Protocol and Air Monitoring Quality Assurance Plan. Please note that each Port's Air Quality Monitoring Plan/Protocol and Air Monitoring Quality Assurance Plan will need to be updated as necessary to reflect any changes in regulations and practices, and reference the prime Contractor that receives the contract for this project, and any of the prime's Subcontractors. All equipment is owned by their respective Port.
- Each Port has their own set of aethalometers for real-time measurements of black carbon (BC) concentrations. The selected Consultant will need to perform on-site maintenance and routine calibration of the BC monitors. The selected Consultant may be tasked to integrate measured BC data within the existing air monitoring data collection network, and upload to the real-time air monitoring website.
- Provide routine maintenance of the filter-based monitors, including changing of filters on the 3-day and 6-day United States Environmental Protection Agency (USEPA) schedules for PM2.5 and PM10, respectively.
- Collect particulate (PM2.5 and PM10) filter samples and deliver the samples to a

certified laboratory for gravimetric analysis.

- Provide routine hosting and maintenance of the joint Ports' real-time air monitoring website (https://monitoring.cleanairactionplan.org/).
- Notify Ports of major repairs and need for equipment replacement.
- Assist the Ports in procurement of equipment or parts such as obtaining quotes from vendors, as needed.
- Provide technical expertise on any upgrades to the equipment or network, as needed.

Task 2 – Data Review and Quality Assurance/Quality Control (QA/QC)

- Conduct monthly QA/QC reviews of data collected at the Ports monitoring stations, including BC data.
- Perform bi-monthly QA/QC review of the particulate filter analytical results.
- Perform routine QA reviews of the data acquisition and handling system (DAHS) and presentation of the data on the website. The DAHS will need to include a data filter to flag and exclude inaccurate, extremely high reported values (usually the result of a power failure or instrument malfunction) from being uploaded to the website.
- Conduct external audits of the monitoring stations at 6-month intervals and with the use of an independent third party, in accordance with USEPA guidelines.

Task 3 – Reporting

Monthly Reporting

- Prepare monthly reports for each Port monitoring network noting any data issues and corrective actions taken, equipment replaced/repaired, etc.

Annual Reporting

- Prepare the annual summary and analysis report of the air monitoring station data. POLA annual report follows reporting periods of May-April (2024-2027). POLA may require a supplemental report to align annual reporting to calendar year. POLB annual report follows calendar year (2024-2026). Following revision and acceptance by each respective Port staff, the annual report will be uploaded to the air monitoring website.

Meetings/Calls

- Provide updates of the air monitoring network operation to Port staff in conference calls or meetings as needed, including the discussion of monitoring problems and issues as they arise.

- Support POLA on regular public meetings (3-4 per year) to discuss air monitoring status and answer questions from the public.

Task 4 – Public Data Requests and Other Technical Support

- Provide assistance in responding to public air monitoring data information requests.
- Attend community and agency meetings regarding other air monitoring efforts (i.e. South Coast Air Quality Management District, SCAQMD and California Air Resources Board, CARB) in the surrounding community, as requested. Support Port staff in public presentations/meetings, as requested.
- Prepare informational materials such as pamphlets, graphs, presentations, or other media on the Port's air monitoring data and ongoing monitoring efforts.
- Provide technical expertise as requested such as providing updates on special studies from SCAQMD and CARB, reviewing air monitoring technical studies, providing updates on upcoming regulations and changes to NAAQS and CAAQS standards
- For POLB, work with the Port to determine a suitable alternate location for the Inner Harbor station which will be impacted by the upcoming Pier B Railyard Expansion project (https://www.polb.com/port-info/projects#pier-b-on-dock-support-facility). The proposed budget should include resources for the relocation including siting, removing equipment from the current station, and reassembling the equipment at the new site.

Task 5 – Special Studies

Conduct special studies and/or analyses as requested by Port staff. Examples of special studies and analyses including, but are not limited to, site relocation evaluation and data validation studies.

3. PROPOSAL REQUIREMENTS

3.1 Proposal Questions

All questions regarding this RFP must be submitted, in writing, exclusively to Tanisha Herr, the Contract Administrator, at THerr@portla.org by no later than 3 p.m. on Tuesday, July 9, 2024

Attempts to contact any other Harbor Department employee or members of the Board of Harbor Commissioners, either directly or through third-parties acting for or on the proposer's behalf, may be presumed to constitute efforts to bias or influence the competitive process with information not detailed in the RFP and not available on an equal basis to all proposers. Accordingly, such attempts shall constitute grounds to disqualify the proposer undertaking them. Any information provided by the Contract Administrator to one proposer in response to questions shall be provided to all proposers.

3.2 Proposal Submission

Proposals must not exceed 20 pages, in no less than 11 point font. The supporting documentation in the appendix does not count towards this limit. Resumes, rates and fees, and the contract administrative documents may be submitted in the appendix.

One (1) digital copy of your proposal, as one complete file in .pdf format, must be submitted on or before 3:00 p.m. PST on Tuesday, July 30, 2024, to Tanisha Herr at THerr@portla.org.

The proposal shall be in searchable PDF (Portable Document Format). Files shall not be password protected or saved with restrictions that prevent copying, saving, highlighting, or reprinting of the contents. The electronic copy will not be returned.

Proposers solely are responsible for the timeliness of their submittals. As such, proposers are cautioned to budget adequate time to ensure that their proposals are delivered before the deadline set forth above.

By submitting a proposal, proposers certify that such proposal constitutes their full and complete written response to the RFP and evidences their acknowledgement that additional written material outside of such proposal shall not be considered by the Ports in connection with this RFP, unless the Ports provides a written request that they submit additional written materials. If such written request is absent, proposers are instructed to not submit to the Ports written or other materials outside of the proposal, either in a subsequent interview or otherwise.

3.3 Evaluation Process and Selection Criteria

All proposals meeting the requirements of this RFP shall be reviewed and rated by an evaluation committee according to the following criteria: 1) firm qualifications, experience, and references; 2) project organization, personnel, and staffing; 3) project approach, work plan, and management; 4) rates, fees, and budget control; and 5) clarity and comprehensiveness of the proposal. See Exhibit A.

Selected proposers may be contacted to arrange virtual interviews with the evaluation committee. The evaluation committee will make the final recommendation for selecting the Consultant. All recommendations are subject to the approval of the Director of Environmental Management, Executive Director of the Harbor Department, and Board of Harbor Commissioners at the Port of Los Angeles; as well as the Director of Environmental Planning, Chief Executive Officer, and Board of Harbor Commissioners at the Port of Long Beach.

Proposers are advised that all documentation submitted in response to this RFP will be considered property of the Harbor Department and may become available to the public as a public record and be released without further notification. Any information that the proposer considers confidential should not be submitted with the proposal.

The right to reject any and all proposals shall, in every case, be reserved, as shall the right to waive any informality in the proposal when to do so would be to the advantage of the Ports.

3.4 Proposal Content

The following items shall be included in your proposal:

1. Cover Transmittal Letter

Provide a narrative which introduces the firm and team highlighting the special strengths of the firm to perform the work requested in this RFP. The letter should be signed by an authorized principal of the proposing consulting firm.

2. Firm Qualifications, Experience and References

Provide a narrative describing the firm's qualifications to perform the project work, including past (relevant) experience and at least three client references, with contact names and information. Include information regarding your firm's experience as it relates to the size and level of complexity of the project. Qualifications and experience for proposed Subconsultants should also be included.

Identify any members of your proposed team, including proposer's firm and any Subconsultant firms, who are former Commissioners, officers or employees of the Ports. Provide their name, proposed team position, and their past position and years of employment/appointment with the Port(s). If your proposed team does not have any such members, please include a statement in your proposal stating so.

Proposers are advised that it is a proposer's obligation to determine whether any conflicts of interest exist for their team members and the extent to which those conflicts need to be resolved or disclosed prior to engaging in business with the Department.

3. Project Organization, Personnel and Staffing

Provide a brief description of all key personnel and technical staff (including vendors, partners or Subconsultants) to be involved and their relationship to the services to be provided.

- ☐ Include names, titles, licenses, certificates, fields of expertise, and relevant experience for all proposed personnel and staff.
- ☐ Identify the Project Manager for the proposed services.
- ☐ Complete resumes should be provided as part of an appendix to the proposal.
- ☐ Provide a project organization chart which depicts the organization of the project team, including reporting relationships to the Ports' Project Managers and supervision of project team staff.

4. Technical Approach and Understanding of the Program

A description of the technical approach that will be taken for the continued operation, maintenance, and project management of the existing monitoring stations based on the scope of services listed in this RFP. This section should also demonstrate the firm's understanding of the Air Monitoring Quality Assurance Plan and Air Quality Monitoring Plan/Protocol (included as Exhibits O thru R) and provide an overview of any modifications

to the plans based on the firm's proposed technical approach and project team.

Include the description of the applicable resources: personnel, facilities, and equipment that would be available for each Ports' projects, with an emphasis on the resources of the project office and the firm's ability to respond rapidly to a request for services.

5. Project Management

A summary of the firm's project management system. The proposed Project Manager and Project Principal should be clearly designated and the organization of a typical project team, including lines of communication and responsibility, should be described. This summary should include a description of mechanisms that are in place at the project office that will ensure on-time performance of job tasks and high quality of deliverables (content, format, spelling, and grammar).

6. Cost

Provide pricing and cost information for the project. Each Port will be contracting with the awarded Consultant separately. Therefore, pricing should be bifurcated into two categories – one for the Port of Long Beach and one for the Port of Los Angeles. Include the following:

- A detailed budget necessary to provide the specific services as described in Section 2 of this RFP for each of the three years of the contract, broken down by year in terms of labor, laboratory analysis costs, website hosting, materials, equipment, etc.

- A complete breakdown of hourly charge rates of professional and support staff by labor category for the firm and primary subcontractors; a schedule of overhead, indirect, general, and administrative costs and fees; and a table of major equipment rates shall be submitted for each of the three years. The attached Summary Rate Sheet must be used to identify labor rates and administrative charges. Please see Exhibit L.

- All rate sheets must reflect rates for the duration of the contract. Individual rate sheets for each year of the contract may be submitted with your proposal to reflect yearly adjustments. Laboratory fees, equipment rental and lease rates, etc. may be shown in any similar format. Please note: The titles you list in the "Labor Category" shown on ALL rate sheets must correspond to the project staff titles you identified in your proposal and must be used throughout the term of the contract.

7. Port of Los Angeles Business Enterprise Programs and Contract Administrative Requirements

In order for your proposal to be deemed responsive, the following documents <u>MUST</u> be included with your proposal:

A) SMALL/VERY SMALL BUSINESS ENTERPRISE AND LOCAL BUSINESS PREFERENCE PROGRAMS (EXHIBIT B)

Provide with your proposal the Small/Very Small Business Enterprise and Local Business Preference Programs Affidavit and Consultant Description forms (Exhibit B), fully filled out for your firm and any proposed Subconsultants. Please refer to Exhibit B for detailed information relative to these programs and instructions on completing the forms.

The **<u>mandatory</u>** Small Business Enterprise (SBE) participation will be 25%, including 5% Very Small Business Enterprise (VSBE) participation. **Proposers who fail to demonstrate that they will meet or exceed the SBE requirements will be deemed non-responsive.** In order to ensure the highest participation of SBEs, VSBEs, Minority Business Enterprises, Women Business Enterprises, and Disabled Veteran Business Enterprises, all proposers shall utilize the RAMP to outreach to potential Subconsultants.

Firms must be certified as SBEs or Very Small Business Enterprises (VSBE) through RAMP at the time proposals are due. **Firms will only receive credit for SBE/VSBE certifications reflected on their RAMP profile.** Firms may certify as SBE (Proprietary) and VSBE (Harbor) by completing the SBE (Proprietary) application (Exhibit C). Please refer to the Road Map in Exhibit C for a listing of agency certifications that may be accepted in lieu of completing the application. For VSBE certification, you must complete the application or be certified as a Micro-business through the State of California Department of General Services (DGS). If your firm is certified by one of the listed agencies, you must complete the instructions in the application in regards to obtaining certification on RAMP. Applications should be mailed to the following address referencing the RFP:

CITY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
Bureau of Contract Administration
Office of Contract Compliance – Centralized Certification Administration
1149 S. Broadway, Ste. 300
Los Angeles, CA 90015

B) INSURANCE VERIFICATION LETTER

Provide a letter from your insurance carrier or broker indicating that the insurance requirements for this project as described in Section 4 of this RFP are presently part of the proposer's coverage, or that the insurance company is able to provide such coverage should the proposer be selected. The insurance carrier/broker must be aware of the indemnification requirements also set forth in this RFP. Proposers are not required to purchase the required insurance in order to respond; however, all required insurance will need to be submitted at the time of contract award. **<u>ACORD® Certificate of Liability Insurance sheets will not be</u>**

accepted in lieu of an insurance verification letter. Proposals submitted without an insurance verification letter, as described above, will be deemed non-responsive.

C) CITY ETHICS COMMISSION (CEC) FORMS 50 and 55 (EXHIBIT G)

Proposers who submit a response to this solicitation (proposers) are subject to Charter section 470 (c) (12) and related ordinances. As a result, proposers may not make campaign contributions to and or engage in fundraising for certain elected City officials or candidates for elected City office from the time they submit the response until either the contract is approved or, for successful proposers, 12 months after the contract is signed. The proposer's principals and Subcontractors performing $100,000 or more in work on the contract, as well as the principals of those Subcontractors, are also subject to the same limitations on campaign contributions and fundraising.

Proposers must submit CEC Forms 50 and 55 to the awarding authority at the same time the response is submitted (See Exhibit G). The forms require proposers to identify their principals, their Subcontractors performing $100,000 or more in work on the contract, and the principals of those Subcontractors. Proposers must also notify their principals and Subcontractors in writing of the restrictions and include the notice in contracts with Subcontractors. Responses submitted without completed CEC Forms 50 and 55 may be deemed non-responsive. Proposers who fail to comply with City law may be subject to penalties, termination of contract, and debarment. Additional information regarding these restrictions and requirements may be obtained from the City Ethics Commission at (213) 978-1960 or ethics.lacity.org.

D) IRAN CONTRACTING ACT OF 2010 (EXHIBIT H)

In accordance with California Public Contract Code Sections 2200-2208, all proposers submitting proposals for, entering into, or renewing contracts with the Harbor Department for goods and services estimated at $1,000,000 or more are required to complete, sign, and submit the Iran Contracting Act of 2010 Compliance Affidavit (See Exhibit H).

E) ACCEPTANCE OF STANDARD CONTRACT PROVISIONS AND EXECUTIVE DIRECTIVE 35

Proposers are advised that pursuant to Executive Directive (ED) 35, if your firm is a for-profit company or corporation and is selected for award, you shall, within 30 days of the effective date of the contract and on an annual basis thereafter (i.e., within 30 days of the anniversary of the effective date of the contract), report the following information to the City via the Regional Alliance Marketplace for Procurement (RAMP) or via another method specified by the City:

- Annual revenue
- Number of employees
- Location
- Industry
- Race/ethnicity and gender of majority owner

On an annual basis, the Consultant shall further request that any Subconsultant input or update its business profile, with the above information, on RAMP or via another method prescribed by City.

Proposers must submit a signed letter confirming their intention to comply with the RAMP demographic reporting requirements of ED 35, and their firm's acceptance of all of the Standard Contract Provisions exactly as set forth in Section 4. Do not submit your demographic information in the letter; only the selected Consultant needs to enter that information into RAMP, after contract award.

8. Port of Long Beach (POLB) Small Business Enterprises (SBE)/Very Small Business Enterprises (VSBE) Program and Contract Administrative Requirements

In order for your proposal to be deemed responsive, the following documents <u>MUST</u> be included with your proposal where noted:

A) SMALL BUSINESS ENTERPRISES (SBE)/VERY SMALL BUSINESS ENTERPRISES (VSBE) PROGRAM (EXHIBIT I)

The Port has established a Small Business Enterprises (SBE)/Very Small Business Enterprises (VSBE) Program to encourage small business participation on Professional Services contracts.

The combined SBE/VSBE participation goal established for this project is twenty five percent (25%), of which a minimum of five percent (5%) must be allocated to VSBEs.

See Exhibit I for the required POLB SBE/VSBE Commitment Plan for Professional Services Contracts.

B) INSURANCE REQUIREMENTS (EXHIBIT J)

Respondents must include in their submittal a completed and signed Port of Long Beach Contractor Certification Form, included in Exhibit N. This form indicates that respondents are aware of the Port's Insurance Requirements identified in Exhibit J, have reviewed all the standard terms and conditions in the Example City of Long Beach contract provided in Exhibit M, and understand the additional general conditions as described on the Port of Long Beach Contractor Certification Form.

No material regarding insurance coverage need accompany your submittal; however, firms are advised that consultants selected to enter into this contract will be required to provide and maintain insurance coverage with limits no less than those specified in Exhibit J. All required insurance documentation shall be correctly submitted and shall be provided to the Executive Director or his or her designee no later than 45 calendar days after the contract has been awarded using insurance endorsement forms located on the Port website: https://polb.com/business/permits/#insurance-endorsement-forms or certified copies of the policies which name the City of Long Beach Board of Harbor Commissioners as additional insured/endorsement holder.

Standard ACORD forms will not be accepted in lieu of the endorsement forms. Respondents may be required to undergo a financial review if they have certain self-insured

retention, deductible levels, and/or are performing high-risk work where copies of audited financial statements may be required.

At the direction of the Port, the consultant, its risk manager or insurance professional and the consultant's insurance broker shall participate in a mandatory conference with the Port's Risk Management Division within fifteen (15) calendar days after the consultant is notified of conditional award by the Port. The purpose of this mandatory conference will be to discuss the insurance and form requirements contained in the contract. Failure to participate in this mandatory conference in person or by telephone may result in the contract being awarded to the next qualified consultant.

Please note that failure, for whatever reason, to provide the required documentation of insurance coverage within 45 calendar days of selection could disqualify your firm from contract consideration.

C) PROJECT ADMINISTRATION

Project costs will be controlled by the Port of Long Beach, Environmental Planning Division through a system of incremental funding authorizations

The Consultant will submit invoices for services rendered on a monthly basis. The Port will reimburse the Consultant for work actually performed and costs actually incurred during the course of each month. Specific Port invoicing guidelines and copies of the required invoice format can be found in Exhibit K. The Port will withhold payment of the final invoice pending receipt of all deliverables, including electronic data deliverables.

Brief monthly progress reports, following the attached format must be submitted on or before the 10th of each month. The reports will include a technical description of any work performed during the previous month, the cumulative costs incurred, and a summary of work anticipated to be performed during the next reporting period.

A complete breakdown of hourly charge rates of professional and support staff by labor category, and a schedule of overhead, indirect, general and administrative costs and fees must be submitted. Please ensure that the breakdown follows the attached Summary Rate sheet (Exhibit L).

D) ADDITIONAL DOCUMENTS TO INCLUDE WITH PROPOSAL

An example of a contract for consulting services is included as Exhibit M. The selected Consultant will be required to execute a contract similar to the sample provided. In addition, proposals must include, in their submittal, a signed Contractor Certification Form (Exhibit N) indicating that the proposers are aware of the Port's Insurance Requirements and Contract Terms and Conditions. The Contractor Certification Form will not count towards the page limit of 20 pages total.

Submit evidence with Consultant's proposal that proposer is licensed to conduct business in California and that proposer must submit evidence of a Long Beach business license, if awarded the contract. The evidence will not count towards the page limit of 20 pages total.

3.5 Checklist for RFP Submittal Requirements

A checklist is provided to assist in verification that all elements of the RFP have been addressed. However, firms are encouraged to review the entirety of the RFP, including the Standard Contract Provisions section, to ensure full compliance and not rely solely on this checklist.

- ☐ Cover transmittal letter, signed by an authorized principal of the proposing consulting firm.
- ☐ Table of Contents, if included (not required).
- ☐ Proposal with the following sections, in order:
  - Firm Qualifications, Experience and References
  - Project Organization, Personnel and Staffing
  - Project Approach and Work Plan
  - Project Management
  - Cost
- ☐ Resumes for all proposed staff personnel provided in an appendix.
- ☐ Small/Very Small Business Enterprise and Local Business Preference Program forms: ***Note: POLA and POLB have different SBE/VSBE participation goals and forms***
  - POLA:
    - Affidavit (Prime)
    - Consultant Description Form (Prime and any Subconsultants)
  - POLB:
    - Form SBE-2P: SBE/VSBE Commitment Plan for Professional Services Contracts
- ☐ Letter from insurance carrier or broker indicating ability to meet insurance requirements for this project, including general liability, auto liability and workers' compensation. **Do not submit an ACORD® Certificate of Liability Insurance sheet. It will not be accepted in lieu of an insurance verification letter. (POLA)**
- ☐ CEC Form 50 (Bidder Certification) **(POLA)**
- ☐ CEC Form 55 (Prohibited Contributors (Bidders) (**POLA)**
- ☐ Iran Contracting Act of 2010 Compliance Affidavit **(POLA)**
- ☐ Letter of acceptance of Standard Contract Provisions and Executive Directive 35 **(POLA)**
- ☐ Contractor Certification Form **(POLB)**
- ☐ Summary Rate Sheet **(POLB)**

4. PORT OF LOS ANGELES STANDARD CONTRACT PROVISIONS

The following sections are standard contract provisions for the Harbor Department. In submitting a proposal, proposer agrees to accept these terms without change. **If your firm cannot agree to the following requirements, exactly as set forth below, please do not submit a proposal.**

4.1 Affirmative Action

Consultant, during the performance of the Agreement, shall not discriminate in its employment practices against any employee or applicant for employment because of the employee's or applicant's race, religion, national origin, ancestry, sex, age, sexual orientation, disability, marital status, domestic partner status, or medical condition. The provisions of Section 10.8.4 of the Los Angeles Administrative Code shall be incorporated and made a part of the agreement. All subcontracts awarded shall contain a like nondiscrimination provision. See Exhibit D.

4.2 Small/Very Small Business Enterprise Program

It is the policy of the Department to provide Small Business Enterprises (SBE), Very Small Business Enterprises (VSBE), Minority-Owned, Women-Owned, Disabled Veteran-Owned and all Other Business Enterprises (MBE/WBE/DVBE/OBE) an equal opportunity to participate in the performance of all City contracts in all areas where such contracts afford such participation opportunities. Consultant shall assist the City in implementing this policy and shall use its best efforts to afford the opportunity for SBEs, VSBEs, MBEs, WBEs, DVBEs, and OBEs to achieve participation in subcontracts where such participation opportunities present themselves and attempt to ensure that all available business enterprises, including SBEs, VSBEs, MBEs, WBEs, DVBEs, and OBEs, have equal participation opportunity which might be presented under this Agreement. See Exhibit B.

NOTE: Prior to being awarded a contract with the Harbor Department, all Consultants and Subconsultants must be registered on the City's Contracts Management and Opportunities Database, Regional Alliance Marketplace for Procurement (RAMP), at http://www.RAMPLA.org.

4.3 Business Tax Registration Certificate

The City of Los Angeles, Office of Finance requires the implementation and enforcement of Los Angeles Municipal Code Section 21.09 et seq. This section provides that every person, other than a municipal employee, who engages in any business within the City of Los Angeles, is required to obtain the necessary Business Tax Registration Certificate and pay business taxes. The City Controller has determined that this Code Section applies to consulting firms that are doing work for the Los Angeles Harbor Department. See Exhibit E.

How to Register for a BTRC | Los Angeles Office of Finance (lacity.org)

4.4 Indemnity and Insurance Requirements

REQUIRED AT PROPOSAL STAGE: A letter from each proposer's carrier or broker must be provided with their proposal. The letter should indicate that the requirements below are presently part of the proposer's coverage, or that the carrier/broker is able to provide such coverage should the proposer be selected. The carrier/broker must be aware of the indemnification requirements below. Proposers are not required to purchase the required insurance in order to respond, however all required insurance will need to be submitted at the time of contract award. **ACORD® certificates will not be accepted.**

1. Indemnification

Except for the sole negligence or willful misconduct of the City, or any of its Boards, Officers, Agents, Employees, Assigns and Successors in Interest, Contractor undertakes and agrees to defend, indemnify and hold harmless the City and any of its Boards, Officers, Agents, Employees, Assigns, and Successors in Interest from and against all suits and causes of action, claims, losses, demands and expenses, including, but not limited to, attorney's fees (both in house and outside counsel) and cost of litigation (including all actual litigation costs incurred by the City, including but not limited to, costs of experts and Consultants), damages or liability of any nature whatsoever, for death or injury to any person, including Contractor's employees and agents, or damage or destruction of any property of either party hereto or of third parties, arising in any manner by reason of the negligent acts, errors, omissions or willful misconduct incident to the performance of this Contract by Contractor or its Subcontractors of any tier. Rights and remedies available to the City under this provision are cumulative of those provided for elsewhere in this Contract and those allowed under the laws of the United States, the State of California, and the City.

2. Acceptable Evidence and Approval of Insurance

Electronic submission is the required method of submitting insurance documents. Consultant's insurance broker or agent shall register with the City's online insurance compliance system **KwikComply** at http://kwikcomply.org and follow the instructions to register and submit the appropriate proof of insurance on Consultant's behalf.

Carrier Requirements

All insurance which Consultant is required to provide pursuant to this Agreement shall be placed with insurance carriers authorized to do business in the State of California and which are rated A-, VII or better in Best's Insurance Guide. Carriers without a Best's rating shall meet comparable standards in another rating service acceptable to City.

Primary Coverage

The coverages submitted must be primary with respect to any insurance or self insurance of the City of Los Angeles Harbor Department. The City of Los Angeles Harbor Department's program shall be excess of this insurance and non-contributing.

Notice Of Cancellation

For each insurance policy described below, the Consultant shall give the Board of Harbor Commissioners a 10-days prior notice of cancellation or reduction in coverage for nonpayment of premium, and a 30-days prior notice of cancellation or reduction in coverage for any other reason, by written notice via registered mail and addressed to the City of Los Angeles Harbor Department, Attention Risk Manager and the City Attorney's Office, 425 S. Palos Verdes Street, San Pedro, California 90731.

Modification of Coverage

Executive Director, at his or her discretion, based upon recommendation of independent insurance Consultants to City, may increase or decrease amounts and types of insurance coverage required hereunder at any time during the term hereof by giving ninety (90) days' written notice to Consultant.

Renewal of Policies

At least thirty (30) days prior to the expiration of any policy, Consultant shall direct their insurance broker or agent to submit to the City's online insurance compliance system **KwikComply** at http://kwikcomply.org a renewal certificate showing that the policy has been renewed or extended or, if new insurance has been obtained, evidence of insurance as specified below. If Consultant neglects or fails to secure or maintain the insurance required below, Executive Director may, at his or her own option but without any obligation, obtain such insurance to protect the City's interests. The cost of such insurance will be deducted from the next payment due Consultant.

Policy Copies

Upon request by City, Consultant shall furnish a copy of the binder of insurance and/or full certified policy for any insurance policy required herein. This requirement shall survive the termination or expiration of this Agreement.

Limits of Coverage

If the Consultant maintains higher limits than the minimums shown below, City requires and shall be entitled to coverage for the higher limits maintained by the Consultant. Any available insurance proceeds in excess of the specified minimum limits of insurance and coverage shall be available to City.

Right to Self-Insure

Upon written approval by Executive Director, Consultant may self-insure if the following conditions are met:

a. Consultant has a formal self-insurance program in place prior to execution of this Agreement. If a corporation, Consultant must have a formal resolution of its board of directors authorizing self-insurance.

b. Consultant agrees to protect the City, its boards, officers, agents and employees at the same level as would be provided by full insurance with respect to types of coverage and minimum limits of liability required by this Agreement.

c. Consultant agrees to defend the City, its boards, officers, agents and employees in any lawsuit that would otherwise be defended by an insurance carrier.

d. Consultant agrees that any insurance carried by Department is excess of Consultant's self-insurance and will not contribute to it.

e. Consultant provides the name and address of its claims administrator.

f. Consultant submits its most recently filed 10-Q and its 10-K or audited annual financial statements for the three most recent fiscal years prior to the Executive Director's consideration of approval of self-insurance and annually thereafter.

g. Consultant agrees to inform Department in writing immediately of any change in its status or policy which would materially affect the protection afforded Department by this self-insurance.

h. Consultant has complied with all laws pertaining to self-insurance.

Insurance

In addition to and not as a substitute for, or limitation of, any of the indemnity obligations imposed by [Indemnification Section Above], Consultant shall procure and maintain at its sole cost and expense and keep in force during the term of this Agreement the following insurance:

3. General Liability Insurance

Consultant shall procure and maintain in effect throughout the term of this Agreement, without requiring additional compensation from the City, commercial general liability insurance covering personal and advertising injury, bodily injury, and property damage providing contractual liability, independent Contractors, products and completed operations, and premises/operations coverage written by an insurance company authorized to do business in the State of California rated VII, A- or better in Best's Insurance Guide (or an alternate guide acceptable to City if Best's is not available) within Consultant's normal limits of liability but not less than One Million Dollars ($1,000,000) combined single limit for injury or claim. Where Consultant provides or dispenses alcoholic beverages, Host Liquor Liability coverage shall be provided as above. Where Consultant provides pyrotechnics, Pyrotechnics Liability shall be provided as above. Said limits shall provide first dollar coverage except that Executive Director may permit a self-insured retention or self-insurance in those cases where, in his or her judgment, such retention or self-insurance is justified by the net worth of Consultant. The retention or self-insurance provided shall provide that any other insurance maintained by Department shall be excess of Consultant's insurance and shall not contribute to it. In all cases, regardless of any deductible or retention, said insurance shall contain a defense of suits provision and a severability of interest clause. Additionally, each policy shall include an additional insured endorsement (CG 2010 or equivalent) naming the City of Los Angeles Harbor Department, its officers, agents and employees as Primary additional insureds.

4. Automobile Liability Insurance

Consultant shall procure and maintain at its expense and keep in force at all times during the term of this Agreement, automobile liability insurance written by an insurance company authorized to do business in the State of California rated VII, A- or better in Best's Insurance Guide (or an alternate guide acceptable to City if Best's is not available) within Consultant's normal limits of liability but not less than One Million Dollars ($1,000,000) covering damages, injuries or death resulting from each accident or claim arising out of any one claim or accident. Said insurance shall protect against claims arising from actions or operations of the insured, or by its employees. Coverage shall contain a defense of suits provision. Additionally, each policy shall include an additional insured endorsement (CG 2010 or equivalent) naming the City of Los Angeles Harbor Department, its officers, agents and employees as Primary additional insureds.

5. Workers' Compensation and Employer's Liability

Consultant shall certify that it is aware of the provisions of Section 3700 of the California Labor code which requires every employer to be insured against liability for Workers' Compensation or to undertake self-insurance in accordance with the provisions of that Code, and that the Consultant shall comply with such provisions before commencing the performance of the tasks under this Agreement. Coverage for claims under U.S. Longshore and Harbor Workers' Compensation Act, if required under applicable law, shall be included. Consultant shall submit Workers' Compensation policies whether underwritten by the state insurance fund or private carrier, which provide that the public or private carrier waives it right of subrogation against the City in any circumstance in which it is alleged that actions or omissions of the City contributed to the accident. Such worker's compensation and occupational disease requirements shall include coverage for all employees of Consultant, and for all employees of any Subcontractor or other vendor retained by Consultant.

4.5 Conflict of Interest

It is hereby understood and agreed that the parties to this Agreement have read and are aware of the provisions of Section 1090 et seq. and Section 87100 et seq. of the California Government Code relating to conflict of interest of public officers and employees, as well as the Los Angeles Municipal Code (LAMC) Municipal Ethics and Conflict of Interest provisions of Section 49.5.1 et seq. and the Conflict of Interest Codes of the City and Department. All parties hereto agree that they are unaware of any financial or economic interest of any public officer or employee of City relating to this Agreement. Notwithstanding any other provision of this Agreement, it is further understood and agreed that if such financial interest does exist at the inception of this Agreement, City may immediately terminate this Agreement by giving written notice thereof.

During the term of this Agreement, Consultant shall inform the Department when Consultant, or any of its Subconsultants, employs or hires in any capacity, and for any length of time, a person who has worked for the Department as a Commissioner, officer or employee. Said notice shall include the individual's name and current position and their prior position and years of employment with the Department. Notice shall be provided by

Consultant to the Department within thirty (30) days of the employment or hiring of the individual.

4.6 Compliance with Applicable Laws

Consultant shall at all times in the performance of its obligations comply with all applicable laws, statutes, ordinances, rules and regulations, and with the reasonable requests and directions of the Executive Director.

4.7 Governing Law / Venue

This Agreement shall be governed by and construed in accordance with the laws of the State of California, without reference to the conflicts of law, rules and principles of such State. The parties agree that all actions or proceedings arising in connection with this Agreement shall be tried and litigated exclusively in the State or Federal courts located in the County of Los Angeles, State of California, in the judicial district required by court rules.

4.8 Termination Provision

The Board of Harbor Commissioners, in its sole discretion, shall be able to terminate and cancel all or any part of the Agreement it enters into with the selected Consultant for any reason upon giving the Consultant ten (10) days' notice in writing of its election to cancel and terminate the Agreement. It is agreed that any Agreement entered into shall not limit the right of the City to hire additional Consultants to perform the services described in the Agreement either during or after the term of the Agreement.

4.9 Proprietary Information

1. Writings, as that term is defined in Section 250 of the California Evidence Code (including, without limitation, drawings, specifications, estimates, reports, records, reference material, data, charts, documents, renderings, computations, computer tapes or disks, submittals and other items of any type whatsoever, whether in the form of writing, figures or delineations), which are obtained, generated, compiled or derived in connection with this Agreement (collectively hereafter referred to as "property"), are owned by City as soon as they are developed, whether in draft or final form. City has the right to use or permit the use of property and any ideas or methods represented by such property for any purpose and at any time without compensation other than that provided in this Agreement. Consultant hereby warrants and represents that City at all times owns rights provided for in this section free and clear of all third-party claims whether presently existing or arising in the future, whether or not presently known. Consultant need not obtain for City the right to use any idea, design, method, material, equipment or other matter which is the subject of a valid patent, unless such patent is owned by Consultant or one of its employees, or its Subconsultant or the Subconsultant's employees, in which case such right shall be obtained without additional compensation. Whether or not Consultant's initial proposal or proposals made during this Agreement are accepted by City, it is agreed that all information of any nature whatsoever connected with the Scope of Work, regardless of the form of communication, which has been or may be given by Consultant, its Subconsultants or on either's behalf, whether prior or subsequent to this Agreement becoming effective, to the City, its boards, officers, agents or employees, is not given in confidence. Accordingly, City

or its designees may use or disclose such information without liability of any kind, except as may arise under valid patents.

2. If research or development is furnished in connection with this Agreement and if, in the course of such research or development, patentable work product is produced by Consultant, its officers, agents, employees, or Subconsultants, the City shall have, without cost or expense to it, an irrevocable, non-exclusive royalty-free license to make and use, itself or by anyone on its behalf, such work product in connection with any activity now or hereafter engaged in or permitted by City. Upon City's request, Consultant, at its sole cost and expense, shall promptly furnish or obtain from the appropriate person a form of license satisfactory to the City. It is expressly understood and agreed that, as between City and Consultant, the referenced license shall arise for City's benefit immediately upon the production of the work product, and is not dependent on the written license specified above. City may transfer such license to its successors in the operation or ownership of any real or personal property now or hereafter owned or operated by City.

4.10 Trademarks, Copyrights, and Patents

Consultant agrees to save, keep, hold harmless, protect and indemnify the City and any of its officers or agents from any damages, cost, or expenses in law or equity from infringement of any patent, trademark, service mark or copyright of any person or persons, or corporations in consequence of the use by City of any materials supplied by Consultant in the performance of this Agreement.

4.11 Confidentiality

The data, documents, reports or other materials which contain information relating to the review, documentation, analysis and evaluation of the work described in this Agreement and any recommendations made by Consultant relative thereto shall be considered confidential and shall not be reproduced, altered, used or disseminated by Consultant or its employees or agents in any manner except and only to the extent necessary in the performance of the work under this Agreement. In addition, Consultant is required to safeguard such information from access by unauthorized personnel.

4.12 Notices

In all cases where written notice is to be given under this Agreement, service shall be deemed sufficient if said notice is deposited in the United States mail, postage paid. When so given, such notice shall be effective from the date of mailing of the same. For the purposes hereof, unless otherwise provided by notice in writing from the respective parties, notice to the Department shall be addressed to Director of Environmental Management, Los Angeles Harbor Department, P.O. Box 151, San Pedro, California, 90733-0151, and notice to Consultant shall be addressed to it at the address set forth above. Nothing herein contained shall preclude or render inoperative service of such notice in the manner provided by law.

4.13 Termination Due to Non-Appropriation of Funds

This Agreement is subject to the provisions of the Los Angeles City Charter which,

among other things, precludes the City from making any expenditure of funds or incurring any liability, including contractual commitments, in excess of the amount appropriated thereof.

The Board, in awarding this Agreement, is expected to appropriate sufficient funds to meet the estimated expenditure of funds through June 30 of the current fiscal year and to make further appropriations in each succeeding fiscal year during the life of the Agreement. However, the Board is under no legal obligation to do so.

The City, its boards, officers, and employees are not bound by the terms of this Agreement or obligated to make payment thereunder in any fiscal year in which the Board does not appropriate funds therefore the Consultant is not entitled to any compensation in any fiscal year in which funds have not been appropriated for the Agreement by the Board.

Although the Consultant is not obligated to perform any work under the Agreement in any fiscal year in which no appropriation for the Agreement has been made, the Consultant agrees to resume performance of the work required by the Agreement on the same terms and conditions for a period of sixty (60) days after the end of the fiscal year if an appropriation therefore is approved by the Board within that 60 day period. The Consultant is responsible for maintaining all insurance and bonds during this 60 day period until the appropriation is made; however, such extension of time is not compensable.

If in any subsequent fiscal year funds are not appropriated by the Board for the work required by the Agreement, the Agreement shall be terminated. However, such termination shall not relieve the parties of liability for any obligation previously incurred.

4.14 Taxpayer Identification Number

The Internal Revenue Service (IRS) requires that all Consultants and suppliers of materials and supplies provide a TIN to the party that pays them. Consultant declares that it has an authorized TIN which shall be provided to the Department prior to payment under the Agreement. No payments will be made under the Agreement without a valid TIN.

4.15 Service Contractor Worker Retention Policy and Living Wage Policy Requirements

The Board of Harbor Commissioners of the City of Los Angeles adopted Resolution Nos. 19-8419 and 19-8420 on January 24, 2019, adopting the provisions of Los Angeles City Ordinance No. 185356, relating to Service Contractor Worker Retention (SCWR), Section 10.36 et seq. of the Los Angeles Administrative Code, as the policy of the Department. Further, Charter Section 378 requires compliance with the City's Living Wage requirements as set forth by ordinance, Section 10.37 et seq. of the Los Angeles Administrative Code. Consultant shall comply with the policy wherever applicable. Violation of this provision, where applicable, shall entitle the City to terminate this Agreement and otherwise pursue legal remedies that may be available.

4.16 Wage and Earnings Assignment Orders/Notices of Assignments

Consultant and/or any Subconsultant are obligated to fully comply with all applicable state and federal employment reporting requirements for the Consultant and/or Subconsultant's employees.

Consultant and/or Subconsultant shall certify that the principal owner(s) are in compliance with any Wage and Earnings Assignment Orders and Notices of Assignments applicable to them personally. Consultant and/or Subconsultant will fully comply with all lawfully served Wage and Earnings Assignment Orders and Notices of Assignments in accordance with Cal. Family Code § 5230 et seq. Consultant or Subconsultant will maintain such compliance throughout the term of the Agreement.

4.17 Equal Benefits Policy

The Board of Harbor Commissioners of the City of Los Angeles adopted Resolution No. 6328 on January 12, 2005, agreeing to adopt the provisions of Los Angeles City Ordinance 172,908, as amended, relating to Equal Benefits, Section 10.8.2.1 et seq. of the Los Angeles Administrative Code, as a policy of the Harbor Department. Consultant shall comply with the policy wherever applicable. Violation of the policy shall entitle the City to terminate any Agreement with Consultant and pursue any and all other legal remedies that may be available. See Exhibit F.

4.18 State Tidelands Grants

The Agreement will be entered in furtherance of and as a benefit to the State Tidelands Grant and the trust created thereby. Therefore, the Agreement will at all times be subject to the limitations, conditions, restrictions and reservations contained in and prescribed by the Act of the Legislature of the State of California entitled "An Act Granting to the City of Los Angeles the Tidelands and Submerged Lands of the State Within the Boundaries of Said City," approved June 3, 1929, (Stats. 1929, Ch. 651), as amended, and provisions of Article VI of the Charter of the City of Los Angeles relating to such lands. Consultant agrees that any interpretation of the Agreement and the terms contained therein must be consistent with such limitations, conditions, restrictions and reservations.

4.19 Contract Solicitations Charter Section 470 (c) (12)

Persons who submit a response to this solicitation (proposers) are subject to Charter section 470 (c) (12) and related ordinances. As a result, proposers may not make campaign contributions to and/or engage in fundraising for certain elected City officials or candidates for elected City office from the time they submit the response until either the contract is approved or, for successful proposers, 12 months after the contract is signed. The proposer's principals and Subcontractors performing $100,000 or more in work on the contract, as well as the principals of those Subcontractors, are also subject to the same limitations on campaign contributions and fundraising.

Proposers must submit CEC form 50 and 55 to the awarding authority at the same time the response is submitted (See Exhibit G). The form requires proposers to identify their principals, their Subcontractors performing $100,000 or more in work on the contract, and

the principals of those Subcontractors. Proposers must also notify their principals and Subcontractors in writing of the restrictions and include the notice in contracts with Subcontractors. Responses submitted without a completed CEC Form 55 may be deemed nonresponsive. Proposers who fail to comply with City law may be subject to penalties, termination of contract, and debarment. Additional information regarding these restrictions and requirements may be obtained from the City Ethics Commission at (213) 978-1960 or ethics.lacity.org.

4.20 Iran Contracting Act of 2010

The California Legislature adopted the Iran Contracting Act of 2010 to respond to policies of Iran in a uniform fashion (PCC § 2201(q)). The Iran Contracting Act prohibits proposers engaged in investment activities in Iran from submitting proposals for, or entering into or renewing contracts with public entities for goods and services of one million dollars ($1,000,000) or more (PCC § 2203(a)). In accordance with California Public Contract Code Sections 2200-2208, all proposers submitting proposals for, entering into, or renewing contracts with the Harbor Department for goods and services estimated at $1,000,000 or more are required to complete, sign, and submit the Iran Contracting Act of 2010 Compliance Affidavit (See Exhibit H).

5. PORT OF LONG BEACH STANDARD CONTRACT PROVISIONS

The following sections are standard contract provisions for the Port of Long Beach. In submitting a proposal, proposer agrees to accept these terms without change. **If your firm cannot agree to the following requirements, exactly as set forth below, please do not submit a proposal.**

5.1 Small Business Enterprises (SBE)/Very Small Business Enterprises (VSBE) Programs

The Port has established a Small Business Enterprises (SBE)/Very Small Business Enterprises (VSBE) Program to encourage small business participation on **Professional Services** contracts.

The combined SBE/VSBE participation goal established for this project is Twenty-Five percent (25 %), of which a minimum of Five percent (5%) must be allocated to VSBEs.

SBE and VSBE Eligibility

1. SBE eligibility is determined by utilizing federal U.S. Small Business Administration (SBA) size standards and/or by the standards set by the State of California's Department of General Services (DGS).

a. The SBA size standards are based on the North American Industrial Classification System (NAICS) codes. To identify the NAICS code(s) that a business may qualify under, log on to www.sba.gov.

b. DGS has established a separate set of SBE eligibility standards and classification codes. Log on to www.dgs.ca.gov for complete DGS certification information.

2. VSBE and/or Micro-business eligibility is determined by utilizing the criteria set by the DGS "micro-business" designation: Contractors, Consultants, and vendors with gross annual receipts, averaged over the past three tax years, of $5 million or less, or small business manufacturers with 25 or fewer employees.

SBE Certification

1. All businesses wishing to receive SBE and VSBE status on a Port contract are required to be certified by either the Port or by the DGS.

2. To access the POLB Vendor Portal, visit the Port's website: www.polb.com/sbe and click on POLB Vendor Portal under the Navigation Menu.

3. To access the DGS procurement system, businesses may log on to: www.dgs.ca.gov.

4. Port-issued SBE certifications are generally valid for three (3) years. However, the Port may ask an SBE/VSBE to update its SBE qualifying information at any time. The Port does not issue separate VSBE certifications. VSBE status is designated in a vendor's procurement system account.

Pre-Contract Award Compliance with SBE/VSBE Program Requirements:

1. Prime Consultants responding to this procurement are required to submit an SBE/VSBE Commitment Plan for Professional Services Contracts (POLB Form SBE-2P) with their submittal. The Commitment Plan (CP) shall identify the proposed SBE/VSBE firms (prime consultant, Subcontractors, vendors and suppliers), their physical location and contact information, a description of services that matches their certification(s), and their proposed level of participation at a minimum.

2. The completed CP shall demonstrate the Consultant's ability and intent to meet the combined SBE/VSBE participation goal. The ability and intent to meet the combined SBE/VSBE participation goal shall be demonstrated by entering a numerical value in the **percent (%) of total prime contract value** fields on the CP.

3. Firms listed on the CP must be SBE certified in the Port's online procurement system and/or by the DGS by the required submittal due date.

4. The level of SBE/VSBE Commitment will be verified by Port staff and factored into the scoring criteria used during the evaluations of the proposals.

If additional SBE/VSBE Subconsultants, vendors, or suppliers are added to the selected Consultant's team during negotiations, they must also be certified by the DGS or

in the Port's online procurement system for their participation to be credited. If the Port and the selected firm are unable to negotiate the established level of SBE/VSBE participation, the Port reserves the right to end negotiations and enter into negotiations with the next highest-ranked Consultant.

Post-Contract Award Compliance with SBE/VSBE Program Requirements:

The selected Consultant shall report the dollar value of payments to small businesses on a monthly basis and at project close-out. The reporting may be accomplished electronically through the Port's designated system or by submitting a completed SBE/VSBE Monthly Utilization Report for Professional Service Contracts (POLB Form SBE-3P) with every invoice. The Port will instruct the Contractor which method to utilize. The reported data will be reviewed for accuracy and completeness. Any SBE/VSBE substitutions will need to be pre-approved by the Port.

Additional information regarding the Port's SBE/VSBE Program may be found on the Port's SBE website at www.polb.com/sbe.

5.2 Insurance Requirements

No material regarding insurance coverage need accompany your submittal; however, firms are advised that Consultants selected to enter in this contract will be required to provide and maintain insurance coverage with limits no less than those specified in Exhibit J**.**

Within fifteen (15) calendar days of selection, proof of insurance coverage must be provided using the attached insurance endorsement forms or certified copies of the policies which name the City of Long Beach, its Board of Harbor Commissioners, individually and collectively, and their officers and employees ("City") are included as additional insured/endorsement holders. Standard ACORD forms will not be accepted in lieu of the attached endorsement forms.

Proposers may be required to undergo a financial review if they have certain self-insured retention, deductible levels, and/or are performing high-risk work, and copies of audited financial statements may be required.

Please note that failure, for whatever reason, to provide the required documentation of insurance coverage within 15 calendar days of selection could disqualify your firm from contract consideration.

5.3 Other Miscellaneous Items

Please note that any attempt to lobby members of the Board of Harbor Commissioners, Long Beach City Council, or the Port of Long Beach/City of Long Beach staff between the time a solicitation is released until the announcement of contract award may result in disqualification from the selection process. Additionally, any information submitted is subject to the Freedom of Information Act (i.e. Public Records Request).

EXHIBIT A

RFP SELECTION EVALUATION FORM

PROJECT: AIR MONITORING STATION OPERATION AND MAINTENANCE SUPPORT

SCORING GUIDELINES:

Rater's Score: (Range 0-5) - 0=not included/non responsive; 1= Serious Deficiencies; 2=Marginal Abilities; 3=Adequate, 4=Well Qualified; 5=Exceptionally Qualified.

Weighing Factor: A range of 1 through 6, with 1 being of relative lower importance and 6 being relative highest importance. Each number (1 through 6) may be used more than once; however, in establishing weights, the total of all the weighing factors (A –E) must equal 20. Example: 3+2+6+4+5=20 or 3+3+3+6+5=20

Weighted Score= Rater's Score multiplied by (x) Weighing Factor. Totals should be calculated for each criterion.

Total score = Sum of all weighted scores.

Firm Name	Evaluated by

CRITERIA TO BE RATED		RATER'S SCORE	WEIGHING FACTOR	WEIGHTED SCORE
A. Firm Qualifications, Experience and References	How long has the company been in business? Has the company done similar work? Level of expertise in subject matter areas?		**5**	
B. Project Organization, Personnel and Staffing	Qualification and experience of proposed personnel for requested services? On-site availability of team and project manager?		**5**	
C. Project Approach, Work Plan, and Management	Quality of proposed work plan to meet project requirements? Quality of project management?		**4**	
D. Rates, Fees and Budget Control	Competitive rates and fees proposed? Are budget management, fees, and staff hours proposed and clearly defined?		**4**	
E. Clarity and Comprehensiveness of the Proposal	Is the proposal clear, comprehensive, and understandable?		**2**	
	Maximum points possible=100		**A+B+C+ D+E=20**	**Total Points=**

EXHIBIT B

SMALL/VERY SMALL BUSINESS ENTERPRISE PROGRAM

The Harbor Department is committed to creating an environment that provides all individuals and businesses open access to the business opportunities available at the Harbor Department in a manner that reflects the diversity of the City of Los Angeles. The Harbor Department's Small Business Enterprise (SBE) Program was created to provide additional opportunities for small businesses to participate in professional service and construction contracts. An overall Department goal of 25% SBE participation, including 5% Very Small Business Enterprise (VSBE) participation, has been established for the Program. The specific goal or requirement for each contract opportunity may be higher or lower based on the scope of work.

It is the policy of the Harbor Department to solicit participation in the performance of all service contracts by all individuals and businesses, including, but not limited to, SBEs, VSBEs, women-owned business enterprises (WBEs), minority-owned business enterprises (MBEs), and disabled veteran business enterprises (DVBEs). The SBE Program allows the Harbor Department to target small business participation, including MBEs, WBEs, and DVBEs, more effectively. It is the intent of the Harbor Department to make it easier for small businesses to participate in contracts by providing education and assistance on how to do business with the City, and ensuring that payments to small businesses are processed in a timely manner. **In order to ensure the highest participation of SBE/VSBE/MBE/WBE/DVBEs, all proposers shall utilize the City's contracts management and opportunities database, the Regional Alliance Marketplace for Procurement (RAMP), at http://www.RAMPLA.org, to outreach to potential Subconsultants.**

The Harbor Department defines a SBE as an independently owned and operated business that is not dominant in its field and meets criteria set forth by the Small Business Administration in Title 13, Code of Federal Regulations, Part 121. Go to www.sba.gov for more information. The Harbor Department defines a VSBE based on the State of California's Micro-business definition which is (1) a small business that has average annual gross receipts of $5,000,000 or less within the previous three years, or (2) a small business manufacturer with 25 or fewer employees.

The SBE Program is a results-oriented program, requiring Consultants who receive contracts from the Harbor Department to perform outreach and utilize certified small businesses. **Based on the work to be performed, it has been determined that the percentage of small business participation will be 25%, including 5% VSBE participation**. The North American Industry Classification System (NAICS) Code for the scope of services is **561110**. This NAICS Code is the industry code that corresponds to at least 51% of the scope of services and will be used to determine the size standard for SBE participation of the Prime Consultant. The maximum SBE size standard for this NAICS Code is $12.5 million.

Consultant shall be responsible for determining the SBE status of its Subconsultants for purposes of meeting the small business requirement. Subconsultants must qualify as an SBE based on the type of services that they will be performing under the Agreement. All business participation will be determined by the percentage of the total amount of compensation under the agreement paid to SBEs. The Consultant shall not substitute an SBE firm without obtaining prior approval of the City. A request for substitution must be based upon demonstrated good cause. If substitution is permitted, Consultant shall endeavor to make an in-kind substitution for the substituted SBE.

Consultant shall complete, sign and submit as part of the executed agreement the attached Affidavit and Consultant Description Form. The Affidavit and Consultant Description Form, when signed, will signify the Consultant's intent to comply with the SBE requirement. All SBE/VSBE firms must be certified by the time proposals are due to receive credit. In addition, all Consultants and Subconsultants must be registered on the RAMP by the time proposals are due.

AFFIDAVIT OF COMPANY STATUS

"The undersigned declares under penalty of perjury pursuant to the laws of the State of California that the following information and information contained on **the attached Consultant Description Form** is true and correct and includes all material information necessary to identify and explain the operations of

_____

Name of Firm

as well as the ownership and location thereof. Further, the undersigned agrees to provide complete and accurate information regarding ownership in the named firm, and all of its domestic and foreign affiliates, any proposed changes of the ownership and to permit the audit and examination of firm ownership documents, and the ownership documents of all of its domestic and foreign affiliates, in association with this agreement."

(1) **Small/Very Small Business Enterprise Program:** Please indicate the ownership of your company. Please check all that apply. At least one box must be checked:

☐SBE ☐VSBE ☐MBE ☐WBE ☐DVBE ☐OBE

- A Small Business Enterprise (SBE) is an independently owned and operated business that is not dominant in its field and meets criteria set forth by the Small Business Administration in Title 13, Code of Federal Regulations, Part 121.
- A Very Small Business Enterprise (VSBE) is 1) a small business that has average annual gross receipts of $5,000,000 or less within the previous three years, or (2) a small business manufacturer with 25 or fewer employees.
- A Minority Business Enterprise (MBE) is defined as a business in which a minority owns and controls at least 51% of the business. A Woman Business (WBE) is defined as a business in which a woman owns and controls at least 51% of the business. For the purpose of this project, a minority includes:
  (1) Black (all persons having origins in any of the Black African racial groups not of Hispanic origin);
  (2) Hispanic (all persons of Mexican, Puerto Rican, Cuban, Central or South American or other Spanish Culture or origin, regardless of race);
  (3) Asian and Pacific Islander (all persons having origins in any of the original peoples of the Far East, Southeast Asia, The Indian Subcontinent, or the Pacific Islands); and
  (4) American Indian or Alaskan Native (all persons having origins in any of the original peoples of North America and maintaining identifiable tribal affiliations through membership and participation or community identification).
- A Disabled Veteran Business Enterprise (DVBE) is defined as a business in which a disabled veteran owns at least 51% of the business, and the daily business operations are managed and controlled by one or more disabled veterans.
- An OBE (Other Business Enterprise) is any enterprise that is neither an SBE, VSBE, MBE, WBE, or DVBE.

(2) **Local Business Preference Program:** Please indicate the Local Business Enterprise status of your company. Only one box must be checked:

☐LBE ☐Non-LBE

- A Local Business Enterprise (LBE) is: (a) a business headquartered within Los Angeles, Orange, Riverside, San Bernardino, or Ventura Counties; or (b) a business that has at least 50 full-time employees, or 25 full-time employees for specialty marine contracting firms, working in Los Angeles, Orange, Riverside, San Bernardino, or Ventura Counties. "Headquartered" shall mean that the business physically conducts and manages all of its operations from a location in the above-named counties.
- A Non-LBE is any business that does not meet the definition of a LBE.

Signature:_____ Title: _____

Printed Name:_____ Date Signed:_____

Consultant Description Form

PRIME CONSULTANT:

Contract Title: _____

Business Name: _____ RAMP ID#: _____

Award Total: $ _____

Owner's Ethnicity: _____ Gender _____Group: SBE VSBE MBE WBE DVBE OBE (Circle all that apply)

Local Business Enterprise: YES_____ NO_____ (Check only one)

Primary NAICS Code: _____

Address: _____

City/State/Zip: _____

County: _____

Telephone: ( ) _____ FAX: ( ) _____

Contact Person/Title: _____

Email Address: _____

SUBCONSULTANT:

Business Name: _____ RAMP ID#: _____

Award Total: (% or $): _____

Services to be provided: _____

Owner's Ethnicity: _____ Gender _____ Group: SBE VSBE MBE WBE DVBE OBE (Circle all that apply)

Local Business Enterprise: YES_____ NO_____ (Check only one)

Primary NAICS Code: _____

Address: _____

City/State/Zip: _____

County: _____

Telephone: ( ) _____ FAX: ( ) _____

Contact Person/Title: _____

Email Address: _____

SUBCONSULTANT:

Business Name: _____ RAMP ID#: _____

Award Total: (% or $): _____

Services to be provided: _____

Owner's Ethnicity: _____ Gender _____ Group: SBE VSBE MBE WBE DVBE OBE (Circle all that apply)

Local Business Enterprise: YES_____ NO_____ (Check only one)

Primary NAICS Code: _____

Address: _____

City/State/Zip: _____

County: _____

Telephone: ( ) _____ FAX: ( ) _____

Contact Person/Title: _____

Email address: _____

Consultant Description Form

SUBCONSULTANT:

Business Name: _____ RAMP ID#: _____

Award Total: (% or $): _____

Services to be provided: _____

Owner's Ethnicity: _____ Gender _____ Group: SBE VSBE MBE WBE DVBE OBE (Circle all that apply)

Local Business Enterprise: YES_____ NO_____ (Check only one)

Primary NAICS Code: _____

Address: _____

City/State/Zip: _____

County: _____

Telephone: ( ) _____ FAX: ( ) _____

Contact Person/Title: _____

Email Address: _____

SUBCONSULTANT:

Business Name: _____ RAMP ID#: _____

Award Total: (% or $): _____

Services to be provided: _____

Owner's Ethnicity: _____ Gender _____ Group: SBE VSBE MBE WBE DVBE OBE (Circle all that apply)

Local Business Enterprise: YES_____ NO_____ (Check only one)

Primary NAICS Code: _____

Address: _____

City/State/Zip: _____

County: _____

Telephone: ( ) _____ FAX: ( ) _____

Contact Person/Title: _____

Email Address: _____

SUBCONSULTANT:

Business Name: _____ RAMP ID#: _____

Award Total: (% or $): _____

Services to be provided: _____

Owner's Ethnicity: _____ Gender _____ Group: SBE VSBE MBE WBE DVBE OBE (Circle all that apply)

Local Business Enterprise: YES_____ NO_____ (Check only one)

Primary NAICS Code: _____

Address: _____

City/State/Zip: _____

County: _____

Telephone: ( ) _____ FAX: ( ) _____

Contact Person/Title: _____

Email address: _____

EXHIBIT C
PROPRIETARY SMALL BUSINESS ENTERPRISE (SBE)

ROADMAP FOR APPLICANTS

Should I apply?

If your firm is currently certified with any of the following agencies, you do NOT need to submit the SBE (Proprietary) Application:

- Federal Small Business Administration (SBA) - 8(a) Business Development Program
- State of California Department of General Services (DGS) – Small Business (SB),Micro Business (MB) and Public Works (PW)
- California Department of Transportation (CALTRANS)- Small Minority/Women Business Enterprise (SMBE/SWBE)
- L.A. County Metropolitan Transportation Authority (METRO) – Small Business Enterprise (SBE)
- US Women's Chamber of Commerce (USWCC) - Women-Owned Small Business (WOSB) & Economically Disadvantaged Women-owned Business (EDWOSB)
- National Women Business Owners Corporation (NWBOC) - Women-Owned Small Business (WOSB) & Economically Disadvantaged Women-owned Business (EDWOSB)
- Women's Business Enterprise Council WEST (WBEC - West) - Women-Owned Small Business (WOSB)
- City of Los Angeles – Local Small Business (LSB)
- Los Angeles County – Local Small Business Enterprise (LSBE)
- California Unified Certification Program (CUCP) – Disadvantaged Business Enterprise (DBE)

  CUCP Agencies include:
  - California Department of Transportation (CALTRANS)
  - Central Contra Costa Transit Authority (CCCTA)
  - L.A. County Metropolitan Transportation Authority (METRO)
  - San Francisco Bay Area Rapid Transit District (BART)
  - San Francisco Municipal Transportation Agency (SFMTA)
  - Santa Clara Valley Transportation Authority (VTA)
  - City of Fresno
  - City of Los Angeles
  - San Diego County Regional Airport Authority (SAN)
  - San Francisco International Airport (SFO)
  - San Mateo County Transit District (SAMTRANS)

If you are certified by one of the agencies listed above you may add SBE (Proprietary) to your RAMP profile for verification or check the Bid/Proposal documents for the Department's instruction regarding verification of certification.

If your firm is not currently certified with one of the above agencies, answer these questions:

- Is your firm an independently-owned and operated business?
- Is your firm a small business that meets the size criteria set forth by the Small Business Administration 8(a) Business Development Program **or** the State of California DGS Small Business Program?
- Is your firm organized as a for-profit business?

If you answered "Yes" to all of the questions above, you may be eligible to be certified as an SBE (Proprietary)

Complete the attached application and include all of the required documents listed on the checklist of SUPPORTING DOCUMENTATION at the end of this form.

Send completed application to:

CITY OF LOS ANGELES
DEPARTMENT OF PUBLIC WORKS
Bureau of Contract Administration
Office of Contract Compliance – Centralized Certification Administration
1149 S. Broadway, Ste. 300
Los Angeles, CA 90015

For Assistance:

Email bca.certifications@lacity.org or Call (213) 847-2684

Where can I find more information?

- State of California SBE program - http://www.dgs.ca.gov/pd/Programs/OSDS/GetCertified.aspx
- Small Business Administration 8(a) Business Development, WOSB, and EDWOSB Programs: http://www.sba.gov
- SBA Size Standards www.sba.gov/sites/default/files/Size_Standards_Table.pdf
- NAICS Search https://www.census.gov/naics/?99967
- LAWA SBE Program Rules and Regulations – http://www.lawa.org/welcome_LAWA.aspx?id=6413
- Port of Los Angeles Small Business Enterprise (SBE) and VSBE Program information- https://www.portoflosangeles.org/business/sbp.asp
- DWP SBE Program Information – https://www.ladwp.com/ladwp/faces/ladwp/partners/p-vendorsandbidders/p-vb-sbedvbe?_adf.ctrl-state=bfw1rfro4_4&_afrLoop=78220979903629

EXHIBIT C
PROPRIETARY SMALL BUSINESS ENTERPRISE (SBE)

Please answer the following:

Which Department referred you to the Office of Contract Compliance for Proprietary SBE Certification? (You must check only one box)

- ☐ **Department of Water and Power**
- ☐ **Harbor Department**
- ☐ **Los Angeles World Airports**

Are you currently bidding or participating on a City Project?

☐ **NO** ☐ **YES**

If yes, please provide the following information:

Project Name:_____

BAVN ID#:_____

Bid/RFP Number:_____

Due Date:_____

EXHIBIT C
PROPRIETARY SMALL BUSINESS ENTERPRISE (SBE)

I. GENERAL INFORMATION

HAS YOUR FIRM BEEN CERTIFIED BY ANOTHER CERTIFYING AGENCY? ☐ YES ☐ NO

IF YES, WHICH AGENCY & CERTIFICATION (e.g. SBE, MBE, WBE, DBE, etc.):	HAS FIRM EVER BEEN DENIED CERTIFICATION? ☐YES ☐NO IF YES, WHICH AGENCY & DATE:		
LEGAL BUSINESS NAME	FICTITIOUS OR DOING BUSINESS AS (DBA) NAME(S):		
STREET ADDRESS OF PRINCIPAL OFFICE LOCATION (DO NOT USE PO BOX)	CITY	STATE	ZIP
MAILING ADDRESS (IF DIFFERENT)	CITY	STATE	ZIP

FEDERAL EMPLOYER ID NUMBER (FEIN)	DATE FIRM ESTABLISHED:	WEBPAGE ADDRESS:
PRIMARY POINT OF CONTACT: (NAME & TITLE)	PHONE NUMBER:	FAX NUMBER:
	OTHER PHONE NUMBER:	EMAIL ADDRESS:

ADDRESSES OF OTHER LOCATIONS, FACILITIES, STORAGE SPACES, ETC. (ATTACH ADDITIONAL PAGES IF NECESSARY)

DESCRIPTION (e.g. STORAGE, FIELD OFFICE, FACTORY)	CITY	STATE	ZIP
DESCRIPTION (e.g. STORAGE, FIELD OFFICE, FACTORY)	CITY	STATE	ZIP

METHOD OF ACQUISITION: ☐ STARTED NEW BUSINESS ☐ PURCHASED EXISTING BUSINESS ☐ INHERITED BUSINESS

OTHER (EXPLAIN): _____

BUSINESS STRUCTURE: ☐ SOLE PROPRIETORSHIP ☐ PARTNERSHIP ☐ CORPORATION ☐ LLC ☐ JOINT VENTURE

TYPE OF BUSINESS: ☐ CONSTRUCTION ☐ MANUFACTURING ☐ SERVICE/CONSULTING ☐ WHOLESALER/RETAILER

☐ DISTRIBUTOR/BROKER ☐ CONCESSION ☐ TRUCKER ☐ OTHER _____

IF TYPE OF BUSINESS IS CONSTRUCTION, PROVIDE:

CONTRACTOR'S LICENSE NUMBER:	LICENSE CLASSIFICATION CODE(S) :

ENTER FIRM'S AVERAGE NUMBER OF EMPLOYEES FOR THE LAST FOUR QUARTERS INCLUDING ALL EMPLOYEES THAT ARE IN CALIFORNIA, OUT OF STATE, AND/OR OUT OF THE COUNTRY. (IF IN BUSINESS LESS THAN A YEAR, AVERAGE THE NUMBER OF EMPLOYEES OVER THE NUMBER OF QUARTERS THAT YOU HAVE BEEN IN BUSINESS)	NUMBER OF EMPLOYEES:

NUMBER OF: OWNERS _____ OFFICERS _____ DIRECTORS_____

HAS FIRM EVER EXISTED UNDER DIFFERENT OWNERSHIP? ☐ YES ☐ NO

IF YES, PROVIDE PREVIOUS OWNERSHIP, BUSINESS STRUCTURE, DATE THE CHANGE OCCURRED, AND BRIEF EXPLANATION OF CHANGE:

EXHIBIT C
PROPRIETARY SMALL BUSINESS ENTERPRISE (SBE)

PENALTY OF PERJURY DECLARATION

The undersigned states:

I certify under penalty of perjury under the laws of the City of Los Angeles and the State of California that all information submitted in the Small Business Enterprise application, and any additional information to determine eligibility is true and correct.

Authorized Signature | Title

Print Name | Date

SUPPORTING DOCUMENTATION CHECKLIST
SUBMIT REQUIRED DOCUMENTATION FOR ALL CATEGORIES BELOW THAT APPLY TO YOUR BUSINESS.

PLEASE DO NOT BIND YOUR SUBMITTAL

ALL APPLICANTS

- ☐ Most recently entire filed Federal Individual Income Tax Return (Form 1040) for **each owner** including all schedules and statements.
- ☐ Entire filed Federal Income Tax Return (Form 1040, 1220, 1120S or 1065) for the applicant business **and** each affiliate business for the most recent three (3) years or for the years the firm or its affiliate(s) were in business.
- ☐ If the firm's business classification identified by the selected NAICS codes requires a professional license or permit in order to operate, include a copy of the current license or permit (e.g. Architect, Engineer, Contractor, Broker/Agent, Lawyer, Security, etc.)
- ☐ If the size standard for the selected NAICS codes is number of employees- provide the Quarterly Contribution returns and report of wages (Form DE 9C) for the applicant business and each affiliate business for the four (4) most recent completed quarters. Submit a copy of out of state and/or out of country equivalent to form DE 9C, if applicable.

SOLE PROPRIETORSHIP

- ☐ Fictitious Business Name Statement

PARTNERSHIP

- ☐ Partnership Agreement and Amendments

CORPORATION

- ☐ Articles of Incorporation *(signed by the state official with approval date)*
- ☐ Corporate Meeting minutes for the past two (2) years listing current elected corporate officers and directors; or statement of information as filed with CA Secretary of State

LLC

- ☐ Articles of Organization, as filed with State
- ☐ LLC Statement of Information
- ☐ Operating Agreement and Amendments

JOINT VENTURE

- ☐ Joint Venture Agreement and Amendments

TRUCKING COMPANY

- ☐ Title(s) and registration certificate(s) for each truck owned and/or operated by your business
- ☐ Current Motor Carrier Permit

EXHIBIT D

POLA AFFIRMATIVE ACTION PROGRAM PROVISIONS

Sec. 10.8.4 Affirmative Action Program Provisions.

Every non-construction and construction Ccontract with, or on behalf of, the City of Los Angeles for which the consideration is $25,000 or more shall contain the following provisions which shall be designated as the AFFIRMATIVE ACTION PROGRAM provisions of such Contract:

A. During the performance of a City Contract, the Contractor certifies and represents that the Contractor and each Subcontractor hereunder will adhere to an Affirmative Action Program to ensure that in its employment practices, persons are employed and employees are treated equally and without regard to or because of race, color, religion, national origin, ancestry, sex, sexual orientation, age, disability, marital status, domestic partner status or medical condition.

1. This section applies to work or services performed or materials manufactured or assembled in the United States.

2. Nothing in this section shall require or prohibit the establishment of new classifications of employees in any given craft, work or service category.

3. The Contractor shall post a copy of Paragraph A., hereof, in conspicuous places at its place of business available to employees and applicants for employment.

B. The Contractor shall, in all solicitations or advertisements for employees placed, by or on behalf of, the Contractor, state that all qualified applicants will receive consideration for employment without regard to their race, color, religion, national origin, ancestry, sex, sexual orientation, age, disability, marital status, domestic partner status or medical condition.

C. At the request of the Awarding Authority or the DAA, the Contractor shall certify on an electronic or hard copy form to be supplied, that the Contractor has not discriminated in the performance of City Contracts against any employee or applicant for employment on the basis or because of race, color, religion, national origin, ancestry, sex, sexual orientation, age, disability, marital status, domestic partner status or medical condition.

D. The Contractor shall permit access to, and may be required to provide certified copies of, all of its records pertaining to employment and to its employment practices by the Awarding Authority or the DAA for the purpose of investigation to ascertain compliance with the Affirmative Action Program provisions of City Contracts and, upon request, to provide evidence that it has or will comply therewith.

E. The failure of any Contractor to comply with the Affirmative Action Program provisions of City Contracts may be deemed to be a material breach of a City Contract. The failure shall only be established upon a finding to that effect by the Awarding Authority, on the basis of its own investigation or that of the DAA. No finding shall be made except upon a full and fair hearing after notice and an opportunity to be heard has been given to the Contractor.

F. Upon a finding duly made that the Contractor has breached the Affirmative Action Program provisions of a City Contract, the Contract may be forthwith cancelled, terminated or suspended, in whole or in part, by the Awarding Authority, and all monies

due or to become due hereunder may be forwarded to and retained by the City of Los Angeles. In addition thereto, the breach may be the basis for a determination by the Awarding Authority or the Board of Public Works that the Contractor is a non-responsible bidder or proposer pursuant to the provisions of Section 10.40 of this Code. In the event of such determination, the Contractor shall be disqualified from being awarded a contract with the City of Los Angeles for a period of two years, or until he or she shall establish and carry out a program in conformance with the provisions hereof.

G. In the event of a finding by the Fair Employment and Housing Commission of the State of California, or the Board of Public Works of the City of Los Angeles, or any court of competent jurisdiction, that the Contractor has been guilty of a willful violation of the California Fair Employment and Housing Act, or the Affirmative Action Program provisions of a City Contract, there may be deducted from the amount payable to the Contractor by the City of Los Angeles under the contract, a penalty of ten dollars for each person for each calendar day on which the person was discriminated against in violation of the provisions of a City Contract.

H. Notwithstanding any other provisions of a City Contract, the City of Los Angeles shall have any and all other remedies at law or in equity for any breach hereof.

I. The Public Works Board of Commissioners shall promulgate rules and regulations through the DAA and provide to the Awarding Authorities electronic and hard copy forms for the implementation of the Affirmative Action Program provisions of City contracts, and rules and regulations and forms shall, so far as practicable, be similar to those adopted in applicable Federal Executive Orders. No other rules, regulations or forms may be used by an Awarding Authority of the City to accomplish this contract compliance program.

J. Nothing contained in City Contracts shall be construed in any manner so as to require or permit any act which is prohibited by law.

K. By affixing its signature to a Contract that is subject to this article, the Contractor shall agree to adhere to the provisions in this article for the duration of the Contract. The Awarding Authority may also require Contractors and suppliers to take part in a pre-registration, pre-bid, pre-proposal, or pre-award conference in order to develop, improve or implement a qualifying Affirmative Action Program.

1. The Contractor certifies and agrees to immediately implement good faith effort measures to recruit and employ minority, women and other potential employees in a non-discriminatory manner including, but not limited to, the following actions as appropriate and available to the Contractor's field of work. The Contractor shall:

(a) Recruit and make efforts to obtain employees through:

(i) Advertising employment opportunities in minority and other community news media or other publications.

(ii) Notifying minority, women and other community organizations of employment opportunities.

(iii) Maintaining contact with schools with diverse populations of students to notify them of employment opportunities.

(iv) Encouraging existing employees, including minorities and women, to refer their friends and relatives.

(v) Promoting after school and vacation employment opportunities for minority, women and other youth.

(vi) Validating all job specifications, selection requirements, tests, etc.

(vii) Maintaining a file of the names and addresses of each worker referred to the Contractor and what action was taken concerning the worker.

(viii) Notifying the appropriate Awarding Authority and the DAA in writing when a union, with whom the Contractor has a collective bargaining agreement, has failed to refer a minority, woman or other worker.

(b) Continually evaluate personnel practices to assure that hiring, upgrading, promotions, transfers, demotions and layoffs are made in a non-discriminatory manner so as to achieve and maintain a diverse work force.

(c) Utilize training programs and assist minority, women and other employees in locating, qualifying for and engaging in the training programs to enhance their skills and advancement.

(d) Secure cooperation or compliance from the labor referral agency to the Contractor's contractual Affirmative Action Program obligations.

(e) Establish a person at the management level of the Contractor to be the Equal Employment Practices officer. Such individual shall have the authority to disseminate and enforce the Contractor's Equal Employment and Affirmative Action Program policies.

(f) Maintain records as are necessary to determine compliance with Equal Employment Practices and Affirmative Action Program obligations and make the records available to City, State and Federal authorities upon request.

(g) Establish written company policies, rules and procedures which shall be encompassed in a company-wide Affirmative Action Program for all its operations and Contracts. The policies shall be provided to all employees, Subcontractors, vendors, unions and all others with whom the Contractor may become involved in fulfilling any of its Contracts.

(h) Document its good faith efforts to correct any deficiencies when problems are experienced by the Contractor in complying with its obligations pursuant to this article. The Contractor shall state:

(i) What steps were taken, how and on what date.

(ii) To whom those efforts were directed.

(iii) The responses received, from whom and when.

(iv) What other steps were taken or will be taken to comply and when.

(v) Why the Contractor has been or will be unable to comply.

2. Every contract of $25,000 or more which may provide construction, demolition, renovation, conservation or major maintenance of any kind shall also comply with the requirements of Section 10.13 of the Los Angeles Administrative Code.

L. The Affirmative Action Program required to be submitted hereunder and the pre-registration, pre-bid, pre-proposal or pre-award conference which may be required by the Awarding Authority shall, without limitation as to the subject or nature of employment activity, be concerned with such employment practices as:

1. Apprenticeship where approved programs are functioning, and other on-the-job training for non-apprenticeable occupations;

2. Classroom preparation for the job when not apprenticeable;

3. Pre-apprenticeship education and preparation;

4. Upgrading training and opportunities;

5. Encouraging the use of Contractors, Subcontractors and suppliers of all racial and ethnic groups; provided, however, that any contract subject to this ordinance shall require the Contractor, Subcontractor or supplier to provide not less than the prevailing wage, working conditions and practices generally observed in private industries in the Contractor's, Subcontractor's or supplier's geographical area for such work;

6. The entry of qualified women, minority and all other journeymen into the industry; and

7. The provision of needed supplies or job conditions to permit persons with disabilities to be employed, and minimize the impact of any disability.

M. Any adjustments which may be made in the Contractor's work force to achieve the requirements of the City's Affirmative Action Program in purchasing and construction shall be accomplished by either an increase in the size of the work force or replacement of those employees who leave the work force by reason of resignation, retirement or death and not by termination, layoff, demotion or change in grade.

N. This ordinance shall not confer upon the City of Los Angeles or any Agency, Board or Commission thereof any power not otherwise provided by law to determine the legality of any existing collective bargaining agreement and shall have application only to discriminatory employment practices by Contractors engaged in the performance of City Contracts.

O. All Contractors subject to the provisions of this article shall include a similar provision in all subcontracts awarded for work to be performed under the Contract with the City and shall impose the same obligations including, but not limited to, filing and reporting obligations, on the Subcontractors as are applicable to the Contractor. Failure of the Contractor to comply with this requirement or to obtain the compliance of its Subcontractors with all such obligations shall subject the Contractor to the imposition of any and all sanctions allowed by law, including, but not limited to, termination of the Contractor's Contract with the City.

EXHIBIT E

POLA BUSINESS TAX REGISTRATION CERTIFICATE (BTRC) NUMBER

The City of Los Angeles, Office of Finance requires all firms that engage in any business activity within the City of Los Angeles to pay City business taxes. Each firm or individual (other than a municipal employee) is required to obtain the necessary Business Tax Registration Certification (BTRC) and pay business tax. (Los Angeles Municipal code Section 21.09 et seq.)

All firms and individuals that do business with the City of Los Angeles will be required to provide a BTRC number or an exemption number as proof of compliance with Los Angeles City business tax requirements in order to receive payment for goods or services. Beginning October 14, 1987, payments for goods or services will be withheld unless proof of tax compliance is provided to the City.

The Tax and Permit Division of Los Angeles Office of Finance, has the sole authority to determine whether a firm is covered by business tax requirements. Those firms not required to pay will be given an exemption number.

If you do NOT have a BTRC number contact the Tax and Permit Division at the office listed below, or log on to http://finance.lacity.org/, to download the business tax registration application.

MAIN OFFICE

LA City Hall	201 N. Main Street, Rm. 101	(844) 663-4411

EXHIBIT F- POLA EQUAL BENEFITS ORDINANCE

Sec. 10.8.2.1. Equal Benefits Ordinance.

Discrimination in the provision of employee benefits between employees with domestic partners and employees with spouses results in unequal pay for equal work. Los Angeles law prohibits entities doing business with the City from discriminating in employment practices based on marital status and/or sexual orientation. The City's departments and contracting agents are required to place in all City contracts a provision that the company choosing to do business with the City agrees to comply with the City's nondiscrimination laws.

It is the City's intent, through the contracting practices outlined in this Ordinance, to assure that those companies wanting to do business with the City will equalize the total compensation between similarly situated employees with spouses and with domestic partners. The provisions of this Ordinance are designed to ensure that the City's Contractors will maintain a competitive advantage in recruiting and retaining capable employees, thereby improving the quality of the goods and services the City and its people receive, and ensuring protection of the City's property.

(c) Equal Benefits Requirements.

(1) No Awarding Authority of the City shall execute or amend any Contract with any Contractor that discriminates in the provision of Benefits between employees with spouses and employees with Domestic Partners, between spouses of employees and Domestic Partners of employees, and between dependents and family members of spouses and dependents and family members of Domestic Partners.

(2) A Contractor must permit access to, and upon request, must provide certified copies of all of its records pertaining to its Benefits policies and its employment policies and practices to the DAA, for the purpose of investigation or to ascertain compliance with the Equal Benefits Ordinance.

(3) A Contractor must post a copy of the following statement in conspicuous places at its place of business available to employees and applicants for employment: "During the performance of a Contract with the City of Los Angeles, the Contractor will provide equal benefits to its employees with spouses and its employees with domestic partners." The posted statement must also include a City contact telephone number which will be provided for each Contractor when the Contract is executed.

(4) A Contractor must not set up or use its contracting entity for the purpose of evading the requirements imposed by the Equal Benefits Ordinance.

(d) Other Options for Compliance. Provided that the Contractor does not discriminate in the provision of Benefits, a Contractor may also comply with the Equal Benefits Ordinance in the following ways:

(1) A Contractor may provide an employee with the Cash Equivalent only if the DAA determines that either:

a. The Contractor has made a reasonable, yet unsuccessful effort to provide Equal Benefits; or

b. Under the circumstances, it would be unreasonable to require the Contractor to provide Benefits to the Domestic Partner (or spouse, if applicable).

(2) Allow each employee to designate a legally domiciled member of the employee's household as being eligible for spousal equivalent Benefits.

(3) Provide Benefits neither to employees' spouses nor to employees' Domestic Partners.

(e) Applicability

(1)Unless otherwise exempt, a Contractor is subject to and shall comply with all applicable provisions of the Equal Benefits Ordinance.

(2) The requirements of the Equal Benefits Ordinance shall apply to a Contractor's operations as follows:

a. A Contractor's operations located within the City limits, regardless of whether there are employees at those locations performing work on the Contract.

b. A Contractor's operations on real property located outside of the City limits if the property is owned by the City or the City has a right to occupy the property, and if the Contractor's presence at or on that property is connected to a Contract with the City.

c. The Contractor's employees located elsewhere in the United States but outside of the City limits if those employees are performing work on the City Contract.

(3) The requirements of the Equal Benefits Ordinance do not apply to collective bargaining agreements ("CBA") in effect prior to January 1, 2000. The Contractor must agree to propose to its union that the requirements of the Equal Benefits Ordinance be incorporated into its CBA upon amendment, extension, or other modification of a CBA occurring after January 1, 2000.

(f) Mandatory Contract Provisions Pertaining to Equal Benefits. Unless otherwise exempted, every Contract shall contain language that obligates the Contractor to comply with the applicable provisions of the Equal Benefits Ordinance. The language shall include provisions for the following:

(1) During the performance of the Contract, the Contractor certifies and represents that the Contractor will comply with the Equal Benefits Ordinance.

(2) The failure of the Contractor to comply with the Equal Benefits Ordinance will be deemed to be a material breach of the Contract by the Awarding Authority.

(3) If the Contractor fails to comply with the Equal Benefits Ordinance the Awarding Authority may cancel, terminate or suspend the Contract, in whole or in part, and all monies due or to become due under the Contract may be retained by the City. The City may also pursue any and all other remedies at law or in equity for any breach.

(4) Failure to comply with the Equal Benefits Ordinance may be used as evidence against the Contractor in actions taken pursuant to the provisions of Los Angeles Administrative Code Section 10.40, et seq., Contractor Responsibility Ordinance.

(5) If the DAA determines that a Contractor has set up or used its Contracting entity for the purpose of evading the intent of the Equal Benefits Ordinance, the Awarding Authority may terminate the Contract on behalf of the City. Violation of this provision may be used as evidence against the Contractor in actions taken pursuant to the provisions of Los Angeles Administrative Code Section 10.40, et seq., Contractor Responsibility Ordinance.

Exhibit G POLA Bidder Contributions CEC FORM 50 and 55

FORM 50

Bidder Certification

Los Angeles City ETHICS COMMISSION

This form must be submitted with your bid or proposal to the City department that is awarding the contract noted below. If you have questions about this form, please contact the Ethics Commission at (213) 978-1960.

☐ Original Filing ☐ Amendment: Date of Signed Original_____. Date of Last Amendment_____.

Reference Number (Bid, Contract, or BAVN)	Awarding Authority (Department awarding the contract)
Bidder Name	
Address	
Email Address	Phone Number

Certification

I certify the following on my own behalf or on behalf of the entity named above, which I am authorized to represent:

A. I am applying for one of the following types of contracts with the City of Los Angeles:

1. A goods or services contract with a value of more than $25,000 and a term of at least three months;
2. A construction contract with any value and duration;
3. A financial assistance contract, as defined in Los Angeles Administrative Code § 10.40.1(h), with a value of at least $100,000 and a term of any duration; or
4. A public lease or license, as defined in Los Angeles Administrative Code § 10.40.1(i), with any value and duration.

B. I acknowledge and agree to comply with the disclosure requirements and prohibitions established in the Los Angeles Municipal Lobbying Ordinance if I qualify as a lobbying entity under Los Angeles Municipal Code § 48.02.

I certify under penalty of perjury under the laws of the City of Los Angeles and the state of California that the information in this form is true and complete.

Name _____ Signature _____

Title _____ Date _____

Los Angeles Administrative Code § 10.40.1

(h) '"**City Financial Assistance Recipient**" means any person who receives from the City discrete financial assistance in the amount of One Hundred Thousand Dollars ($100,000.00) or more for economic development or job growth expressly articulated and identified by the City, as contrasted with generalized financial assistance such as through tax legislation.

Categories of such assistance shall include, but are not limited to, bond financing, planning assistance, tax increment financing exclusively by the City, and tax credits, and shall not include assistance provided by the Community Development Bank. City staff assistance shall not be regarded as financial assistance for purposes of this article. A loan shall not be regarded as financial assistance. The forgiveness of a loan shall be regarded as financial assistance. A loan shall be regarded as financial assistance to the extent of any differential between the amount of the loan and the present value of the payments thereunder, discounted over the life of the loan by the applicable federal rate as used in 26 U.S.C. Sections 1274(d), 7872(f). A recipient shall not be deemed to include lessees and sublessees.

Los Angeles Administrative Code § 10.37.1

(l) **"Public lease or license".**

(a) Except as provided in (l)(b), "Public lease or license" means a lease or license of City property on which services are rendered by employees of the public lessee or licensee or sublessee or sublicensee, or of a contractor or subcontractor, but only where any of the following applies:
  (1) The services are rendered on premises at least a portion of which is visited by substantial numbers of the public on a frequent basis (including, but not limited to, airport passenger terminals, parking lots, golf courses, recreational facilities); or
  (2) Any of the services could feasibly be performed by City employees if the awarding authority had the requisite financial and staffing resources; or
  (3) The DAA has determined in writing that coverage would further the proprietary interests of the City.

(b) A public lessee or licensee will be exempt from the requirements of this article subject to the following limitations:
  (1) The lessee or licensee has annual gross revenues of less than the annual gross revenue threshold, three hundred fifty thousand dollars ($350,000), from business conducted on City property;
  (2) The lessee or licensee employs no more than seven (7) people total in the company on and off City property;
  (3) To qualify for this exemption, the lessee or licensee must provide proof of its gross revenues and number of people it employs in the company's entire workforce to the awarding authority as required by regulation;
  (4) Whether annual gross revenues are less than three hundred fifty thousand dollars ($350,000) shall be determined based on the gross revenues for the last tax year prior to application or such other period as may be established by regulation;
  (5) The annual gross revenue threshold shall be adjusted annually at the same rate and at the same time as the living wage is adjusted under section 10.37.2 (a);
  (6) A lessee or licensee shall be deemed to employ no more than seven (7) people if the company's entire workforce worked an average of no more than one thousand two-hundred fourteen (1,214) hours per month for at least three-fourths (3/4) of the time period that the revenue limitation is measured;
  (7) Public leases and licenses shall be deemed to include public subleases and sublicenses;
  (8) If a public lease or license has a term of more than two (2) years, the exemption granted pursuant to this section shall expire after two (2) years but shall be renewable in two-year increments upon meeting the requirements therefor at the time of the renewal application or such period established by regulation.

FORM 55

Prohibited Contributors
(Bidders)

Los Angeles City ETHICS COMMISSION

This form must be completed in its entirety and submitted with your bid or proposal to the City department that is awarding the contract. Failure to submit a completed form may affect your bid or proposal. If you have questions about this form, please contact the Ethics Commission at (213) 978-1960.

☐ **Original Filing** ☐ **Amendment:** Date of Signed Original _____, Date of Last Amendment _____.

Reference Number (Bid, Contract, or BAVN): _____ Date Bid Submitted: _____

Contract Description (Title of the RFP or City contract solicitation and description of the services to be provided):

_____

Awarding Authority (Department awarding the contract): _____

Bidder Name: _____

Bidder Address: _____

Bidder Email Address: _____ Bidder Phone Number: _____

Schedule Summary

Please complete all three of the following:

1. **SCHEDULE A — Bidder's Principals** *(check one)*
   The bidder has one or more **PRINCIPALS,** as defined in LAMC § 49.7.35(A)(6).
   At least one principal is required for entities. *(If you check "Yes", Schedule A is required.)*
   Yes ☐ **No** ☐

2. **SCHEDULE B — Subcontractors and Their Principals** *(check one)*
   The bidder has one or more **SUBCONTRACTORS** on this bid or proposal with subcontracts worth $100,000 or more. *(If you check "Yes", Schedule B is required.)*
   Yes ☐ **No** ☐

3. **TOTAL NUMBER OF PAGES SUBMITTED** (including this cover page): _____

Certification

I certify the following under penalty of perjury under the laws of the City of Los Angeles and the state of California:
A) I understand, will comply with, and have notified my principals and subcontractors of the requirements and restrictions in Los Angeles City Charter § 470(c)(12) and any related ordinances; B) I understand that I must amend this form within ten business days if any information changes; C) I am the bidder named above or I am authorized to represent the bidder named above, and my name appears below; and D) The information provided in this form is true and complete to the best of my knowledge and belief.

_____ _____
Name Signature

_____ _____
Title Date

FORM 55

Prohibited Contributors
(Bidders)

Los Angeles City ETHICS COMMISSION

Schedule A - Bidder's Principals

Please identify the names and titles of all the bidder's principals (attach additional sheets if necessary). Principals include a bidder's board chair, president, chief executive officer, chief operating officer, and individuals who serve in the functional equivalent of one or more of those positions. Principals also include individuals who hold an ownership interest in the bidder of at least 20 percent and employees of the bidder who are authorized by the bid or proposal to represent the bidder before the City.

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

☐ Check this box if additional Schedule A pages are attached.

FORM 55

Prohibited Contributors
(Bidders)

Los Angeles City ETHICS COMMISSION

Schedule B - Subcontractors and Their Principals

Please identify all subcontractors whose subcontracts are worth $100,000 or more. Separate Schedule B pages are required for each subcontractor who meets the threshold.

Subcontractor's Name
Subcontractor's Address

Please check one of the following options:

This subcontractor has one or more principals. ☐ **Yes*** ☐ **No**

* *Each principal's name and title must be identified below. Attach additional sheets if necessary. Principals include a subcontractor's board chair, president, chief executive officer, chief operating officer, and individuals who serve in the functional equivalent of one or more of those positions. Principals also include individuals who hold an ownership interest in the subcontractor of at least 20 percent and employees of the subcontractor who are authorized by the bid or proposal to represent the subcontractor before the City.*

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

Name: _____ Title: _____

Address: _____

☐ **Check this box if additional Schedule B pages are attached.**

EXHIBIT H

POLA IRAN CONTRACTING ACT OF 2010 COMPLIANCE AFFIDAVIT

(California Public Contract Code Sections 2200-2208)

The California Legislature adopted the Iran Contracting Act of 2010 to respond to policies of Iran in a uniform fashion (PCC § 2201(q)). The Iran Contracting Act prohibits bidders engaged in investment activities in Iran from bidding on, submitting proposals for, or entering into or renewing contracts with public entities for goods and services of one million dollars ($1,000,000) or more (PCC § 2203(a)). A bidder who "engages in investment activities in Iran" is defined as either:

1. A bidder providing goods or services of twenty million dollars ($20,000,000) or more in the energy sector of Iran, including provision of oil or liquefied natural gas tankers, or products used to construct or maintain pipelines used to transport oil or liquefied natural gas, for the energy sector of Iran; **or**
2. A bidder that is a financial institution (as that term is defined in 50 U.S.C. § 1701) that extends twenty million dollars ($20,000,000) or more in credit to another person, for 45 days or more, if that person will use the credit to provide goods or services in the energy sector in Iran and is identified on a list created by the California Department of General Services (DGS) pursuant to PCC § 2203(b) as a person engaging in the investment activities in Iran.

The bidder shall certify that at the time of submitting a bid for new contract or renewal of an existing contract, the bidder is **not** identified on the DGS list of ineligible businesses or persons and that the bidder is **not** engaged in investment activities in Iran in violation of the Iran Contracting Act of 2010.

California law establishes penalties for providing false certifications, including civil penalties equal to the greater of $250,000 or twice the amount of the contract for which the false certification was made; contract termination; and three-year ineligibility to bid on contracts (PCC § 2205).

To comply with the Iran Contracting Act of 2010, the bidder shall provide its vendor or financial institution name, and City Business Tax Registration Certificate (BTRC) if available, in completing **ONE** of the options shown below.

OPTION #1: CERTIFICATION

I, the official named below, certify that I am duly authorized to execute this certification on behalf of the bidder or financial institution identified below, and that the bidder or financial institution identified below is **not** on the current DGS list of persons engaged in investment activities in Iran and is **not** a financial institution extending twenty million dollars ($20,000,000) or more in credit to another person or vendor, for 45 days or more, if that other person or vendor will use the credit to provide goods or services in the energy sector in Iran and is identified on the current DSG list of persons engaged in investment activities in Iran.

Vendor Name/Financial Institution (printed)		*BTRC (or n/a)*
By (Authorized Signature)		
Print Name and Title of Person Signing		
Date Executed	*City Approval (Signature)*	*(Print Name)*

OPTION #2: EXEMPTION

Pursuant to PCC § 2203(c) and (d), a public entity may permit a bidder or financial institution engaged in investment activities in Iran, on a case-by-case basis, to be eligible for, or to bid on, submit a proposal for, or enter into, or renew, a contract for goods and services. If the bidder or financial institution identified below has obtained an exemption from the certification requirement under the Iran Contracting Act of 2010, the bidder or financial institution shall complete and sign below and attach documentation demonstrating the exemption approval.

Vendor Name/Financial Institution (printed)		*BTRC (or n/a)*
By (Authorized Signature)		
Print Name and Title of Person Signing		
Date Executed	*City Approval (Signature)*	*(Print Name)*

EXHIBIT I POLB SBE/VSBE COMMITMENT FORM

Port of LONG BEACH
THE PORT OF CHOICE

SMALL BUSINESS ENTERPRISE PROGRAM

SBE-2P: SBE/VSBE Commitment Plan For Professional Services

Form Instructions:

Prime consultants are required to submit an SBE/VSBE Commitment Plan for Professional Services Contracts. A completed Commitment Plan shall demonstrate the prime consultant's ability and intent to meet the combined SBE/VSBE participation goal by identifying all proposed SBE/VSBE consultants, contact information, a description of services that matches their certification(s), and their proposed level of participation at a minimum.

All sections of the form must be completed legibly in black or dark blue ink, or using the fillable PDF form. A Commitment Plan may be deemed incomplete if required fields with an asterisk* are not completed.

Submission of this form declares that all information provided is true and correct and acknowledges that the prime consultant has read and agrees to all declarations outlined in Section 4 of this form.

Section 1 – Project Information

Enter the project information as it appears in the PlanetBids solicitation.

PROJECT NAME: *	BID DEADLINE:
COMBINED SBE/VSBE GOAL:	

Section 2 – Prime Consultant Information

Enter prime consultant information associated with the PlanetBids vendor account.

PRIME CONSULTANT NAME: *		VENDOR ACCOUNT NUMBER:
CONTACT NAME:	EMAIL ADDRESS: *	PHONE NUMBER:

Are you a prime SBE/VSBE*? ☐ SBE ☐ VSBE ☐ None

***Note: The Port of Long Beach (POLB) does not issue VSBE certifications; VSBE status is a sub classification of the SBE certification and is visible in the SBE account profile.**

Port of LONG BEACH
THE PORT OF CHOICE

SMALL BUSINESS ENTERPRISE PROGRAM

Section 3 – Subcontractor Information

List all SBE/VSBE subcontractors, vendors, suppliers, and other businesses that will render materials or services under this contract. Do not list non-SBE/VSBE firms. Lower tier SBE/VSBE subcontractors and vendors/suppliers rendering materials or services to subcontractors must also be listed to receive participation credit (see vendor example in grey row below).

For a firm to be counted toward meeting the SBE/VSBE goals by the required submittal due date for the solicitation, the subcontractor must be SBE certified by POLB and have an active account on POLB's online vendor database Planet Bids (PB) System: www.polb.com/sbe, or they must be certified by the State of California's Department of General Services (DGS): www.dgs.ca.gov.

The prime consultant must verify the current eligibility status of each SBE/VSBE, prior to listing the firm(s) in this section. Verification of SBE/VSBE status can be conducted in one of two ways:

1. Locate the SBE/VSBE firm in the PlanetBids System and/or;
2. Contact POLB SBE staff at sbeprogram@polb.com and request verification of SBE/VSBE status.

BUSINESS NAME*	**EMAIL ADDRESS***	**PB OR DGS VENDOR ID NUMBER***	**BRIEF DESCRIPTION OF WORK***	**NAICS CODE FOR WORK DESCRIPTION***	**% OF TOTAL CONTRACT VALUE***
(Associated with PB/DGS Account)					
Example: ABC Testing	*ABCtesting@testing.com*	*612345*	*Testing Subcontractor*	*238220*	*20.00%*
					_____%
					_____%
					_____%
					_____%
					_____%
					_____%
					_____%
					_____%
					_____%
					_____%
					_____%
				Total SBE/VSBE Subcontractor Percentage*:	_____%

***Attach additional pages if necessary**

Port of LONG BEACH
THE PORT OF CHOICE

SMALL BUSINESS ENTERPRISE PROGRAM

Section 4 – Declarations
1. I hereby declare that I am authorized to submit this Commitment Plan on behalf of the prime consultant submitting a bid for this solicitation.
2. I acknowledge that for a firm to be counted toward meeting the SBE/VSBE goals, the firm must be SBE certified on POLB's online vendor database PB System or by the State of California's Department of General Services (DGS) by the required submittal due date for the solicitation.
3. I acknowledge that it is my responsibility to verify the current eligibility status of each SBE/VSBE, prior to listing the firm(s) on the Commitment Plan.
4. I acknowledge that all SBEs/VSBEs must be SBE certified for the materials/services that they will be rendering.
5. I acknowledge that all SBEs/VSBEs must provide materials/services directly applicable to the contract.
6. I acknowledge that if a contract is awarded, DGS subcontractors will need to obtain a POLB SBE certification.
7. I acknowledge that POLB staff will verify the SBE/VSBE status of all businesses and the level of SBE/VSBE commitment will be factored into the scoring criteria used during the evaluations of the proposals.
8. I acknowledge that POLB will resolve any certification discrepancy that arises between POLB's SBE/VSBE certification and the DGS SB/Microbusiness certification using current verifiable data. In the case of a discrepancy that remains unresolved, POLB SBE staff shall make the final determination of certification status.
9. I acknowledge that failure to complete the fields requesting percentage of contract value for the prime consultant and/or subcontractors may result in a determination that the prime consultant did not meet the SBE/VSBE goals for the project.
10. I consent for POLB staff to contact me using the contact information listed under Section 2 of this form, should there be a question or clarification regarding an SBE/VSBE subcontractor listed.

RFP – Air Quality Monitoring & Support Exhibit "J"

As a condition precedent to the effectiveness of this contract, Consultant shall procure and maintain in full force and effect during the term of this contract the types and levels of insurance described below. The term of insurance coverage shall include maintenance and warranty periods.

The required insurance and the documents provided as evidence thereof shall be in the name of Consultant as indicated on the contract.

Package policies which contain more than a single coverage type and share primary per occurrence and/or aggregate limits are not permitted.

Coverage which requires the City to tender a claim or suit to its own insurer(s), or make its own insurance available is not permitted.

If policies are written with aggregate limits, the aggregate limit shall be at least twice the occurrence limits or as specified below.

Excess or umbrella policies, if used, shall be following form and shall provide coverage that is equal to or broader than the underlying coverage.

The full policy limits and scope of coverage shall apply to the additional insureds required below even if they exceed the minimum insurance requirements specified herein.

At the direction of the Port, the Consultant, its risk manager or insurance professional and the Consultant's insurance broker shall participate in a mandatory conference with the Port's Risk Management Division within fifteen (15) calendar days after the Consultant is notified of conditional award by the Port. The purpose of this mandatory conference will be to discuss the insurance and form requirements contained in the Contract. Failure to participate in this mandatory conference in person or by telephone may result in the Contract being awarded to the next qualified consultant.

Commercial General Liability:

Commercial General Liability insurance shall be provided on Insurance Services Office (ISO) CGL Form No. CG 00 01 or the equivalent, including provisions for defense of additional insureds and defense costs shall be in addition to limits.

Policy limits shall be no less than one million dollars ($1,000,000) per occurrence for all coverage provided and two million dollars ($2,000,000) general aggregate.

Coverage shall be included on behalf of the insured for claims arising out of the actions of independent contractors.

The policy shall contain no provisions or endorsements limiting coverage for contractual liability or third party over action claims.

The policy shall not limit coverage for the additional insured to "ongoing operations" or in any way exclude coverage for completed operations.

Defense costs shall be excess of limits.

The policy must include work performed "by or on behalf" of the Consultant.

Coverage shall apply on a primary non-contributing basis in relation to any other insurance or self-insurance, primary or excess, available to City or any employee or agent of City.

Coverage shall not be limited to the vicarious liability or supervisory role of any additional insured.

Coverage shall not exclude contractual liability, restrict coverage to the sole liability of Consultant, require the City to tender defense or indemnity to its insurer(s), make its insurance available, or contain any other exclusion contrary to this contract.

Cancellation: The policy shall not be cancelled or the coverage reduced by endorsement until a thirty (30) day written advance notice of cancellation has been served upon the City, except ten (10) days shall be allowed for non-payment of premium. Consultant agrees to provide written notice as required by this paragraph within 24 hours of initiating cancellation or receiving notice of cancellation from its insurer, insurance broker, or insurance agent.

If this coverage is written on a claims-made basis, the retroactive date shall precede the effective date of this contract with the City.

Continuous coverage will be maintained or an extended reporting period will be exercised for a period of at least three (3) years from termination or expiration of this contract.

The policy of insurance shall be endorsed as follows:

Additional Insured: The City of Long Beach, its Board of Harbor Commissioners, employees and agents shall be added as additional insured with regard to liability and defense of suits or claims arising from the operations and activities performed by or on behalf of the Named Insured using ISO Forms CG 20 10 and CG 20 37 or their equivalent.

Additional Insured endorsements shall not: 1) be limited to "on-going operations", 2) exclude "Contractual Liability", 3) restrict coverage to the sole liability of the contractor, or 4) contain any other exclusion contrary to this contract.

Business Automobile Insurance:

Automobile Liability Insurance shall be written on ISO Business Auto Coverage Form CA 00 01 or the equivalent, including symbol (1) (any Auto).

Limit shall be no less than one million dollars ($1,000,000) combined single limit per accident.

Coverage shall apply on a primary non-contributing basis in relation to any other insurance or self-insurance, primary or excess, available to City or any employee or agent of City.

If Consultant does not own any vehicles, this requirement may be satisfied by a non-owned vehicle endorsement to the general and umbrella liability policies provided that a separate policy limit is provided for this coverage as required by this contract.

Cancellation: The policy shall not be cancelled or the coverage reduced by endorsement until a thirty (30) day written advance notice of cancellation has been served upon the City, except ten (10) days advance notice shall be allowed for non-payment of premium. Consultant agrees to provide written notice as required by this paragraph within 24 hours of initiating cancellation or receiving notice of cancellation from its insurer, insurance broker, or insurance agent.

The policy of insurance required above shall be endorsed as follows:

Additional Insured: The City of Long Beach, its Board of Harbor Commissioners, employees and agents shall be added as additional insured with regard to liability and defense of suits or claims arising from the operations and activities performed by or on behalf of the Named Insured.

Additional Insured endorsements shall not: 1) be limited to "on-going operations", 2) exclude "Contractual Liability", 3) restrict coverage to the sole liability of the contractor, or 4) contain any other exclusion contrary to this contract.

Workers' Compensation:

Workers' Compensation Insurance, as required by the State of California, and Employer's Liability Insurance with a limit of not less than one million dollars ($1,000,000) per accident for bodily injury and disease.

Cancellation: The policy shall not be cancelled or the coverage reduced until a thirty (30) day written advance notice of cancellation has been served upon the City, except ten (10)

days advance notice shall be allowed for non-payment of premium. Consultant agrees to provide written notice as required by this paragraph within 24 hours of initiating cancellation or receiving notice of cancellation from its insurer, insurance broker, or insurance agent.

The policy of insurance required above shall be endorsed, as follows:

Waiver of Subrogation: A waiver of subrogation stating that the insurer waives all rights of subrogation against the City, its Board of Harbor Commissioners, employees and agents.

Professional Liability:

Professional Liability Insurance with minimum limits of one million dollars ($1,000,000).

Covered Professional Services shall specifically include all work to be performed under the Contract and delete any exclusions that may potentially affect the work to be performed (e.g., any exclusions relating to lead, asbestos, pollution, testing, underground storage tanks, laboratory analysis, soil work, etc.) under the Contract. If this coverage is written on a claims-made basis, the retroactive date shall precede the effective date of the Contract with the Port and continuous coverage will be maintained or an extended reporting period will be exercised for a period of at least three (3) years from termination or expiration of this Contract.

Cancellation: The policy shall not be cancelled or the coverage reduced until a thirty (30) day written advance notice of cancellation has been served upon the City, except ten (10) days advance notice shall be allowed for non-payment of premium. Consultant agrees that it shall provide such notice. Consultant agrees to provide written notice as required by this paragraph within 24 hours of initiating cancellation or receiving notice of cancellation from its insurer, insurance broker, or insurance agent.

Deductible/Self-Insured Retention:

Any deductible or self-insured retention must be approved in writing by the Chief Executive Officer and shall protect the City, its Board of Harbor Commissioners, agents and employees in the same manner and to the same extent as they would have been protected had the policy or policies not contained a deductible or self-insured retention. Any deductible or self-insured retention must be approved in writing in accordance with City insurance guidelines.

Evidence of Insurance:

The Consultant, concurrently with the execution of this contract, and as a condition precedent to the effectiveness of this contract, shall deliver a Certificate of Insurance and waiver of subrogation ("Evidence of Insurance") as required by this contract to the Chief Executive Officer for approval as to sufficiency and to the City Attorney or approval as

to form. The Port reserves the right to require that complete, certified copies of policies be submitted.

At least fifteen (15) days prior to the expiration of any such policy, evidence of insurance showing that such insurance has been renewed or extended shall be filed with the Chief Executive Officer. If such coverage is cancelled or reduced, Consultant shall, within ten (10) days after receipt of written notice of such cancellation or reduction of coverage, file with the Chief Executive Officer evidence of insurance showing that the required insurance has been reinstated or has been provided through another insurance company or companies.

All required insurance documentation shall be correctly submitted and shall be provided to the Chief Executive Officer or his or her designee no later than 45 calendar days after the contract has been awarded. If the submitted insurance documentation does not meet the insurance requirements contained herein, and cannot be approved by Risk Management and the City Attorney's office during the same 45-day time period as a result, the contract will be cancelled.

Failure to Maintain Coverage:

Consultant agrees to suspend and cease all operations hereunder during such period of time as the required insurance coverage is not in effect and evidence of insurance has not been approved by the City. The City shall have the right to withhold any payment due Consultant until Consultant has fully complied with the insurance provisions of this contract.

Acceptability of Insurers:

Each such policy shall be from a company or companies with a current A.M. Best's rating of no less than A-:VII, and authorized to do business in the State of California or otherwise allowed to place insurance through surplus line brokers under applicable provisions of the California Insurance Code or any federal law. Any other rating must be approved in writing in accordance with the City insurance guidelines.

Contractual Liability:

The coverage provided shall apply to the obligations assumed by the Consultant under the indemnity provisions of this contract but this insurance provision in no way limits the indemnity provisions and the indemnity provisions in no way limit this insurance provision.

EXHIBIT K
POLB ENVIRONMENTAL PLANNING DIVISION CONTRACT REQUIREMENTS AND POLICIES

ENVIRONMENTAL PLANNING DIVISION CONTRACT REQUIREMENTS AND POLICIES

PROJECT AUTHORIZATION AND FUNDING

It is the Port of Long Beach Environmental Planning Division policy to control project costs through a system of incremental funding. In this system, projects with long durations and substantial budgets will be organized into separate job tasks, each with its own estimated budget and schedule of deliverables. Project or job task funding will be authorized incrementally, as each job task is initiated and deliverable milestones are met. All funding must be approved in writing by the Director of Environmental Planning prior to initiation of work. The Port is not liable for contractor costs that were incurred prior to receipt of written authorization.

INVOICING

Environmental Planning's contracts and job task awards are of the "not-to-exceed, authorized cost" type; we do not award "lump sum" or "estimated probable cost" contracts. The proposal is an attachment to the contract, and payment for services will be made on the basis of the information contained in the contract. The Environmental Planning Division requires that cost proposals contain the specific information shown in the Summary Rate Sheet included with the consultant's submitted proposal. Invoices must be consistent with the cost proposal in order to ensure that payment for services rendered is made in a timely, efficient manner. The City of Long Beach audits invoices meticulously, and will return, unpaid, invoices that do not conform in every respect to the costs, rates, and labor categories specified in the proposal. The Port's Invoice Format (Attached) must be followed. Failure to submit invoices in the format provided will result in their return, unpaid.

Invoices must identify the contract number and project job task number. Each job task number must be invoiced separately. Labor categories and rates must exactly match those in Summary Rate Sheet included in the consultant's proposal. Documentation of all non-labor expenditures must accompany every invoice. Non-labor related costs must be invoiced as expended. These types of expense should not be marked-up, unless otherwise stated in the contract. Please note that the Port of Long Beach does not accept per diem expenses, nor does it reimburse for personal expenses (e.g., toiletries). Receipts for lodging, food, and incidentals must be submitted with the invoice. Final payment will be withheld pending receipt of the final report and all data, where applicable, in electronic format.

TRANSPORTATION REIMBURSEMENT

Only the lowest regular fare for travel scheduled for the date and time on the ticket will be reimbursed; in practice, this means that airline travel must be in coach class. Only the regular fare for other means of public transportation will be reimbursed. The relative costs and benefits of renting an automobile versus using taxis, airport limousine services, and public transportation must be balanced to provide the Port with the most cost-effective services. Only compact or mid-sized automobiles may be rented (upgrades to full-sized vehicles are permissible if no additional charge is incurred). Parking lots providing reduced rates should be used to the extent that time constraints and personal safety issues permit.

Use of personal and corporate vehicles will be reimbursed on a per-mile basis at the rates specified in the contract.

LODGING AND MEALS REIMBURSEMENT

Invoices showing per diem meals and lodging expenses are unacceptable. Receipts for meals and lodging must be attached to the invoice. Only moderately-priced establishments providing lodging of reasonable quality may be selected; lodging at deluxe-class establishments will not be reimbursed. Only standard rooms may be selected; premium rooms (i.e., suites, ocean view) must be avoided. As with lodging, moderately-priced restaurants providing meals of reasonable quality should be selected.

MONTHLY COST SUMMARY AND PROGRESS REPORT

To assist the Port in tracking expenditures for multiple-subtask, long-duration projects, a monthly cost summary and progress report will be submitted by the selected consultant on or before the 10th of each month. The format for this document is attached. The two sections may be submitted as separate forms. A very large project may be broken into multiple job tasks, with subtasks assigned. Refer to the Port's project authorization letter for these designations.

SMALL BUSINESS ENTERPRISE (SBE) AND VERY SMALL BUSINESS ENTERPRISE (VSBE) PROGRAM

To assist the Port in tracking its SBE/VSBE goals, a Monthly Utilization Report (MUR) must be submitted through PlanetBids. The report is used by the Port to verify SBE/ VSBE subconsultant participation and payment for each contract. Further instruction and will be sent to you electronically by our Small Business Enterprise staff.

PORT OF LONG BEACH INVOICE FORMAT

Date

Director of Environmental Planning
Port of Long Beach
415 W. Ocean Blvd.
Long Beach, CA 90802

Contract No. HD-_____ Job Task No. _____ Invoice No. _____

Job Task/Project Description: _____

POLB Project Manager: _____

Professional Services from: _____ to _____

LABOR CHARGE
(DETAILED TIME SHEETS MUST BE SUBMITTED WITH INVOICE)

	Labor Category	Loaded Hourly Rate	Number of Hours	Cost
Employee Name	(Principal)			$____
Employee Name	(Senior)			
Employee Name	(Junior, etc.)			
TOTAL LABOR				$____

OTHER DIRECT COSTS	COST	MARK UP	TOTAL

ALL ODCs MUST BE PRESENTED IN THESE CATEGORIES WITH BACK-UP NUMBERS AND LABELED ACCORDINGLY

1. Travel
    - 1A. Airfare
    - 1B. Lodging
    - 1C. Meals
    - 1D. Auto Rental
    - 1E. Parking
    - 1G. Gas
2. Supplies
3. Subcontractors
4. Rental Equipment
5. Telephone, Faxes

1. CADD
2. Delivery, Courier, Postage
3. Photocopies, Reproduction
4. Other

TOTAL ODCs $

Fee or Profit applied to _____ at _____ % $

TOTAL AMOUNT OF THIS INVOICE $

PLEASE NOTE: Complete and detailed back-up (see the following pages for examples) must be submitted for all ODCs. Other Direct Costs such as mileage, airfare, lodging, meals, vehicle rentals, communications, copying charges, office supplies, and other non-labor related costs must be invoices as expended. These types of expense should not be marked-up, unless otherwise stated in the contract. Per diem charges are not acceptable.
CHARGES SUBMITTED WITHOUT BACK-UP WILL NOT BE PAID

SAMPLE INVOICE

YOUR COMPANY'S NAME
ADDRESS
TELEPHONE NUMBER
PROJECT MANAGER

Date

Director of Environmental Planning
Port of Long Beach
415 W. Ocean Blvd.
Long Beach, CA 90802

Contract No. HD-_____ Job Task No. _____ Invoice No. _____

Job Task/Project Description: _____

POLB Project Manager: _____

Professional Services from: _____ to _____

LABOR CHARGE	Labor Category	Loaded Hourly Rate	Number of Hours	Cost
Employee Name	(Principal)	95.00	10	$950.00
Employee Name	(Senior)	80.00	5	400.00
Employee Name	(Junior, etc.)	30.00	5	150.00
TOTAL LABOR				$1,500.00

ODCs	COST	MARK UP	TOTAL
1. Travel			
1A. Airfare	180.00		180.00
1B. Lodging	174.66		174.66
1C. Meals	107.08		107.08
1D. Auto Rental	63.80		63.80
1E. Parking	27.00		27.00
1G. Gas	9.10		9.10
2. Supplies			
3. Subcontractors	274.50	5%	288.25
4. Rental Equipment	7.00		7.00
5. Telephone, Faxes			
5.CADD			
6.Delivery, Courier, Postage	5.95		5.95
7.Photocopies, Reproduction	212.57		212.57
8.Other			
TOTAL ODCs			$1,075.41

Fee or Profit applied to _____ gross labor at 3% _____ $45.00

TOTAL AMOUNT OF THIS INVOICE $2,620.41

PORT OF LONG BEACH MONTHLY COST SUMMARY AND PROGRESS REPORT

Project Title: _____

Contract Number: HD-_____ Month Covered: _____

PART A MONTHLY COST SUMMARY

Job Task/Subtask and Description	Total Budget	Current Month $ Projected Expended	Next Month $ Projected	Expenditures To Date
Job Task 2100	$	$ $	$	$
2100.1	$	$ $	$	$
2100.2	$	$ $	$	$
Job Task 2101	$	$ $	$	$
2101.1	$	$ $	$	$
2101.2	$	$ $	$	$
2101.3	$	$ $	$	$
Job Task 2103	$	$ $	$	$
Etc.	$	$ $	$	$
Total	$	$ $	$	$

PART B MONTHLY PROGRESS REPORT

This report should include the following sections:

1. Summary of work accomplished during the month. List by job task and/or subtask as identified in the Monthly Cost Summary. These could include tasks such as project management, field sampling, laboratory analysis, and report, but must correspond to job task and subtask categories identified in the project authorization letter.

2. List of project milestones accomplished or delayed. These should include such project milestones as key meetings or briefings, submission of sampling plans, field surveys, submission of data reports, draft reports, and final reports. Ideally, these milestones should correspond to those identified in the technical proposal, unless modified in the project authorization letter.

3. Summary of problems encountered and corrective measures taken. This section should include both financial and technical problems encountered for each job task or subtask.

4. Summary of work projected for the next month by job task or subtask category, as identified in the Monthly Cost Summary.

URGENT ITINERARY AND RECEIPT FOR:

THIS DOCUMENT IS FOR REFERENCE ONLY

- Your airline ticket is electronic, stored in our computer system
- As with all airline tickets, your electronic ticket is not transferable
- Bring the CREDIT CARD used for purchase and a PHOTO ID to check-in
- If your travel plans change call Shuttle by United at 1-800-SHUTTLE

Thank you for choosing Shuttle by United.

RECEIPT - RESERVATION NUMBER: ISSUED: 13 FEB 98 DIURR /090181

PARTY OF (1)	TICKET NO	BASE	TAX	TAX	TOTAL
		157.80 USD	14.20 US	8.00 XT	180.00 USD

MILEAGE PLUS NO. PREMIER EXECUTIVE***

PER PASSENGER -
FARE DETAILS:FARE BASIS BSHUTLE SITI FC 23FEB OAK UA LAX 78.90 UA OAK 78.90 USD157.80
END ZPOAK1LAX1 XT 2.00ZP 6.00XFOAK3LAX3

ITINERARY

SHUTTLE BY UNITED 2149	NONSTOP - ECONOMY/CONFIRMED	MP MILES 337
DEPART: MON 23 FEB 6:20A	OAKLAND	EQUIP: 737
ARRIVE: MON 23 FEB 7:35A	LOS ANGELES	
BAGGAGE ALLOWANCE: 2PC	AUDIO	
SHUTTLE BY UNITED 2214	NONSTOP - ECONOMY/CONFIRMED	MP MILES 337
DEPART: MON 23 FEB 5:15P	LOS ANGELES	EQUIP: 737
ARRIVE: MON 23 FEB 6:31P	OAKLAND	
BAGGAGE ALLOWANCE: 2PC	AUDIO	

BOSTON LOGAN
INT'L AIRPORT
*** Parking Receipt Thank You ***

Entrance: 06:28 07/01/98 Lane # 66
Exit : 07:02 07/02/98 Lane # 76
License plate MA RA4111
Cashier : 182 Seq. # 8584
Length of stay 0/001 00h. 34mn.
Amount paid $ 27.00 Cash

(1E) Parking

Shuttle
BY UNITED

LOS ANGELES INT'L A/P
RENTAL RETURN

COMPLETED BY: 3108
RENTED: LOS ANGELES INT'L A/P
RENTAL: 02/23/98 09:05
RETURN: 02/23/98 14:26
MILES IN: 03194 OUT: 03153
MILES DRIVEN: 41
PLAN IN/OUT: MCLD /MCLD
CLS: C

1 DAYS	51.99	51.99
FL & SVC MI @	.150	6.15
TAXABLE TOTAL		58.14
TAX	.08250	4.80
VEH LIC FEE		0.86
NET DUE		63.80

PAID BY: VISA
CREDIT CARD #:

auto rental Thank you for renting from (1D)
Hertz

***** LEUCADIA PIZZERIA *****
Phone no. 942-2222

Date 09/16/98 Time 12:16 PM
TICKET # 28 (10)
*** DELIVERY ***
SERVER : Brooks C.

16" PEPPERONI	12.43
16" PEPPERONI SAUSAGE BELL PEPPR MUSHROOMS	16.87
16" PINEAPPLES CANADIAN-B	13.91
COKE CAN SODA-6 PAK	3.70
D. COKE CAN SODA-6 PAK	3.70

*** BRING PLATES - NAPKINS - FORKS ***

*** ++ TAKE CREDIT CARD SLIP ON DELIVERY ++ ***

*

Subtotal	50.61
TAX	3.92
Delivery	1.00
Total	55.53

1C
Meals

HARRY'S COFFEE SHOP
7545 GIRARD AVENUE
LA JOLLA, CA 92037
(619) 454-7381
** CREDIT CARD RECEIPT **

OW MOORE

MERCHANT	:	584199582000	000
BATCH #	:	024 REF#:	012
DATE	:	09/17/98	08:52
ACCT NO.	:		
TYPE	:		
AUTH NO.	:	786602	
SERVER	:	0009	

15% tip maximum

SALE	$	26.67
TIP		4.00
TOTAL		30.67

X_____
SIGNATURE

** YELLOW COPY FOR CUSTOMER **

1C Meals

Meals 1C
55.53
30.67
26.18
107.08

TRAVELODGE CONV CTR LONG BEACH
80 ATLATIC AVENUE
LONG BEACH, CALIFORNIA 90802
(562) 435-2471

Page #1

Name
Address :
City : State: Zip:
Room No.: 234 Daily rate: 76.41 + tax
Check-in: 08/26/98 Out: 08/28/98 Nights: 2 Guests: /
ID :

Date	CHARGES Room	Phone	Misc	Tax	Total	PAYMENT Credit	Cash	Bill	Total	Balance
08/26/98	76.41	0.25	0.00	9.17	85.83	0.00	0.00	0.00	0.00	85.83
08/27/98	76.41	3.25	0.00	9.17	85.83	0.00	0.00	0.00	0.00	174.66
08/28/98	0.00	0.00	0.00	0.00	0.00	174.66	0.00	0.00	174.66	0.00
TOTAL	152.82	3.50	0.00	18.34	174.66	174.66	0.00	0.00	174.66	0.00

Lodging
(1B)

AMOUNT TENDERED : 0.00
CHANGE : 0.00

Check-out time: 12:00pm Check-in time: 1:30pm

ALLTEX PRINTING & BUSINESS PROCESS SOLUTIONS • 214-638-1000

Cozymel's COASTAL MEXICAN GRILL

COZUMEL'S MAIN BEACH 020
MERCHANT I
08/03/98 07:05 PM
MARK CHK #207
CHARGE

VISA

AUTH #

CHARGE AMOUNT 18.83
(1B) TIP AMOUNT 2.00
Meals TOTAL 20.83

X SIGNATURE

Cardholder acknowledges receipt of goods and/or services in the amount of the total shown hereon and agrees to perform the obligations set forth in the Cardholder's agreement with the issuer.

GUEST COPY

BILLABLE IN-HOUSE RENTAL EQUIPMENT

EMPLOYEE NAME | EMPLOYEE # | PROJECT NUMBER (One Trip/Project Per Form) (Complete in Ink)

				0	1	1	4	0	0	1	8	0	1

DATE | FACILITY/SITE VISITED | PURPOSE OF TRIP

3/23/98	PORT OF LONG BEACH	WATER SAMPLE DRUMS

DESCRIPTION	TOTAL UNITS	UNIT COSTS CA/AZ	TOTAL COSTS	TASK	COMMENTS
148 - HAND AUGER		$24/day			
149 - PID		$80/$70/day			
150 - HAND TOOLS		$10/day			
186 - DISPOSABLE BAILERS		$7/each			
172 - BRASS SAMPLE TUBES		$6/each			
170 - DECON KIT		$10/each			
150 - DO METER		$25/day			
172 - DRUM HARNESS		$10/day			
189 - SAMPLE KITS		$10/day			
150 - PURGE PUMP		$75/day			
150 - WHALE PUMP		$50/day			
150 - 2" SUBMERSIBLE PUMP		$125/$100/day			
15' TRUCK RENTAL		$65/day			
TRUCK MILEAGE	26	$.35/$.44/mile	9.10		IF Mileage
90 - GENERATOR		$50/day			
50 - WATER LEVEL INDICATOR		$20/day			
70 - AIR PURIFYING RESPIRATOR		$20/day			
50 - pH METER		$35/day			
50 - INTERFACE PROBE		$70/day			
OTHER					
OTHER					
TOTAL COSTS			9.10		

Explanations (show line item, date, and details, if applicable)

INVOICE

Date : 03/31/98
Invoice Number :
Page 1 of 1

Report Sent To :
Project Name/No. :

Calscience Work Order No :
Terms : Net 30

Matrix	Test	TAT	Quantity	Unit Cost	Subtotal 1	Rush Charge	Subtotal 2
Water	EPA 6010A CAC, Title 22 Metals	5	1	$140.00	$140.00	$0.00	$140.00
Water	EPA 8260A Volatile Organics	5	1	$150.00	$150.00	$0.00	$150.00
Water	Total Digestion	5	1	$15.00	$15.00	$0.00	$15.00

Additional Items	Price
Discount (10%)	-$30.50

Additional Items Subtotal :	-$30.50
Tests Subtotal :	$305.00
Total :	$274.50

Amounts not paid within terms are subject to a 1.5% per month service charge.

PLEASE REMIT TO:

(3) Subcontract

BILLABLE IN-HOUSE RENTAL EQUIPMENT

EMPLOYEE NAME: Dept 01 | EMPLOYEE #: | PROJECT NUMBER (One Trip/Project Per Form) (Complete In Ink): 1414 0018 01

DATE	FACILITY/SITE VISITED	PURPOSE OF TRIP
3/23/98	POLB / [illegible]	~20 Sample Drums

DESCRIPTION	UNITS	UNIT COSTS CA/AZ	TOTAL COSTS	TASK	COMMENTS
148 - HAND AUGER		$24/day			
149 - PID		$80/$70/day			
150 - HAND TOOLS		$10/day			
186 - DISPOSABLE BAILERS	1	$7/each	$7		
172 - BRASS SAMPLE TUBES		$6/each			
170 - DECON KIT		$10/each			
150 - DO METER		$25/day			
172 - DRUM HARNESS		$10/day			
189 - SAMPLE KITS		$10/day			
150 - PURGE PUMP		$75/day			
150 - WHALE PUMP		$50/day			
150 - 2" SUBMERSIBLE PUMP		$125/$100/day			
152 - MBE TRUCK RENTAL		$65/day			
126 TRUCK MILEAGE		$.35/$.44/mile			
190 - GENERATOR		$50/day			
150 - WATER LEVEL INDICATOR		$20/day			
170 - AIR PURIFYING RESPIRATOR		$20/day			
150 - pH METER		$35/day			
150 - INTERFACE PROBE		$70/day			
OTHER					
OTHER					
TOTAL COSTS			$7		

(4) Rental equipment

* Explanations (show line item, date, and details, if applicable)

02/03/98 FEDEX ACCOUNTING REPORT SHIP1147 Page 1

TRACKING #	REFERENCES	NAME	COMPANY	CITY	ST	CNTY	SVC	WGT	NET CHG
								1	5.75

SUBTOTALS FOR PLB001A01

PACKAGE COUNT	1
PACKAGE CHARGES	15.50
DISCOUNTS RECEIVED	9.75
SPECIAL FEES	0.00
DEC. VAL. CHARGES	0.00
TOTAL CHARGES	5.75
TOTAL WEIGHT	1 LBS

GRAND TOTALS

PACKAGE COUNT	1
PACKAGE CHARGES	15.50
DISCOUNTS RECEIVED	9.75
SPECIAL FEES	0.00
DEC. VAL. CHARGES	0.00
TOTAL CHARGES	5.75
TOTAL WEIGHT	1 LBS

INVOICE - 687155019 - 15.75

PLB001A-8

DATE: 02/22/98 TIME: 01:03 PM

COPY CENTRAL
10001 A. SAN PABLO AVE
EL CERRITO, CA. 94530
4301322259636724

BATCH : 0262

8

TERM ID	
ACCOUNT #	
EXP DATE	0299
REF NO	
AUTH NO	
TRAN TYPE	SALE
CARD TYPE	VI

Photocopies

TOTAL $212.57

NAME:

SIGNATURE

I AGREE TO PAY ABOVE TOTAL AMOUNT
ACCORDING TO CARD ISSUER AGREEMENT
(MERCHANT AGREEMENT IF CREDIT VOUCHER)

"THANK YOU"

TOP COPY-MERCHANT BOTTOM COPY-CUSTOMER

7 Delivery

EXHIBIT L
POLB SUMMARY RATE SHEET
POLB PROPOSAL FORM
Port of Long Beach Summary Rate Sheet

Instructions: *Provide a complete breakdown of the hourly charge rates of professional and support staff by labor category for the primary consultant and subconsultants. These titles must be used throughout the duration of the contract. Multiple Rate Sheets may be submitted to reflect yearly adjustments and/or subconsultant charge rates.*

COMPANY NAME:	
DATES RATES ARE EFFECTIVE:	

LABOR RATES	
Labor Category/Grade	Hourly Fully-Loaded Rate

MULTIPLIERS		
Multiplier	Percent	Applied to:
Fringe Benefits		
Overhead		
General & Administrative		
Fee or Profit		
Subcontractor Oversight		

OVERTIME FACTORS		
Occasion	Factor	Labor Categories Affected
Holiday		
Weekend		
Night		

OTHER DIRECT CHARGES			
Charge	Price/Unit	Charge	Price/Unit
CADD		Reproduction-B&W Regular	
Communications		Reproduction-B&W Oversized	
Computer Usage		Reproduction-Color Regular	
Equipment and Supplies	*Attach Rate Schedule*	Reproduction-Color/Oversized	
Mileage	*STANDARD RATE*	Other—	

NOTE: Travel charges such as airfare, mileage, lodging, meals, vehicle rentals, communications, etc., must be invoiced as expended. Complete and detailed back-up must be supplied with invoices. Per diem charges are not acceptable.

EXHIBIT M
POLB SAMPLE CONSULTING CONTRACT

CONTRACT FOR CONSULTING SERVICES

BETWEEN THE CITY OF LONG BEACH AND

NAME
STREET AND P.O. BOX ADDRESS
CITY, STATE, ZIP
TELEPHONE NO.
FAX NO.

THIS CONTRACT is made and entered into, in duplicate, as of the date executed by the Chief Executive Officer of the Long Beach Harbor Department ("Chief Executive Officer"), by and between the CITY OF LONG BEACH, a municipal corporation, acting by and through its Board of Harbor Commissioners ("City"), pursuant to authority granted by said Board [by its Ordinance No. HD-2159] [at its meeting of [_____, 20__; and [_____], a [_____] corporation ("Consultant").

1. This contract is made with reference to the following facts and objectives:

1.1 City[, from time to time,] has the need for [_____ _____].

1.2 Consultant represents that it has in its employ [licensed and] experienced personnel who are qualified to render these services.

1.3 City wishes to employ Consultant upon the following terms and conditions to render such services as City shall [from time to time] request.

2. Consultant shall provide, in accordance with generally accepted professional and technical standards currently in effect, such services [within the scope of work] as may be requested in writing [from time to time during the term of this contract] by City's Director of [Environmental Planning/Master Planning/Transportation Planning] (the "Director"). [The anticipated scope of work is set forth in the _____ dated _____, attached hereto as

OFFICE OF THE CITY ATTORNEY
DAWN MCINTOSH, City Attorney
411 West Ocean Boulevard, 9th Floor
Long Beach, CA 90802-4664

Exhibit A and incorporated by this reference.]

3. The term of this contract shall [be deemed to have] commence[d] on [_____] and, subject to the provisions of paragraph [_____], shall terminate on [_____].

4. In requesting the services of Consultant, the Director shall identify the project for which such services are requested and shall establish the maximum amount to be charged by Consultant on such project, the time limit within which Consultant is to complete the work, and the charge point to be used by Consultant in billing City. Consultant's charges on any project shall not exceed the maximum amount so established without the express written approval of the Director.

5. Charges made by Consultant for such services shall be based on Consultant's [_____], attached hereto as Exhibit [___] and incorporated by this reference.

6. Consultant shall submit a separate statement not later than the tenth day of each month for [each project upon which] services [which] have been performed during the immediately preceding month, referring in each of said statements to the charge point for such project previously furnished by the Director and detailing the services performed and expenses, if any, incurred. All payments to Consultant shall be made by City in due course, not to exceed thirty (30) days, after approval of invoice by the Director.

7. [Subject to the provisions of subparagraph 7.1,] T[t]he total amount which shall be payable by City to Consultant for Consultant's services[on all projects] during the term of this contract shall not exceed **$_____**.

[7.1 If, during the course of the described services, additional work beyond the scope of services described in Exhibit A is, in the opinion of the Director, required or desired, the Director may authorize such additional work by Consultant; provided that the Director first receives written confirmation from the Harbor Department Risk Manager that no insurance is necessary for the additional work other than the insurance required by paragraph _____ of this contract, and provided

OFFICE OF THE CITY ATTORNEY
DAWN MCINTOSH, City Attorney
411 West Ocean Boulevard, 9th Floor
Long Beach, CA 90802-4664

further, total compensation to be paid hereunder, including compensation for such additional services, shall not exceed $_____.]

8. All designs, sketches, drawings, specifications, data and other information, in whatever form or medium, compiled or prepared by Consultant in performing its services or furnished to Consultant by City shall be the property of City and City shall have the unrestricted right to use or disseminate same without payment of further compensation to Consultant. Copies of Consultant's work product may be retained by Consultant for its own records.

9. All books, accounts, reports, files, correspondence, data, contract information and other records relating to this contract shall be maintained by the Consultant and its subconsultants during the term of this contract and for a period of five years after termination or expiration of this contract and shall be subject at all reasonable times to review, inspection, and audit by the City. Such records shall be produced by the Consultant and/or the subconsultant within a reasonable time at a place designated by the City, upon written notice to the Consultant. Consultant shall allow, and shall require subconsultants to allow, City and its authorized representative(s), auditors, attorneys and accountants, upon twenty-four (24) hour notice to Consultant, full access to inspect and copy all the above books and records at a location within the Southern California area.

10. City shall have the right to terminate this contract at any time upon ten (10) days' written notice to Consultant. If this contract is so terminated prior to the expiration of the term, Consultant shall be paid for those charges which have accrued but not been paid through the effective date of termination. Consultant agrees to accept such amount, plus all amounts previously paid, as full payment and satisfaction of all obligations of City to Consultant.

11. Neither City nor any of its employees shall have any control over the conduct of Consultant, or employees of Consultant, except as herein set forth, and Consultant and employees of Consultant shall not, at any time or in any manner, represent that Consultant or employees of Consultant, or any of them, are the officers, agents, or

OFFICE OF THE CITY ATTORNEY
DAWN MCINTOSH, City Attorney
411 West Ocean Boulevard, 9th Floor
Long Beach, CA 90802-4664

employees of City. It is expressly understood and agreed that Consultant is, and shall at all times remain, as to City a wholly independent contractor, and each party's obligations to the other party are solely such as are set forth in this contract. Consultant shall be free to contract for similar services to be performed for others during this contract. [Consultant acknowledges and agrees that: (i) City will not withhold taxes of any kind from Consultant's compensation; (ii) City will not secure workers' compensation or pay unemployment insurance to, for or on Consultant's behalf; and (iii) City will not provide and Consultant is not entitled to any of the usual and customary rights, benefits or privileges of City employees.]

12. Consultant agrees, subject to applicable laws, rules, and regulations, not to discriminate in the performance of this contract against any employee or applicant for employment on the basis of race, color, national origin, religion, sex, sexual orientation, gender identity, AIDS, HIV status, age, disability, handicap, or veteran status. Consultant shall ensure that applicants are employed and that employees are treated during employment without regard to any of these bases, including but not limited to employment, upgrading, demotion, transfer, recruitment, recruitment advertising, layoff, termination, rates of pay or other forms of compensation, and selection for training, including apprenticeship. Consultant further agrees it shall not discriminate in the provision of employee benefits between employees with spouses and employees with domestic partners, and/or between domestic partners and spouses of such employees in accordance with Long Beach Municipal Code section 2.73. Consultant agrees to post in conspicuous places available to employees and applicants for employment notices to be provided by City setting out the provisions of this nondiscrimination clause. Consultant shall in all solicitations or advertisements for employees state that all qualified applicants will receive consideration for employment without regard to these bases. Compliance with the Americans with Disabilities Act of 1990 shall be the sole responsibility of Consultant, and Consultant shall defend and hold the City harmless from any expense or liability arising from Consultant's non-compliance therewith.

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13. Any notices to be given under this contract shall be given in writing. Such notices may be served by personal delivery, facsimile transmission or by first class regular mail, postage prepaid. Any such notice, when served by mail, shall be effective two (2) calendar days after the date of mailing of the same, and when served by facsimile transmission or personal delivery shall be effective upon receipt. For the purposes hereof, the address of City, and the proper person to receive any such notices on its behalf, is: Chief Executive Officer, Long Beach Harbor Department, P.O. Box 570, Long Beach, California 90801; and the address of Consultant as indicated above.

14. This contract contemplates the personal services of Consultant and its employees, and it is recognized by the parties hereto that a substantial inducement to City for entering into this contract was, and is, the professional reputation and competence of Consultant and its [employees] [key employee _____]. Neither this contract nor any interest therein may be assigned or delegated by Consultant, except upon the prior written consent of the Chief Executive Officer. Assignments include without limitation mergers, conversions, consolidations, divisions, transfers by contract, and transfers by operation of law. Any attempted assignment or delegation without such consent shall be void, and any assignee or delegate shall acquire no right or interest by reason of such attempted assignment or delegation. Furthermore, Consultant shall not subcontract any part of the performance contemplated and provided hereunder, except as specified in this contract, in an amendment hereto, or with the prior written consent of the Director. Before granting any such consent, the Director of Finance shall obtain the concurrence of the Directors of Central Procurement Services and Risk Management to the proposed subcontractor. Nothing herein shall prevent Consultant from employing or hiring as many employees as Consultant may deem necessary for the proper and efficient execution of this contract.

15. Consultant covenants that both itself, in its corporate capacity, and its principals presently have no interest and shall not acquire any interest, direct or indirect, which would conflict in any manner or degree with the performance of services required to

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be performed under this contract.

16. (a) Consultant shall indemnify, protect and hold harmless City, the Board of Harbor Commissioners, and their officials, employees and agents ("Indemnified Parties"), from and against any and all liability, claims, demands, damage, loss, obligations, causes of action, proceedings, awards, fines, judgments, penalties, costs and expenses, including attorneys' fees, court costs, expert and witness fees, and other costs and fees of litigation, arising or alleged to have arisen, in whole or in part, out of or in connection with (1) Consultant's breach or failure to comply with any of its obligations contained in this contract, or (2) negligent or willful acts, errors, omissions or misrepresentations committed by Consultant, its officers, employees, agents, subcontractors, or anyone under Consultant's control, in the performance of work or services under this contract (collectively "Claims" or individually "Claim").

(b) In addition to Consultant's duty to indemnify, Consultant shall have a separate and wholly independent duty to defend Indemnified Parties at Consultant's expense by legal counsel approved by City, from and against all Claims, and shall continue this defense until the Claims are resolved, whether by settlement, judgment or otherwise. No finding or judgment of negligence, fault, breach, or the like on the part of Consultant shall be required for the duty to defend to arise. City shall notify Consultant of any Claim, shall tender the defense of the Claim to Consultant, and shall assist Consultant, as may be reasonably requested, in the defense.

(c) If a court of competent jurisdiction determines that a Claim was caused by the sole negligence or willful misconduct of Indemnified Parties, Consultant's costs of defense and indemnity shall be (1) reimbursed in full if the court determines sole negligence by the Indemnified Parties, or (2) reduced by the percentage of willful misconduct attributed by the court to the Indemnified Parties.

[(d) To the extent this contract is a professional service contract for

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work or services performed by a design professional, such as an architect, landscape architect, professional engineer or professional land surveyor, subject to California Civil Code Section 2782.8, the provisions of this Section regarding Consultant's duty to defend and indemnify shall be limited to apply only to Claims that arise out of, pertain to, or relate to the negligence, recklessness, or willful misconduct of the Consultant.] [INCLUDE ONLY IN CONTRACTS INVOLVING DESIGN SERVICES]

(e) The provisions of this paragraph shall survive the expiration or termination of this contract.

17. As a condition precedent to the effectiveness of this contract, Consultant shall comply with the insurance requirements attached hereto as Exhibit [___].

18. Consultant shall obtain and maintain any necessary licenses and permits required under Title 3 and Title 5 of the Long Beach Municipal Code. City may withhold any payment to Consultant until Consultant comes into compliance with such licensing and permitting requirements.

[19. This contract shall be deemed made in the State of California and shall be governed by the laws of said State (except those provisions of California law dealing with conflicts of law), both as to interpretation and performance.]

20. [This contract may be subject to California Labor Code Sections 1720 et seq. and the requirements of Title 8 of the California Code of Regulations Section 16000 et seq. regarding the payment of prevailing wages on public works projects. Services provided under this contract may be subject to the penalty provisions of the Labor Code (including Sections 1771.1, 1775, 1776, 1777.7, and 1813) and subject to compliance monitoring and enforcement by the State of California Department of Industrial Relations. Consultant is responsible for complying with prevailing wage requirements and must ensure that all subconsultants comply with such requirements, including but not limited to the following requirements:

20.1. Public Works Consultant Registration - Pursuant to Labor Code

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Sections 1725.5. and 1771.1, Consultant and subconsultants shall not engage in the performance of any contract for public work unless currently registered with the Department of Industrial Relations and qualified to perform public work.

20.2. Payment of Prevailing Wages - Pursuant to Labor Code Sections 1771 and 1774, Consultant and all subconsultants of any tier shall not pay less than the general prevailing rate of per diem wages, and the general prevailing rate of holiday and overtime work, in the locality in which the public work is to be performed for each craft, classification or type of workers performing covered work.

20.3. Posting Prevailing Wage Rate Schedules at Jobsite - Pursuant to Labor Code Section 1773.2, Consultant shall post a visible schedule showing all applicable prevailing wage rates of per diem wages at the jobsite. The rate schedules are available from the Director of the Department of Industrial Relations on its website and are on file and available upon request in the office of the Port's Director of Construction Management.

20.4. Certified Payroll Records - Consultant and subconsultants must comply with the payroll record keeping requirements of Labor Code Section 1776, including making payroll records available for inspection by the Port upon request. Pursuant to Labor Code Section 1771.4 and as directed by the Labor Commissioner, Consultant and subconsultants performing prevailing wage work must furnish electronic Certified Payroll Records (eCPRs) directly to the Labor Commissioner as prescribed by the Department of Industrial Relations, unless the project is covered by a qualifying Project Labor Agreement.

20.5. Apprenticeship Requirements - If applicable, pursuant to Labor Code Sections 1777.5 and 1777.6, Consultant and subconsultants must comply with employment of apprentices and training program requirements established by the Department of Industrial Relations - Division of Apprenticeship Standards.]

21. Consultant and its subconsultants shall comply with all applicable Federal, State, and City statutes, regulations, orders, ordinances and policies relating to

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health and safety at the workplace. Consultant and its subconsultants are solely responsible for all costs associated with compliance with this provision.

22. In the event of any conflict or ambiguity between this written agreement and any exhibit hereto, the provisions of this agreement shall govern.

23. This contract shall not be amended, nor any provision or breach hereof waived, except in writing signed by the parties which expressly refers to this contract.

24. This contract, including all exhibits, constitutes the entire understanding between the parties and supersedes all other agreements, oral or written, with respect to the subject matter herein.

25. Counterparts and Electronic Signatures. This contract may be executed in one or more counterparts, each of which shall constitute an original and all of which when taken together shall constitute one agreement. The words "execution," "signed," "signature," and words of like import in this contract shall include images of manually executed signatures transmitted by facsimile or other electronic format (including, without limitation, "pdf," "tif" or "jpg") and other electronic signatures (including, without limitation, DocuSign). The use of electronic signatures herein, or in any amendments to this contract, and any electronic records related to this contract (including, without limitation, any contract or other record created, generated, sent, communicated, received, or stored by electronic means), shall be of the same legal effect, validity and enforceability as a manually executed signature or use of a paper-based record-keeping system to the fullest extent permitted by applicable law, including the Federal Electronic Signatures in Global and National Commerce Act, the California Uniform Electronic Transaction Act, the New York State Electronic Signatures and Records Act and any other applicable law, including, without limitation, any state law based on the Uniform Electronic Transactions Act or the Uniform Commercial Code. Each party hereto hereby agrees that such electronically signed and/or electronically transmitted signatures shall be conclusive proof,

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admissible in judicial proceedings, of such party's execution of this contract. [This paragraph [___] does not apply to the [Bonds required and] [Grant Deed, Easement] identified in paragraph [___] of this contact, the execution and notarization of which shall be done manually.]

[_____]

_____ By: _____
Name: _____
Title: _____

_____ By: _____
Name: _____
Title: _____

CONSULTANT

CITY OF LONG BEACH, a municipal corporation, acting by and through its Board of Harbor Commissioners

_____ By: _____
Mario Cordero
Chief Executive Officer
Long Beach Harbor Department

CITY

The foregoing document is hereby approved as to form.

DAWN MCINTOSH, City Attorney

_____ By: _____
Principal Deputy/Deputy

CMG:WRB:SNL:DST:TYO [date] (#A09-02179 rev 04/29/24)
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EXHIBIT N
POLB CONTRACTOR CERTIFICATION FORM

PORT OF LONG BEACH
CONTRACTOR CERTIFICATION FORM

Purpose & Instructions: The purpose of this form is to ensure that all proposers are aware of POLB's Insurance Requirements, Contract Terms and Conditions, and other general terms of conducting business with POLB. Please initial and date all statements that you agree with. A person who is authorized to bind your organization to the terms of this proposal must sign and date in the space provided below including the individual's name and title. ***This form is to be submitted along with your proposal.***

Project Name: _____

Spec #: _____
(if applicable)

_____ _____
Company Name Main Telephone Number

_____
Street Address

_____
City, State, Zip Code

Insurance Requirements

_____ I understand the insurance requirements for the proposed scope of work. I have discussed the insurance requirements with my insurance carrier and my company will be able to obtain the required insurance if awarded a contract.

Contract Terms and Conditions

_____ I have read the POLB contract template provided and agree to all standard terms and conditions.

_____ I have read the POLB contract template provided and agree to the standard terms and conditions with the exception of what is noted in the space below. **NOTE: Exceptions to the POLB's indemnification and insurance requirements will not considered.**

Explain:

General

_____ I understand the following additional conditions:

- Any information submitted is subject to the Freedom of Information Act (i.e. Public Records Request).
- There is no known conflict of interest that would impair the objectivity of either the firm or POLB staff in carrying out the subject scope of work.
- Any attempt to lobby members of the BHC, City Council, or POLB/COLB staff between the time a solicitation is released until the announcement of contract award, may result in disqualification from the selection process.
- The proposer must be in compliance with the registration requirements of the California Secretary of State and if awarded a contract, be able to obtain a City of Long Beach business license.

My signature below certifies that the statements initialed above are true and correct and I agree that our submitted proposal shall remain valid for the period of time stated in the RFP / RSOQ / RFQ. Furthermore, I understand that POLB is not bound to accept the lowest bid or award a contract for professional service contracts.

_____
Signature

_____
Print Name

_____
Title

_____
Telephone Number

_____
Email Address

EXHIBIT O
POLA AIR MONITORING PROGRAM PROTOCOL

Port of Los Angeles

Air Quality Monitoring Program Monitoring Protocol

January 2024

Prepared by:

leidos

Table of Contents

List of Tables

List of Acronyms

BAM	Beta-Attenuation Monitor
BC	Black Carbon
CAAP	Clean Air Action Plan
CARB	California Air Resources Board
CFR	Code of Federal Regulations
Cl	Chlorine
CO	Carbon Monoxide
DAHS	Data Acquisition and Handling Software
DBS	Database Management System
DOP	Dioctyl Phthalate
DQA	Data Quality Assessment
DRI	Desert Research Institute
EIR	Environmental Impact Report
ESC	Environmental Systems Corporation
FEM	Federal Equivalent Method
FRM	Federal Reference Method
GALP	Good Automated Laboratory Practices
K	Potassium
km	Kilometer
Na	Sodium
ND	Negative Declaration
NH_4	Ammonium
NO_2	Nitrogen Dioxide
NO_3	Nitric Oxide
NPAP	National Performance Audit Program
O&M	Operation & Maintenance
O_3	Ozone
PAH	Polycyclic Aromatic Hydrocarbons
PM_{10}	Particulate Matter with Aerodynamic Diameter less than 10 microns
$PM_{2.5}$	Particulate Matter with Aerodynamic Diameter less than 2.5 microns
POC	Point of Contact
Port	Port of Los Angeles
POLB	Port of Long Beach
QA	Quality Assurance
QAO	Quality Assurance officer
ROI	Region of Influence
SO_2	Sulfur Dioxide
SO_4	Sulfate
SoCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SOP	Standard Operating Procedures
T-API	Teledyne Advanced Pollution Instrumentation
TAHA	Terry A. Hayes & Associates
UFP	Ultrafine Particle
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

The Port of Los Angeles (Port) currently has an air quality monitoring program that includes comprehensive monitoring of ambient particulate matter (PM) and meteorology within its operational region of influence (ROI), as defined in the current monitoring program Work Plan (Port, 2004). The Port expanded the monitoring program in 2008 to include the following:

- Continuous measurement of ambient gaseous pollutants, including: nitrogen dioxide (NO_2), ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2) at four stations.
- Continuous measurement of ambient particulates, including: ultrafine particle (UFP) counts, particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$), and particulate matter less than 10 microns in aerodynamic diameter (PM_{10}) at four stations.

In June 2013, the Port deployed one aethalometer (Magee Scientific Model AE-33) at the Port's Source-Dominated station to measure real-time ambient black carbon (BC) concentrations. BC is the newest air quality parameter measured in the Port's air quality monitoring program. In May 2021, the Port purchased an additional four (4) Magee Scientific Model AE-33 aethalometers for deployment at each of the Port's four (4) air monitoring stations and one (1) backup aethalometer in case any of the aethalometers required factory repair or calibration.

In 2020, the Port began the procurement process to update all the instrumentation (both air quality and meteorological parameters) in their air monitoring program. Due to supply chain issues, the receipt and installation of all instruments at each of the Port's four (4) stations were completed as the instruments were received beginning May 2021 and ending October 2023.

The monitoring stations continue to be located with the Port's ROI at:

(1) Berth 47 in the Outer Harbor area (Coastal Boundary Station),

(2) Terminal Island Treatment Plant in the center of Port operations (Source-Dominated Station),

(3) Berth 87 within the San Pedro community near the intersection of South Harbor Boulevard and 5th Street (San Pedro Community Station), and

(4) St. Peter & Paul School within the Wilmington community (Wilmington Community Station).

The locations of the monitoring stations are shown in Appendix 1, Figure 1.

This document describes the approach used to implement this program, including data collection, processing, and quality assurance (QA) procedures incorporated within the program.

2.0 ENVIRONMENTAL SETTING

2.1 Topography

The Port of Los Angeles is in the Harbor District of the City of Los Angeles in the southwestern portion of the Los Angeles air basin. The basin consists of a broad coastal plain of low relief that slopes gradually seaward (southwest and south) to the Pacific Ocean. The Port harbor is in the southern portion of San Pedro Bay, a natural embayment formed by a westerly protrusion of the coastline and the dominant onshore topographic feature, the Palos Verdes Hills. The topography of the Port is generally flat and slightly undulating.

2.2 Regional Climate and Meteorology

The climate of the Project region is classified as Mediterranean, characterized by warm, rainless summers and mild, wet winters. The major influence on the regional climate is the Eastern Pacific High (a strong persistent area of high atmospheric pressure over the Pacific Ocean), topography, and the moderating effects of the Pacific Ocean. Seasonal variations in the position and strength of the High are a key factor in the weather changes in the area.

The Eastern Pacific High attains its greatest strength and most northerly position during the summer, when the High is centered west of northern California. In this location, the High effectively shelters southern California from the effects of polar storm systems. Large-scale atmospheric subsidence associated with the High produces an elevated temperature inversion along the West Coast. The base of this subsidence inversion is generally from 1,000 to 2,500 feet (300 to 800 meters) above mean sea level (msl) during the summer. Vertical mixing is often limited to the base of the inversion, and air pollutants are trapped in the lower atmosphere. The mountain ranges that surround the Los Angeles Basin constrain the horizontal movement of air and inhibit the dispersion of air pollutants out of the region. These two factors, combined with the air pollution sources of over 15 million people, are responsible for the high pollutant concentrations that can occur in the South Coast Air Basin (SoCAB).

Marine air trapped below the base of the subsidence inversion is often condensed into fog and stratus clouds by the cool Pacific Ocean. This is a typical weather condition in the San Pedro Bay region during the warmer months of the year. Stratus clouds usually form offshore and move into the coastal plains and valleys during the evening hours. When the land heats-up the following morning, the clouds burn-off to the immediate coastline, but often reform again the following evening.

As winter approaches, the Eastern Pacific High begins to weaken and shift to the south, allowing storm systems to pass through the region. The number of days with precipitation varies substantially from year to year, which produces a wide range of variability in annual precipitation totals. The annual precipitation for the Long Beach Airport, approximately 9 miles (14.5 km) northeast of the Project site, has ranged from 2.6 to 27.7 inches (6.6 to 70.4 cm) from 1958 through 2004, with an average of 11.9 inches (30.2 cm) (Western Region Climate Center 2004). About 94 percent of the annual rainfall occurs during the months of November through April, with a monthly

average maximum of 2.9 inches (7.4 cm) in February. This wet-dry seasonal pattern is characteristic of most of California. Infrequent precipitation during the summer months usually occurs from tropical air masses that originate from continental Mexico or tropical storms off the West Coast of Mexico.

The average high and low temperatures at the Long Beach Airport in August are 83°F (28°C) and 64°F (18°C), respectively. January average high and low temperatures are 67°F (19°C) and 46°F (8°C). Extreme high and low temperatures recorded from 1958 through 2004 were 111°F (44°C) and 25°F (-4°C), respectively (Western Region Climate Center 2004). Temperatures in the San Pedro Bay area are generally less extreme than inland regions, due to the moderating effect of the ocean.

The proximity of the Eastern Pacific High and a thermal low-pressure system in the desert interior to the east produce a sea breeze regime that prevails within the Project region for most of the year, particularly during the spring and summer months. Sea breezes at the Port typically increase during the morning hours from the southerly direction and reach a peak in the afternoon as they blow from the southwest. These winds generally subside after sundown. During the warmest months of the year, however, sea breezes could persist well into the nighttime hours. Conversely, during the colder months of the year, northerly land breezes increase by sunset and into the evening hours. Sea breezes transport air pollutants away from the coast and towards the interior regions in the afternoon hours for most of the year.

During the fall and winter months, the Eastern Pacific High can combine with high pressure over the continent to produce light winds and extended inversion conditions in the region. These stagnant atmospheric conditions often result in elevated pollutant concentrations in the SoCAB. Excessive buildup of high pressure in the Great Basin region can produce a “Santa Ana” condition, characterized by warm, dry, northeast winds in the basin and offshore regions. Santa Ana winds often ventilate the SoCAB of air pollutants.

The Palos Verdes Hills have a major influence on wind flow in the Port. For example, during afternoon southwest sea breeze conditions, the Palos Verdes Hills often block this flow and create a zone of lighter winds in the inner Harbor area of the Port. During strong sea breezes, this flow can bend around the north side of the Hills and end up as a northwest breeze in the inner Harbor area. This topographic feature also deflects northeasterly land breezes that flow from the coastal plains to a more northerly direction through the Port.

3.0 AIR MONITORING IN THE PORT AREA

The Port’s system was developed to expand upon other regional air monitoring efforts in the SoCAB, including those conducted by the South Coast Air Quality Management District (SCAQMD), the California Air Resources Board (CARB) and the Port of Long Beach (POLB).

4.0 MONITORING STATION DESIGN AND SPECIFICATION

4.1 Description of the Monitoring Protocol

4.1.1 Data Types

There are essentially three different types of data sets that are collected: (1) real-time pollutant data, (2) filter-based particulate matter data, and (3) meteorological data.

Real-Time Pollutant Data

Real-time data are measured for gaseous pollutants (i.e., NO_X, O_3, CO, and SO_2) using various gaseous analyzers as well as for PM_{10} and $PM_{2.5}$ using beta-attenuation mass (BAM) particulate analyzers. In addition, UFP counts are monitored using TSI Incorporated Model 3783 UFP counters, and BC measurements are conducted using Magee Scientific Model AE-33 aethalometers.

Particulate Matter Filter-based Data

These data include PM_{10} and $PM_{2.5}$ using different types of filters and specially designed equipment to collect particulate matter in specific size ranges. PM_{10} is collected using monitors equipped with a single filter. $PM_{2.5}$ is collected using two methods: single filter monitors and multi-port monitors which use filters constructed of different media (i.e., Teflon and quartz fibers, which permit different analytical techniques in the laboratory). Each of the monitors operates for a specified length of time, typically 24 hours. A technician physically removes the filters from the monitoring equipment on a regular schedule at which time they are stored in a refrigerator until they are sent to a laboratory for analysis. Extra care must be taken when handling and shipping the filters.

Meteorological Data

Meteorological data is collected on a continuous basis using an array of equipment and sensors. Measurement of meteorological parameters does not involve collection of any physical samples.

4.1.2 Sampling and Analysis Methods

Real-Time Pollutant Data

Gaseous NO_2, O_3, CO, and SO_2 concentrations and real-time PM_{10} and $PM_{2.5}$ concentrations are measured using continuous real-time analyzers. In addition, black carbon (BC) concentrations are measured using Magee Scientific Model AE-33 aethalometers and ultrafine particles (UFP) are measured using TSI Model 3783 UFP counters.

PM Filter-Based Samplers

Filter-based particulate matter (PM) concentrations are sampled using either FRMs or FEMs. FRMs are methods of sampling and analyzing the ambient air for an air pollutant or a method that have been designated as a reference method in accordance with 40 CFR Part 50. FEMs are methods of sampling and analyzing the ambient air for an air

pollutant that have been designated as an equivalent method in accordance with 40 CFR Part 53. The FRM sampling methods that are used for PM_{10} and $PM_{2.5}$ under this program are shown below in Table 1.

Table 1. FRM Sampling Methods

Parameter	Federal Reference Method
PM_{10}	40 CFR, part 50, Appendix J
$PM_{2.5}$	40 CFR, part 50, Appendix L

The FEM sampling methods that are used for PM_{10} and $PM_{2.5}$ under this program are shown below in Table 2.

Table 2. FEM Sampling Methods

Parameter	Federal Equivalent Method
PM_{10} BAM Monitors	40 CFR, part 53
$PM_{2.5}$ BAM Monitors	40 CFR, part 53

Data from the Port's monitoring program are used to show comparative compliance relative to PM_{10} and $PM_{2.5}$ standards, and to validate data collected from the BAM and SFS monitors.

While such comparisons are presented, the Port's air monitoring program does not make any representations as to compliance with either National Ambient Air Quality Standards (NAAQS) or California Ambient Air Quality Standards (CAAQS). The U.S. Environmental Protection Agency (USEPA) makes NAAQS compliance determinations with input from state and regional air agencies. The California Air Resources Board (CARB) makes CAAQS compliance determinations.

For the SoCAB, which includes the Los Angeles metropolitan region, the SCAQMD is responsible for operating the air quality monitoring stations used for compliance demonstrations. While the Port's monitoring stations are operated in accordance with the same federal / state regulations and guidelines, the Port's stations are outside the official monitoring network and are not used in any compliance determinations.

Meteorological Data

Meteorological conditions are measured in real-time using various equipment and analyzers. No physical meteorological samples are collected.

4.1.3 Analytical Methods

Real-Time Data

As noted above, real-time measurements of gaseous NO_2, O_3, CO, and SO_2, and PM measurements, including $PM_{2.5}$, PM_{10}, BC, and UFP, are recorded by individual instruments and stored in an onsite computer with a data acquisition and handling software (DAHS), along with the meteorological data.

PM Filter-Based Samplers

Routine laboratory analyses are performed on $PM_{2.5}$ and PM_{10} sample filters for the following constituents:

- Gravimetric mass
- Elemental carbon / organic carbon

Lab analyses of $PM_{2.5}$ and PM_{10} sample filters follow the Standard Operating Procedures (SOPs) developed by the California Air Resources Board (CARB). All analyses are performed by a certified environmental laboratory in accordance with EPA and/or other applicable methods.

The following table lists the SOPs for analyzing various constituents.

Table 3. Particulate Matter Standard Operating Procedures

SOP – Version Number	Standard Operating Procedure Title
055-0.0	Determination of $PM_{2.5}$ Mass in Ambient Air by Gravimetric Analysis
065-1.0	Organic and Elemental Carbon Analysis of Quartz Microfiber Filters

Meteorological Data

Meteorological data are collected using real-time measurements and stored on an onsite computer with a data acquisition and handling software (DAHS).

4.1.4 Description of the Monitoring Equipment

The Port procured new instrumentation and ancillary monitoring hardware for each of the four (4) stations in their monitoring network during 2021 - 2022. All new air quality and meteorological monitoring instrumentation was calibrated by the instrument manufacturer at the factory and tested prior to initial deployment in 2021 - 2023, depending on receipt of each instrument.

The table below lists approximate deployment dates for each category of instrument and hardware:

- Thermo Fisher Model 49iQ: November 2022
- Thermo Fisher Model 48iQ: April 2023
- Thermo Fisher Model 43iQTL: July 2023
- Teledyne API Model N500: October 2023
- Thermo Fisher Model 146iQ: February 2023
- Thermo Fisher Model 111iQ: February 2023
- TSI Model 3783: November 2022
- Magee Scientific Model AE-33: September 2021
- Met One $PM_{2.5}$ BAMs: August 2022
- Met One PM_{10} BAMs: August 2022
- Met One Model 597A: August 2022
- Met One Model 30.5: November 2022
- Data Logger Hardware: August 2022

During September 2022, each of the eight (8) Met One BAMs deployed in the Port's monitoring program underwent an onsite 72-hour Zero Filter Background Test to ensure that an initial background adjustment may be made, if necessary, per manufacturer's specifications.

As of January 2024, each of the Port's four (4) monitoring stations consist of the following equipment listed below:

Wilmington Community Station:

- Thermo Fisher Model 49iQ: O_3 UV Photometric Analyzer
- Thermo Fisher Model 48iQ: CO Gas Filter Correlation Analyzer
- Thermo Fisher Model 43iQTL: SO_2 Pulsed Fluorescent Trace Level Analyzer
- Teledyne API Model N500: CAPS True NO_2-NO_X-NO Analyzer
- Thermo Fisher Model 146iQ: Multi-Gas Calibrator
- Thermo Fisher Model 111iQ: Zero Air Supply
- TSI Model 3783: Ultrafine Particle Counter
- Magee Scientific Model AE-33: Black Carbon Aethalometer
- Calibration Gas: Cylinder blend of SO_2, NOx and CO
- Calibration Gas: Inlet Manifold

- Met One BAM Model 1020: $PM_{2.5}$ Beta-Attenuation Mass Monitor (BAM)
- Met One BAM Model 1020: PM_{10} Beta-Attenuation Mass Monitor (BAM)
- Desert Research Institute (DRI): $PM_{2.5}$ Sequential Filter Samplers (SFS)
- Thermo Model 2000i-AN Partisol-FRM $PM_{2.5}$ Air Sampler 120 VAC
- Thermo Model 2000i-AN Partisol-FRM PM_{10} Air Sampler 120 VAC
- Met One Model 597A: Temperature Humidity Pressure Sensor
- Met One Model 30.5: Industrial Grade Sonic Anemometer (WS/WD)
- Data Collection System: Agilaire Site Node Logger Data Software

San Pedro Community Station:

- Thermo Fisher Model 49iQ: O_3 UV Photometric Analyzer
- Thermo Fisher Model 48iQ: CO Gas Filter Correlation Analyzer
- Thermo Fisher Model 43iQTL: SO_2 Pulsed Fluorescent Trace Level Analyzer
- Teledyne API Model N500: CAPS True NO_2-NO_X-NO Analyzer
- Thermo Fisher Model 146iQ: Multi-Gas Calibrator
- Thermo Fisher Model 111iQ: Zero Air Supply
- TSI Model 3783: Ultrafine Particle Counter
- Magee Scientific Model AE-33: Black Carbon Aethalometer
- Calibration Gas: Cylinder blend of SO_2, NOx and CO
- Calibration Gas: Inlet Manifold
- Met One BAM Model 1020: $PM_{2.5}$ Beta-Attenuation Mass Monitor (BAM)
- Met One BAM Model 1020: PM_{10} Beta-Attenuation Mass Monitor (BAM)
- Desert Research Institute (DRI): $PM_{2.5}$ Sequential Filter Samplers (SFS)
- Met One Model 597A: Temperature Humidity Pressure Sensor
- Met One Model 30.5: Industrial Grade Sonic Anemometer (WS/WD)
- Data Collection System: Agilaire Site Node Logger Data Software

Coastal Boundary Station:

- Thermo Fisher Model 49iQ: O_3 UV Photometric Analyzer
- Thermo Fisher Model 48iQ: CO Gas Filter Correlation Analyzer
- Thermo Fisher Model 43iQTL: SO_2 Pulsed Fluorescent Trace Level Analyzer
- Teledyne API Model N500: CAPS True NO_2-NO_X-NO Analyzer

- Thermo Fisher Model 146iQ: Multi-Gas Calibrator
- Thermo Fisher Model 111iQ: Zero Air Supply
- TSI Model 3783: Ultrafine Particle Counter
- Magee Scientific Model AE-33: Black Carbon Aethalometer
- Calibration Gas: Cylinder blend of SO_2, NOx and CO
- Calibration Gas: Inlet Manifold
- Met One BAM Model 1020: $PM_{2.5}$ Beta-Attenuation Mass Monitor (BAM)
- Met One BAM Model 1020: PM_{10} Beta-Attenuation Mass Monitor (BAM)
- Desert Research Institute (DRI): $PM_{2.5}$ Sequential Filter Samplers (SFS)
- Met One Model 597A: Temperature Humidity Pressure Sensor
- Met One Model 30.5: Industrial Grade Sonic Anemometer (WS/WD)
- Data Collection System: Agilaire Site Node Logger Data Software

Source-Dominated Station:

- Thermo Fisher Model 49iQ: O_3 UV Photometric Analyzer
- Thermo Fisher Model 48iQ: CO Gas Filter Correlation Analyzer
- Thermo Fisher Model 43iQTL: SO_2 Pulsed Fluorescent Trace Level Analyzer
- Teledyne API Model N500: CAPS True NO_2-NO_X-NO Analyzer
- Thermo Fisher Model 146iQ: Multi-Gas Calibrator
- Thermo Fisher Model 111iQ: Zero Air Supply
- TSI Model 3783: Ultrafine Particle Counter
- Magee Scientific Model AE-33: Black Carbon Aethalometer
- Calibration Gas: Cylinder blend of SO_2, NOx and CO
- Calibration Gas: Inlet Manifold
- Met One BAM Model 1020: $PM_{2.5}$ Beta-Attenuation Mass Monitor (BAM)
- Met One BAM Model 1020: PM_{10} Beta-Attenuation Mass Monitor (BAM)
- Desert Research Institute (DRI): $PM_{2.5}$ Sequential Filter Samplers (SFS)
- Met One Model 597A: Temperature Humidity Pressure Sensor
- Met One Model 30.5: Industrial Grade Sonic Anemometer (WS/WD)
- Data Collection System: Agilaire Site Node Logger Data Software

In addition to the instrumentation listed above, the Port maintains at least one (1) spare instrument for each of the air quality parameters listed above. If any instrument in the monitoring program has operational issues requiring a resolution period of greater than 48-hours (e.g. - part order necessary, or factory repair / calibration, etc.), the non-operational instrument will be replaced with a spare instrument within 48-hours to avoid extended periods of missing data. In addition, the operational status of each air quality instrument in the monitoring program will be updated in real-time on the Port's CAAP monitoring website (https://monitoring.cleanairactionplan.org/).

5.0 PROJECT MANAGEMENT

5.1 Project/Task Organization

The development and implementation of the air quality monitoring program requires clearly defined responsibilities and lines of communication. The responsibilities of key project personnel are described below:

Port of Los Angeles Director of Environmental Management

- Responsible for overall project management and policy for the Port.
- Communicates status and any issues to Port executive director and senior management.
- Works with Port project manager and supervisory team to resolve project issues.

Port of Los Angeles Marine Environmental Manager

- Communicates regularly with Director of Environmental Management and project team on monitoring program status.
- Works with Port project manager and supervisor to resolve project issues.

Port of Los Angeles Marine Environmental Supervisor

- Meets weekly with Project Manager on monitoring program status.
- Communicates status and any issues to Marine Environmental Manager.

Port of Los Angeles Project Manager: Ms. Amber Coluso, 310-732-3950

- Primary point of contact at the Port.
- Coordinates decisions made by Port with respect to the monitoring program.
- Work with Leidos program manager (PM) and technical director to resolve project issues.

Leidos Project Manager: Mr. Joel Torcolini, 858-826-2732

- Responsible for overall management and operation of program, including budget and schedule.

- Works with Leidos technical director to resolve technical and program issues.
- Coordinates with Port staff to ensure monitoring program objectives are met.

Leidos Technical Director: Dr. Gary Bertolin, 828-200-0674

- Works with Leidos PM to meet technical and program objectives.
- Works with Leidos operations and maintenance (O&M) manager to ensure the success of the monitoring program.
- Responsible for overall quality assurance (QA) procedures for the monitoring program.

Leidos Field Supervisor: Mr. Daniel Anzelon, 818-515-6883

- Works with Leidos PM and technical director to meet technical and program objectives.
- Responsible for operating and maintaining field sampling equipment, providing instrument troubleshooting, and performing preventative maintenance tasks.

TAHA Operations & Maintenance (O&M) Lead: Mr. Andres Flores, 310-916-4430

- Responsible for day-to-day operations of the monitoring program.
- Works closely with Leidos staff to ensure proper operation of monitoring stations.
- Work with Leidos staff to resolve any project-related technical issues.

5.2 Quality Objectives and Criteria for Measurement Data

All quality objectives and criteria for measurement data are consistent with United States Environmental Protection Agency (USEPA) requirements specified in Title 40 of the Code of Federal Regulations (CFR), Part 58[1] and the USEPA *Quality Assurance Handbook for Air Pollution Measurement Systems*, and the California Air Resources Board (CARB) *Air Monitoring Quality Assurance Manual*.

5.3 Special Training/Certification

Project personnel are trained in the proper use of all equipment and sample handling in accordance with standard operating procedures (SOPs) as presented in Section 4.0.

5.4 Documents and Records

All documentation and records will be retained for 3 years in accordance with 40 CFR Part 31.42. The following documentation for the Port's air quality monitoring program is maintained:

- QA Plan
- SOPs

[1] Denoted as 40 CFR Part 58.

- Field and laboratory notebooks
- Sampling handling/custody records

6.0 DATA GENERATION AND ACQUISITION

6.1 Sampling Process Design

The Port's monitoring stations collect data to provide an indication of ambient air quality and meteorological conditions. The collected data is used to support various studies, response to actions by regulatory agencies regarding air emissions at the Port, and development of environmental documents (e.g., EIRs, NDs). To ensure that the data generation and acquisition are appropriate for these end-uses, the locations of the monitoring stations were selected with consideration of the following four parameters:

1. Identification of the monitoring objective and appropriate data quality objectives
2. Identification of the spatial scale for the monitoring objective
3. Identification of the most appropriate site location
4. Identification of the specific monitoring sites

The following sections describe these four (4) parameters in greater detail.

6.1.1 Monitoring Objectives and Data Quality Objectives

The objective of air quality monitoring program is to provide quantitative data of ambient air quality and meteorological conditions within the Port ROI. The Port's monitoring stations are designed to measure and capture ambient air quality concentrations for gaseous NO_2, O_3, CO, and SO_2, as well as the following particulate matter parameters: UFP, BC, PM_{10} and $PM_{2.5}$. The following meteorological parameters are measured to supplement the air quality concentrations: ambient temperature, relative humidity, wind speed and wind direction.

The data quality objectives are to have accurate and precise data recorded by each monitoring station. To achieve these objectives, the equipment is initially calibrated by the manufacturer. Any future calibrations will be performed according to manufacturer specifications. The equipment is also tested and maintained according to manufacturer specifications. The data is sampled and downloaded on a regular basis and analyzed for errors using appropriate statistical methods. Sampling is conducted using reference or equivalent methods as specified in the USEPA Quality Assurance Handbook. Error analyses are performed using procedures listed in the USEPA Quality Assurance Handbook as well as other appropriate documents.[2] The data is screened for errors prior to any further analysis or calculations in a consistent and appropriate manner. Additional information regarding equipment calibrations, testing, and maintenance are

[2] The procedures listed in the USEPA Handbook include: *Guidance for the Data Quality Assessment Process*, QA/G-9, USEPA, QAD EPA/600/R-96/084, July 1996; Rhodes, R.C., "Guideline on the Meaning and Use of Precision and Accuracy Data Required by 40 CFR Part 58, Appendices A and B", EPA60014-83-023, June 1983; *Selecting Sites for Carbon Monoxide Monitoring*, EPA-450/3-75-077, September 1975; and *Validation of Air Monitoring Data*, USEPA, EPA-600/4-80-030, June 1980.

contained in Sections 6.8, 6.9, and 6.10. Additional information regarding sampling and error analyses are discussed in Sections 4.1.2, 6.5, and 6.6 and 6.7, respectively.

6.1.2 Monitoring Spatial Scales

The Port covers more than 4,000 acres of land. To satisfy the monitoring objectives described in Section 6.1.1, the monitoring spatial scale of the stations has been classified as "Neighborhood," according to the USEPA Quality Assurance Handbook. This classification is appropriate for measuring concentrations within some extended area that has relatively uniform land use with dimensions in the 0.5-to-4.0-kilometer (km) range. This spatial scale allows the Port to obtain data representative of the Port ROI. This spatial scale classification is also appropriate for each of the air pollutants being monitored.

6.1.3 Site Locations

The selection of monitoring site locations at the Port was dependent upon several criteria. These included the following:

1. Economics and resources available for the monitoring effort
2. Representativeness of the location
3. Security of the location
4. Logistics of site access, data collection, etc.
5. Meteorological conditions
6. Geographical variability
7. Pollutant considerations (e.g., ambient concentrations, existing sources, etc.)

6.1.4 Specific Monitoring Sites

At each selected location, the monitoring stations are situated in an area that allows for maximal air flow. Proximity to obstructions, such as trees and fences, can alter air flow. Areas prone to ground dust may also adversely impact measurements. It is important for the air flow around the monitoring stations to be representative of the general air flow in the area to prevent sampling bias. Sampling bias occurs when there is a non-random difference between the conditions of a sample taken at a specific location and the average conditions over the area in which the sample is supposed to represent. The specific monitoring sites are determined to avoid or minimize such sampling bias to the extent feasible.

6.2 Number of Monitoring Stations

There are four monitoring stations in the Port's air quality monitoring program. Three of the stations have custom-built shelters installed to hold all equipment at Berth 47, Berth 87, and the Terminal Island Treatment Plant. The fourth station is installed in a designated spare room at the St. Peter & Paul School.

6.3 Field Procedures

Under this monitoring program, the Port is collecting data for a variety of air pollutants and meteorological parameters. Apart from the filter-based particulate matter samplers, these data will be collected using continuous, real-time analyzers. The filter-based PM samplers will collect physical samples, which require off-site analysis at a laboratory.

This section describes the data collection techniques, responsibilities of the onsite field technicians, and QA measures employed by this air quality monitoring program.

6.3.1 Monitoring Tasks

6.3.1.1 Real-Time Analyzers

Each time the onsite field technicians visit a monitoring station they will perform the following tasks:

- Technicians perform checks on the status of the meteorological monitoring station. Any abnormalities will be reported to Leidos staff.
- Technicians perform checks on the real-time air quality instrumentation, to make sure that all instrumentation is performing to manufacturer's recommendations. Any abnormalities will be reported to Leidos staff.

6.3.1.2 PM Filter-Based Samplers

Each sampling day, the following tasks will be performed by the onsite field technicians upon arrival for the PM filter-based samplers:

1) Technicians conduct routine maintenance service checks on each PM sampler following the procedures outlined in the flowchart in Appendix 1, Figure 3. Final flow rates and elapsed times are recorded on the field datasheets (Appendix 1, Figure 5), filter cartridges are exchanged, and the initial flow rate for the next sampling run is recorded on the field data sheet. A detailed step-by-step checklist for the monitors is provided in Appendix 1, Figure 4.

2) Technicians recover exposed PM_{10} / $PM_{2.5}$ filters and install new filters. Technicians also perform routine maintenance checks on each of the FRM and FEM particulate matter monitors and record any unusual conditions on the field datasheet (Appendix 1, Figure 6). A detailed service schedule for the FRM and FEM monitors is presented in Appendix 1, Figure 7.

3) After every site visit, technicians complete a "Master Monitoring Checklist" (Appendix 1, Figure 2) which summarizes the status of all instruments in the monitoring program. Upon completion, this checklist will be sent to Leidos staff by email to document the status of the monitoring program.

   If there are any problems or issues with the monitoring program, the technicians will call Joel Torcolini or Danny Anzelon (Leidos Points of Contact [POC)] to provide a more detailed update and discussion of the monitoring

program status. Any necessary corrective action will be documented by the Leidos POC via email or in an Instrument Incident Report.

6.3.1.3 Meteorological Data

Each time technicians visit a monitoring station they will check the operation of the meteorological monitoring station. The technician will verify the operation by completing the real-time monitor checklist (Appendix 1, Figure 8).

6.3.2 Sampling Schedule and Frequency

6.3.2.1 Real-Time Analyzers

The real-time analyzers sample on a continuous basis.

6.3.2.2 PM Filter-Based Samplers

The sampling schedule for PM filter-based samplers will follow the EPA's 3-day ($PM_{2.5}$) and 6-day (PM_{10}) monitoring schedule.

6.3.2.3 Meteorological Analyzers

The real-time meteorological instruments sample on a continuous basis.

6.3.3 End of Day Communication

Each day technicians visit the sampling sites, they fill out the Master Monitoring Checklist (Appendix 1, Figure 2) to ensure the proper operation of monitoring equipment on that sampling day. At the end of each sampling day, the Master Monitoring Checklist (MMC) is emailed to Leidos staff where the checklists are electronically archived through duration of the monitoring program.

In addition, technicians verbally (or via electronic text) update Leidos staff at the conclusion of every site visit. The status of all sampling instruments is reviewed daily, and any instrument or sampling problems are discussed in detail. Any necessary corrective actions will be worked out at that time.

At the conclusion of each sampling visit, the technician will call or text Leidos staff to report on the status of the monitoring activities. The primary point of contact at Leidos will be Mr. Joel Torcolini (Leidos PM). If Mr. Torcolini is not available, then Mr. Danny Anzelon Torcolini (Leidos Field Supervisor) is contacted to relay the status of the day's monitoring activities.

Leidos staff can be reached at the following numbers:

Primary Point of Contact:

Mr. Joel Torcolini	Leidos Program Manager
Office:	858-826-2732
Cell:	760-214-0797
Email:	torcolinij@leidos.com

Secondary Point of Contact:

Dr. Gary Bertolin	Leidos Technical Director
Cell:	828-200-0674
Email:	bertoling@leidos.com

Tertiary Point of Contact:

Mr. Danny Anzelon	Leidos Field Supervisor
Cell:	818-515-6883
Email:	daniel.b.anzelon@leidos.com

6.3.4 Shipping PM Filters to the Laboratory

The onsite field technicians are responsible for shipments of samples to the laboratory. Following each site visit, the plastic bag containing the exposed filter cassettes and data sheet are taken back to the storage office and stored in a clean, dry refrigerator. During filter storage, the technicians make copies of all field datasheets, monitoring checklists, and send those copies to Leidos staff at monthly intervals. At the conclusion of each month, the exposed filters are shipped to the designated laboratory for analysis.

6.4 Data Retrieval and Sampling Schedules

Under the Port's monitoring program, real-time and meteorological data are automatically recorded and stored on an onsite computer using a DAHS, while filter-based PM samples are collected manually.

Continuous Pollutant Data

This data type is recorded on an hourly basis and stored on an onsite computer using a DAHS. The raw data is archived on this onsite computer and transmitted to an offsite databased on an hourly basis. This raw database is stored separated before any validation or calculations are performed. Error analyses are performed as specified in the data quality objectives in Section 6.1.1.

Continuous pollutant data is archived in three different manners within the Port's monitoring program. Each station employs AirVision's Site Node Logger (SNL) software that collects and stores data indefinitely from all continuous monitoring equipment at each site. Each station's dataset is transmitted to an offsite computer on an hourly basis to ensure data management on multiple, redundant platforms. AirVision's SNL software remotely polls each of the Port's monitoring stations automatically, transferring the data to a central storage station at Leidos offices in San Diego, CA.

Particulate matter filter-based samplers

The sampling is conducted on a schedule in accordance with 40 CFR Part 58 Section 58.12: PM_{10} concentrations are sampled on the USEPA 6-day monitoring schedule and $PM_{2.5}$ concentrations on the USEPA 3-day monitoring schedule. The USEPA monitoring schedule is shown in Appendix 1, Figure 9. Procedures from the equipment

manufacturer are followed as to how to properly remove the filter. A new filter is installed immediately after safely removing and storing the used filter according to manufacturer procedures.

Meteorological Data

Meteorological data is downloaded and stored similarly to continuous air quality data. The schedule coincides with the established schedule for the continuous pollutant data.

6.5 Sample Handling and Custody

As mentioned in Section 6.3, physical samples are not collected for real-time measurements of gaseous NO_2, O_3, CO, and SO_2 and for real-time particulate matter measurements. Data for real-time measurements are captured through continuous real-time measurement analyzers.

Filter-based samples are collected for PM_{10} and $PM_{2.5}$, using FRM and FEM samplers. A FRM sampler draws ambient air at a constant flow rate into a specially shaped inlet where the suspended particulate matter is inertially separated into one or more size fractions within the proper size range. The particles are collected on a single specially designed filter over a specified time range. This program also uses FEM SFS units for $PM_{2.5}$, which work similarly to an FRM sampler, but have multiple inlets and can accommodate multiple filters.

Particular attention must be paid to the handling of filters for particulate matter (especially $PM_{2.5}$). Handling of these samples will be performed in accordance with the SOPs presented in Section 4.1.3. SOPs are written documents that detail the method for an operation, analysis, or action with thoroughly prescribed techniques and steps and are officially approved as the method for performing certain routine and repetitive tasks. The SOPs provide instructions for removal of the filters, packaging, labeling, storage, and transportation. Transportation SOPs include the protocol for chain of custody documents.

Generally, the handling and shipping of the PM samples are performed by the technician O&M subcontractor, TAHA, with oversight from Leidos staff.

6.6 Analytical Methods

Analytical methods are selected based on what constituents are measured, what measurement uncertainty is tolerable and on the type of equipment in use at the monitoring stations. All laboratory analyses are performed by a certified environmental laboratory in accordance with EPA and/or other applicable methods. Lab analyses are performed on $PM_{2.5}$ and PM_{10} sample filters in accordance with the CARB SOPs presented in Section 4.1.3.

6.7 Quality Control

Quality control refers to the overall system of technical activities that measures the attributes and performance of the monitoring program against defined standards to verify that they meet the stated established objectives. Quality control is both corrective and proactive in establishing techniques to prevent the generation of unacceptable data.

General quality control checks are listed in 40 CFR Part 58 Appendix A. Specific quality control checks are also listed in the FRMs in Section 4.1.2. Applicable checks contained in these regulations are utilized for the Port's monitoring program.

6.8 Instrument/Equipment Calibration and Frequency

The equipment was provided by the manufacturer and calibrated and tested prior to initial operation to ensure the quality of the data. Once the equipment is in full operation, each analyzer is set to automatically perform a zero calibration at 2:00 am each day by pumping zero air into the analyzer. Also, each analyzer is set to automatically perform a span calibration at 2:00 am each day by introducing a known concentration of calibration gas into the analyzer. The calibration data is automatically sent to Leidos via the SNL data acquisition system. Leidos staff review the calibration data and correct any abnormalities by conducting a manual calibration. All the calibration data and related calculations are recorded in a calibration archive.

The equipment calibration documentation must be kept on-site with each analyzer and in a backup file. This documentation includes calibration data, calibration equation(s), analyzer identification, calibration date, analyzer location, calibration standards, identification of calibration equipment, and the person conducting the manual calibration.

6.9 Instrument/Equipment Testing, Inspection, and Maintenance

Inspection and periodic maintenance procedures are followed in accordance with the SOPs contained in Section 4.1.3 and with the equipment manufacturer's instruction manual.

6.10 Inspection/Acceptance of Supplies and Consumables

The management of supplies and consumables is an important aspect of quality assurance. It is important that specifications are prepared for each item and the following should be provided: identity, purity, potency, source, quality and purity tests, purification needs, storage and handling procedures, and replacement dates. All standards and reagents must be maintained, stored, and handled under secure conditions.

The sampling equipment at the Port's monitoring stations require specific consumables and a regularly scheduled maintenance program to ensure quality data is collected by all samplers. The following paragraphs outline the consumables and the regularly scheduled maintenance program employed at the Port monitoring sites.

The main gaseous sampling inlet requires filtering of entrained particulate matter from the sample gas via Teflon filters. These filters operate on a continuous basis for a period of two-weeks before they are replaced for optimum performance.

Daily calibrations are performed for all gaseous instrumentation at the Port's monitoring stations. These calibrations are conducted using a blended calibration gas (SO_2/NO/CO) and a multi-gas calibrator instrument. The multi-gas calibrator is designed to perform calibrations on each individual gaseous component (SO_2, CO, or

NO) by removing the other gaseous components from the single calibration gas stream. To accomplish this, the multi-gas calibrator employs two scrubber assemblies; one containing charcoal to remove SO_2/CO, and a second containing Puri-fill, which scrubs out oxides of nitrogen (i.e., NO, NO_2, NO_x). Per manufacturer specifications, the charcoal and Puri-fill within the scrubber assemblies require replacement on an annual basis. The TAHA field manager changes the charcoal and Puri-fill scrubber assemblies for the multi-gas calibrator during the planned Annual Maintenance.

Analysis of the filter samples for the Port's monitoring stations will be performed under subcontract by the Desert Research Institute (DRI). The weighing, purity, and analysis of the filter particulate matter samples will be conducted in accordance with DRI SOPs. The chain of custody documentation provided by DRI is maintained by the Leidos field supervisor in conjunction with the TAHA technicians supporting the sampling.

The following management activities are recommended for general supplies:

Filters for sampling particulate matter (PM_{10} and $PM_{2.5}$) must meet the acceptance criteria listed below. It is important to use a filter that is compatible with the sampler, based on manufacturer specifications.

- Collection efficiency greater than 99% as measured by Dioctyl Phthalate (DOP) Test (Check in 40 CFR Part 58) test with 0.3 micrometer particles at the sampler's operating face velocity; and
- Alkalinity less than 0.005 milliequivalent/gram of filter following at least 2 months storage at ambient temperature and relative humidity.

A visual inspection for any defects or damages should be made prior to filter installation and during laboratory pre- and post- weightings. The filters are changed on the 6-day and 3-day USEPA schedules for PM_{10} and $PM_{2.5}$, respectively.

6.11 Data Management

Data collected through automated systems must be managed in accordance with the USEPA's Good Automated Laboratory Practices (GALP). Data must be collected and managed to ensure that the data meet the following criteria:

- Reliable
- Easily accessible to a variety of users
- Of known quality

Monitoring data are gathered and stored on an onsite computer using AirVision's Site Node Logger (SNL) software. The SNL software is capable of automatically uploading data to the public website via a data transfer protocol specific to the CAAP website. Leidos implements a variety of daily, weekly, monthly, and semi-annual QA/QC protocols to review the data collected at the Port monitoring stations.

Data quality is maintained for this program using instrument checklists completed for each sampling day, routine project communications between the onsite technicians and Leidos staff, and data review procedures employed during the air quality monitoring

program. Furthermore, data quality and instrument performance is maintained by independent, semi-annual audits.

7.0 ASSESSMENTS AND OVERSIGHT

7.1 Assessments and Response Actions

Assessments are performed to measure the performance and effectiveness of the Port's monitoring program. The following types of assessments are performed: network reviews, performance evaluations, technical systems audits, and data quality assessments. Each assessment is discussed in greater detail in the following sections.

7.2 Network Reviews

Annual network reviews are performed to determine the monitoring network's ability to meet its monitoring objectives. The review determines whether the network should be modified and, if necessary, provides a list of specific modifications, so that the network continues to meet its objectives.

The network reviewer determines the adequacy of the network in accordance with 40 CFR Part 58 Appendix D (Network Design Requirements). In addition, compliance with 40 CFR Part 58 Appendix E (Probe Siting Requirements) are evaluated. In general, the network review can cover the following topics:

- Relocation of monitors
- Siting criteria problems and suggested solutions
- Problems with data submittals and data completeness
- Maintenance and replacement of monitors and related equipment
- QA problems

A written network evaluation is prepared upon completion of the network review. The evaluation includes any deficiencies identified in the review, corrective actions, and a schedule for implementing the corrective actions.

7.3 Performance Evaluations

Annual performance evaluations are performed to verify and evaluate the quality of data from a measurement phase using samples that produce a known effect. These samples can be used to control and evaluate bias, accuracy, and precision.

The Port program undergoes semi-annual Performance Evaluations in accordance with the requirements specified at 40 CFR Part 58 Appendix A, the USEPA Quality Assurance Handbook Volume I (EPA-600-9-76-005) and Volume II (EPA-600/4-77-027a), and applicable USEPA Meteorological Monitoring Guidelines. The evaluations use independent audit analyzers, flow standards, and meteorological audit devices (traceable to NIST standards) to assess monitoring network performance.

The evaluations are performed using a variety of audit systems to generate pollutant concentrations and flowing air streams which are introduced into the sampling system.

The outputs from the sampler that result from the use of the audit system are recorded on a data form and compared to the concentration or flow rate that should have been generated by the audit system under the environmental conditions at the site. The following table lists the acceptance criteria. A description of each criterion is listed in the USEPA Quality Assurance Handbook (Part 1, Section 15).

Table 4. NPAP Acceptance Criteria

Criteria	Federal Reference Method
High Volume/PM_{10}(SSI)	% difference > ± 15% for 1 or more flows
SO_2, NO_2, O_3, and CO	Mean absolute % difference > 15%

While this approach is consistent with Prevention of Significant Deterioration (PSD) requirements and USEPA National Performance Audit Program (NPAP), the Port network is not subject to PSD or NPAP. Participation in the NPAP is required for USEPA and state and local agencies that operate SLAMS, NAMS, PAMS or PSD monitors pursuant to Section 2.4 of 40 CFR Part 58, Appendix A. The Port program is not covered by any of those groups.

7.3.1 Data Quality Assessments

A data quality assessment is the statistical analysis of data to determine whether the quality of data is adequate to support the decisions based on the information. The assessment procedures are described in detail in *Guidance for the Data Quality Assessment Process*, EPA QA/G-9[3]. These assessments will be performed as part of the semi-annual Performance Evaluation.

7.4 Leidos Deliverables and Reports to Port Management

Leidos produces an annual summary report that includes:

- Summaries of the annual period of air quality data.
- Comparison of the annual data set with data from prior years.
- Interpretation of monitoring results.
- Evaluation of specific air quality events, such as elevated air quality concentrations and select onshore/offshore flow patterns.
- Evaluation of source-receptor relationships with the use of onshore / offshore analyses, detailed PM analysis, meteorological data, and advanced modeling techniques
- Estimates of annual DPM concentrations
- Recommendations for modifications to the program sampling / analyses techniques, based upon current program knowledge.

[3] *Guidance for the Data Quality Assessment Process*, QA/G-9, USEPA, QAD EPA/600/R-96/084, July 1996.

QA reports are provided to the Port. The types of reports generated, and the reporting dates are shown below in Table 4. A calendar of the reporting dates for the QA reports are also shown in Appendix 1, Figure 10.

Data review, verification, and validation techniques are used to accept, reject, or qualify data. Data verification is the confirmation that specific requirements and data quality objectives of the monitoring program have been fulfilled whereas data validation is the confirmation that the information obtained from the data meets the requirements for its intended end-use. The following sections discuss in greater detail data review, verification, and validation methods.

7.5 Data Review Methods

Leidos staff perform daily QA/QC review of continuous data collected at the monitoring stations and monthly QA/QC review of the particulate filter analytical results. Leidos staff perform reviews prior to performing any calculations or analyses and, in the case of filter analysis results, prior to uploading such QA'd data to the Port's website.

Data from the continuous instruments (pollutant and meteorological) are subjected to an automated data processing system, where the SNL software is programmed to scan data values for extreme values, outliers, or ranges. The software flags data values to indicate a possible error. In addition to the automated data QA measures, Leidos staff employ other (automated and manual) data processing and QA/QC protocols to complete the required review.

7.6 Data Verification Methods

Methods for verifying the data obtained from the monitoring equipment are included in the SOPs. The SOPs define the method, responsibilities, and frequency for ensuring that the specific requirements and data quality objectives have been fulfilled.

7.7 Data Validation Methods

Methods for validating the data obtained from the monitoring equipment are included in the SOPs. The SOPs shall define the method, responsibilities, and frequency for ensuring that the data meets the requirements for its intended end-use.

Table 5. Reporting Frequency of QA Reports to Management

Type of QA Report to Management	Person(s) Responsible for Report Preparation	Contents	Reporting Dates												
			Jan-24	Feb-24	Mar-24	Apr-24	May-24	Jun-24	Jul-24	Aug-24	Sep-24	Oct-24	Nov-24	Dec-24	Jan-25
Instrument Incident Reports	TAHA: Andres Flores	Description of problem; recommended action required; resolution of problem	X	X	X	X	X	X	X	X	X	X	X	X	X
Control Chart with Summary	TAHA: Andres Flores DRI: Steve Kohl	Repetitive field or lab activity; control limits. Prepare whenever new QA check or calibration are used	X	X	X	X	X	X	X	X	X	X	X	X	X
Annual Summary Report	Leidos: Joel Torcolini and technical staff	Summaries of the annual period of air quality data and evaluation							X						
Annual System Audits	DRI: Steve Kohl	Summary of system audit results; recommendations for action, as needed					X						X		

7.8 Data Quality Assessment

It is important to evaluate the data obtained from the monitoring equipment against the data quality objectives discussed in Section 6.1.1. This evaluation is called the Data Quality Assessment (DQA). The DQA process involves five steps:

1. Review Data Quality Objectives and Sampling Design – data quality objectives should be reviewed to assure that they are still applicable to the overall monitoring program. The data, sampling design, and collection protocol should be reviewed for consistency with the data quality objectives (i.e. tolerable limits, error handling, etc.).
2. Conduct Preliminary Data Review – This step involves the review of QA/QC reports. All QA/QC reports should be reviewed to identify trends, relationships, or anomalies. Basic statistics about the data sets, including graphs of data, may be used to assist in the data review.
3. Select the Statistical Test – Based on the reviews of the data quality objectives, sampling design, and the preliminary data review, a statistical test shall be employed to summarize and analyze the data using the most appropriate methodology. Statistical tests for each pollutant can be found in the associated FRMs listed in Table 1.
4. Verify Assumptions of Statistical Test – Evaluate whether the assumptions are valid for each statistical test performed in the previous step. Assumptions may include those associated with the development of the data quality objectives in addition to the bias and precision assumptions. Data verification should be based on as much data as are available. Refer to Section 18 of the USEPA Quality Assurance Handbook for a sample evaluation.
5. Draw Conclusions from the Data – The performance of the monitoring program, including the data/sampling design and collection protocol, shall be evaluated. The plan should be evaluated against the monitoring and data quality objectives, noting any corrective actions or changes. The results of the statistical tests should reinforce any conclusions.

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Port of Los Angeles

Quality Assurance Plan for the Air Quality Monitoring Program

THE PORT OF LOS ANGELES

January 2024 Update
Initial Report: 2021

Prepared by:

leidos

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List of Tables

List of Acronyms

BAM	Beta-Attenuation Monitor
BC	Black Carbon
CARB	California Air Resources Board
CFR	Code of Federal Regulations
Cl	Chlorine
CO	Carbon Monoxide
DAHS	Data Acquisition and Handling System
DBS	Database Management System
DOP	Dioctyl Phthalate
DQA	Data Quality Assessment
DRI	Desert Research Institute
EIR	Environmental Impact Report
FEM	Federal Equivalent Method
FRM	Federal Reference Method
GALP	Good Automated Laboratory Practices
K	Potassium
km	Kilometer
Na	Sodium
ND	Negative Declaration
NH4	Ammonium
NO_2	Nitrogen Dioxide
NO_3	Nitric Oxide
NPAP	National Performance Audit Program
O&M	Operation & Maintenance
O_3	Ozone
PM_{10}	Particulate Matter with an Aerodynamic Diameter of 10 microns
$PM_{2.5}$	Particulate Matter with an Aerodynamic Diameter of 2.5 microns
Port	Port of Long Beach
QA	Quality Assurance
QAO	Quality Assurance Officer
ROI	Region of Influence
LEIDOS	Leidos, Inc.
SNL	Site Node Logger
SO_2	Sulfur Dioxide
SO_4	Sulfate
SOP	Standard Operating Procedures
TAHA	Terry A. Hayes & Associates
USEPA	United States Environmental Protection Agency
WHW	West Hills Web

1.0 INTRODUCTION

The Port of Los Angeles (Port) has developed a program to collect representative ambient air quality and meteorological data within the Port operational region of influence (ROI). The Port network consists of four (4) monitoring stations which are designed to monitor the following parameters:

- Real-time measurement of ambient air quality concentrations for criteria pollutants: nitrogen dioxide (NO_2), ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter less than 10 microns in aerodynamic diameter (PM_{10}), and particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$).
- Specialized sampling for black carbon (BC) and ultrafine particles (UFPs).
- Filter-based sampling of ambient $PM_{2.5}$ and PM_{10} concentrations.
- Real-time measurement of meteorological parameters, including wind speed, wind direction, ambient temperature, humidity, and barometric pressure.

This document presents the Quality Assurance (QA) plan for the Port's air quality monitoring program.

2.0 PROJECT MANAGEMENT

2.1 Project/Task Organization

The development and implementation of the QA Plan requires clearly defined responsibilities and lines of communication. The responsibilities of key project personnel are described below:

Port of Los Angeles Director of Environmental Management

- Responsible for overall project management and policy for the Port.
- Communicates status and any issues to Port executive director and senior management.
- Works with Port project manager and supervisory team to resolve project issues.

Port of Los Angeles Marine Environmental Manager

- Communicates regularly with Director of Environmental Management and project team on monitoring program status.
- Works with Port project manager and supervisor to resolve project issues.

Port of Los Angeles Marine Environmental Supervisor

- Meets weekly with Project Manager on monitoring program status.
- Communicates status and any issues to Marine Environmental Manager.

Port of Los Angeles Project Manager – Ms. Amber Coluso, 310-732-3950

- Primary point of contact at the Port.
- Coordinates decisions made by the Port with respect to the monitoring program.
- Works with Leidos project manager to resolve any project issues.

Leidos Project Manager – Mr. Joel Torcolini, 760-214-0797

- Responsible for overall management of project, including Port approved budget and schedule.
- Works to ensure Leidos team resolves any technical and project related-issues.

Leidos Technical Director – Dr. Gary Bertolin, 828-200-0674

- Overall responsibility for operation of monitoring program.
- Works with Leidos project manager to meet project objectives.
- Works with Leidos team members (staff from TAHA, DRI and WHW) to ensure the success of the monitoring program.

Leidos Field Supervisor – Mr. Daniel Anzelon, 818-515-6883

- Responsible for day-to-day operations of the monitoring program.
- Works with TAHA technicians to ensure proper operation of monitoring stations.
- Responsible for performing quality assurance (QA) protocols on the air quality and meteorological data on a monthly basis.
- Works with Leidos project manager to resolve any project-related technical issues.

TAHA Operations & Maintenance (O&M) Lead – Mr. Andres Flores, 310-916-4430

- Responsible for coordinating technician support.
- Works with Leidos Project Manager to meet project objectives.
- Responsible for maintaining contact with Leidos project scientist.
- Responsible for shipments of samples to the laboratory.

2.2 Project/Task Description

The QA Plan specifies all quality assurance and quality control (QC) procedures for calibration and operation of the monitoring stations, as well as the air quality and meteorological data. All QA methods are consistent with United States Environmental Protection Agency (USEPA) requirements specified in Title 40 of the Code of Federal Regulations (CFR), Part 58[1] and the USEPA *Quality Assurance Handbook for Air*

[1] Denoted as 40 CFR Part 58.

Pollution Measurement Systems, and the California Air Resources Board (CARB) *Air Monitoring Quality Assurance Manual*.

2.3 Quality Objectives and Criteria for Measurement Data

All quality objectives and criteria for measurement data are consistent with USEPA requirements specified in 40 CFR Part 58 and the USEPA Quality Assurance Handbook, and CARB Quality Assurance Manual.

2.4 Special Training/Certification

Project personnel are trained in the proper use of all equipment and sample handling in accordance with standard operating procedures (SOPs) contained in the Monitoring Plan.

2.5 Documents and Records

All documentation and records are retained for 3 years in accordance with 40 CFR Part 31.42. The following documentation for the Port's air quality monitoring program is maintained:

- QA Plan
- Standard Operating Procedures (SOPs)
- Field and laboratory notebooks located onsite at monitoring stations.
- Sampling handling/custody records for the filter-based PM sampling.

3.0 DATA GENERATION AND ACQUISITION

3.1 Sampling Process Design

The Port's monitoring stations collect data to provide an indication of ambient air quality and meteorological conditions in the San Pedro Bay Ports complex and communities adjacent to the Port-complex. The collected data is used to support various studies, response to actions by regulatory agencies regarding air emissions at the Port, and development of environmental documents (e.g. EIRs, NDs). In order to ensure that the data generation and acquisition are appropriate for these end-uses, the locations of the monitoring stations were selected with consideration of the following four parameters:

1. Identification of monitoring objectives and appropriate data quality objectives
2. Identification of spatial scale for monitoring objectives
3. Identification of most appropriate site locations
4. Identification of specific monitoring sites

The following sections describe these four parameters in greater detail.

3.1.1 Monitoring Objectives and Data Quality Objectives

The objective of the air quality monitoring program is to provide quantitative data of ambient air quality and meteorological in the San Pedro Bay Ports complex and communities adjacent to the Port-complex. The Port's monitoring stations are designed

to measure the ambient air quality concentrations for criteria pollutants, including NO_2, O_3, CO, SO_2, PM_{10}, and $PM_{2.5}$, as well as selected specialized pollutants (BC and UFPs). Meteorological parameters are also measured, such as wind speed, wind direction, ambient temperature, relative humidity, and barometric pressure.

The data quality objectives are to have accurate and precise data recorded by each monitoring station. To achieve these objectives, the equipment is initially calibrated by the manufacturer. Any future calibrations are performed according to manufacturer specifications. The equipment is also tested and maintained according to manufacturer specifications. All air quality and meteorological data is recorded on a regular basis and analyzed for errors using appropriate QA protocols. Sampling is conducted using reference or equivalent methods as specified in the USEPA Quality Assurance Handbook. Error analyses are performed using procedures listed in the USEPA Quality Assurance Handbook as well as other appropriate documents.[2] The data is screened for errors in a consistent and appropriate manner prior to further analysis. Once the QA protocols have been applied to the data, the real-time air quality and meteorological data is uploaded on the Clean Air Action Plan (CAAP) air monitoring website on a monthly basis. Additional information regarding instrument calibrations, testing, and maintenance are contained in Sections 0, 3.10, and 3.11. Additional information regarding sampling and error analyses are discussed in Sections 3.5, 3.6, and 3.7 and in Section 5.0, respectively.

3.1.2 Monitoring Spatial Scales

The Port covers more than 4,300 acres of land. In order to satisfy the monitoring objectives described in Section 3.1.1, the monitoring spatial scale of the stations has been classified as “Neighborhood,” according to the USEPA Quality Assurance Handbook. This classification is appropriate for measuring concentrations within some extended area that has relatively uniform land use with dimensions in the 0.5-to-4.0-kilometer (km) range. This spatial scale allows the Port to obtain data representative of the San Pedro Bay Ports complex and the surrounding neighborhoods. The spatial scale classification is appropriate for each of the air pollutants being monitored.

3.1.3 Site Locations

The selection of monitoring site locations at the Port was dependent upon several criteria. These included the following:

1. Economics and resources available for the monitoring effort
2. Security of the location
3. Logistics of site access, data collection, etc.
4. Meteorological conditions

[2] The procedures listed in the USEPA Handbook include: *Data Quality Assessment: A Reviewer’s Guide*, QA/G-9R, USEPA, EPA/240/B-06/002, February 2006; Rhodes, R.C., “Guideline on the Meaning and Use of Precision and Accuracy Data Required by 40 CFR Part 58, Appendices A and B”, EPA60014-83-023, June 1983; *Selecting Sites for Carbon Monoxide Monitoring*, EPA-450/3-75-077, September 1975; and *Validation of Air Monitoring Data*, USEPA, EPA-600/4-80-030, June 1980.

5. Geographical variability
6. Pollutant considerations (e.g. ambient concentrations, existing sources, etc.)
7. If possible, locate monitors at sites that represent the nearby neighborhoods (San Pedro and Wilmington), the center of Port operations (e.g., on Terminal Island), and an Outer Harbor area.

The locations for the four (4) proposed monitoring stations are discussed in the *POLA Final AQ Monitoring* Plan. The Monitoring Plan analyzed the above criteria and described the specific rationale that was specifically used for site selection.

3.1.4 Specific Monitoring Sites

At each selected location, the monitoring stations have been located in an area that is representative of the ambient air quality environment. Proximity to obstructions, such as trees and fences, can alter air flow, and affect the air quality and meteorological measurements. It is important for the air flow around the monitoring stations to be representative of the general air flow in the area, to prevent sampling bias. Sampling bias occurs when there is a non-random difference between the conditions of a sample taken at a specific location and the average conditions over the area in which the sample is designed to represent. The specific monitoring sites are determined in the Monitoring Plan to avoid or minimize such sampling bias to the extent feasible. The plan takes into consideration the various factors in order to minimize sampling bias.

3.2 Data Types

Under the Port's monitoring program, there are essentially three different types of data sets that are collected: (1) continuous, real-time (hourly) pollutant concentrations, (2) continuous, real-time meteorological data, and (3) integrated, filter-based monitors that measure particulates ($PM_{2.5}$ and PM_{10}) on a 24-hour basis.

Continuous Pollutant Data

Continuous data are obtained for the gaseous pollutants (i.e. NO_2, O_3, CO, and SO_2) using analyzers specifically designed to detect each pollutant. In addition, $PM_{2.5}$ and PM_{10} are measured using beta-attenuation monitors (BAMs). Finally, black carbon (BC) aethalometers and ultrafine particle (UFP) counters are deployed to measure these two parameters, for which there are currently no state or federal ambient air quality standards.

Integrated, Filter-Based Particulate Matter Samplers

Filter-based $PM_{2.5}$ and PM_{10} sampling is conducted using two (2) different types of filters, Teflon and quartz, and specially designed instruments to separate the particulate matter into the appropriate sizes. $PM_{2.5}$ measurements are collected using sequential filter samplers (SFS) with multi-port capability that allows simultaneous PM sampling using both Teflon and quartz filters. The multiple filter sampling approach for $PM_{2.5}$ measurements is due to the types of analyses the Port conducts to measure $PM_{2.5}$ mass (Teflon filter) and elemental carbon (EC), which must be conducted on a quartz filter for laboratory analysis. $PM_{2.5}$ measurements are conducted at all four (4) monitoring stations following the 3-day USEPA $PM_{2.5}$ sampling schedule.

PM_{10} mass measurements are collected using a USEPA Federal Reference Method (FRM) instrument that employs a single, Teflon filter to collect the measurements following the 6-day USEPA PM_{10} sampling schedule.

Each of the filter-based samplers operates for a 24-hour period starting at midnight on each sampling day. After sampling is complete, the Port's air quality technician physically removes the filters from the SFS instrument on a regular schedule. Once the exposed filters are removed from each PM sampler, they are stored in an onsite refrigerator until they are sent to a laboratory (Desert Research Institute) for the appropriate analysis. Extra care must be taken when handling and shipping the filters.

Meteorological Data

Meteorological data is collected on a continuous basis using sonic anemometers (wind speed/direction) and temperature/relative humidity/barometric pressure instruments. Meteorological measurements do not involve collection of any physical samples.

3.3 Monitoring Stations Location and Description

There are four (4) monitoring stations in the Port's air quality monitoring program:

- Wilmington Community Station (33° 46' 43.79" N, 118° 16'10.56" W) - This station is located at the Saints Peter and Paul Elementary School (SPPS) in the City of Wilmington. This station is designed to collect air quality data that are representative of the residential areas of Wilmington. It is centrally located and is approximately 0.5 miles north of Port operations.
- San Pedro Community Station (33° 44' 30" N, 118° 16'44.75" W) - This station is located adjacent to the Promenade walkway along Harbor Drive, across the street from the intersection of Harbor Boulevard and West 3rd Street. This station is designed to collect air quality data that are representative of the residential areas of San Pedro. It is centrally located and is approximately 0.1 mile west of the main ship channel.
- Source-Dominated Station (33° 44' 41.03" N, 118° 15' 40.13" W) - This station is located on Pier 300, at the Terminal Island Treatment Plant (TITP) on 335 Ferry Street. This station is expected to have the highest exposure to emissions from Port operations, as it is in direct proximity to terminal operations which use a large number of diesel engine sources (trucks, trains, ships, and cargo handling equipment). It is also referred to as the "Source-Dominated" station, because of the predominance of on-road and off-road diesel emission sources in the area.
- Coastal Boundary Station (33° 42' 50.58" N, 118° 16' 27.07" W) - This station is located at Berth 47 in the southern end of the Port between the Cabrillo Marina and the San Pedro Breakwater. This location has the least direct exposure to emissions from Port operations.

3.4 Data Retrieval and Sampling Schedules

Under the Port's monitoring program, AQ and meteorological monitoring data is regularly collected and downloaded. Filter-based PM samples are collected following their

respective USEPA sampling schedules and shipped to a laboratory (Desert Research Institute) for the appropriate particulate matter analysis.

Continuous Air Quality Data

This data type is collected and stored by computers located onsite at each monitoring station on an hourly basis. The raw data is safely archived before any QA protocols are applied to the raw and/or any calculations are performed. QA analysis is performed as specified in the data quality objectives in Section 3.1.1.

Continuous AQ data is archived in three (3) different manners within the Port's monitoring program. Each station employs an onsite computer equipped with Agilaire's Site Node Logger (SNL) software to collect and store data from all continuous monitoring instruments at each site. Each stations' onsite computer sends real-time data to the Port's CAAP website on an hourly basis for public display. The real-time AQ data is then stored in an offsite database, which is used to query and display all current and historical monitoring data.

The last methodology for collection, storage and archiving of all continuous and filter-based data is by importing all raw AQ and meteorological monitoring data, manually performing QA protocols on the raw monitoring data, and transferring the QA'd data into a FINAL database file for easy query access and long-term storage/archiving at Leidos' southern California offices. All QA protocols applied to the raw data are performed by trained air quality professionals and reviewed by the Program's QA Officer (Dr. Gary Bertolin).

Particulate matter filter-based samplers

The sampling is conducted on a schedule in accordance with 40 CFR Part 58 Section 58.12 and Appendix D: $PM_{2.5}$ concentrations on the USEPA 3-day monitoring schedule and PM_{10} concentrations are sampled on the USEPA 6-day monitoring schedule. Procedures from the equipment manufacturer are followed as to how to properly remove, handle, and store the exposed PM filters. A new filter is installed according to manufacturer procedures immediately after safely removing and storing the used filter.

Meteorological Data

Continuous meteorological measurements are collected and QA'd similar to the procedures outlined in the continuous AQ data section above. The schedule, collection and QA protocols are applied in a similar manner to the established schedule for the continuous AQ data.

3.5 Sampling and Analysis Methods

The Port's monitoring program uses Federal Reference Methods (FRMs) and Federal Equivalent Methods (FEMs). FRMs are methods of sampling and analyzing the ambient air for an air pollutant or a method that has been designated as a reference method in accordance with 40 CFR Part 50. FEMs are methods of sampling and analyzing the ambient air for an air pollutant that has been designated as an equivalent method in accordance with 40 CFR Part 53. The data from the Port's monitoring program are used for a wide array of applications. Therefore, the sampling methods primarily utilize FRMs

to achieve maximum applicability. The FRM sampling methods that are used are shown below in Table 1 and are incorporated by reference into this document.

Table 1. FRM Sampling Methods

Parameter	Federal Reference Method
NO_2	40 CFR, part 50, Appendix F
O_3	40 CFR, part 50, Appendix D
CO	40 CFR, part 50, Appendix C
SO_2	40 CFR, part 50, Appendix A
PM_{10}	40 CFR, part 50, Appendix J
$PM_{2.5}$	40 CFR, part 50, Appendix L

The FEM sampling methods that are used are shown below in Table 2 and are incorporated by reference into this document.

Table 2. FEM Sampling Methods

Parameter	Federal Equivalent Method
$PM_{2.5}$ Beta Attenuation Mass (BAM) Monitors	40 CFR, part 53
PM_{10} BAM Monitors	40 CFR, part 53
$PM_{2.5}$ Sequential Filter Samplers (SFS)	40 CFR, part 53

3.6 Sample Handling and Custody

As mentioned in Section 3.4, samples are not retained for real-time measurements of gaseous NO_2, O_3, CO, and SO_2 , or for real-time particulate matter measurements (PM_{10}, $PM_{2.5}$, BC and UFP counts). Data for real-time measurements are captured through continuous real-time data collection from each specific analyzer.

Filter-based samples are collected for $PM_{2.5}$ and PM_{10} using FRM and FEM samplers. The FRM samplers draw ambient air at a constant flow rate into a specially shaped inlet where the suspended particulate matter is inertially separated into one or more size fractions within the proper size range. The particles are collected on a single Teflon filter over a specified time range (24-hours). The Port's monitoring program also employs FEM SFS units for $PM_{2.5}$, which work similar to an FRM sampler, but have multiple inlets allowing simultaneous measurements of $PM_{2.5}$ mass and elemental carbon (EC) on separate filters.

Particular attention must be paid to the handling of filters for particulate matter (especially $PM_{2.5}$). Handling of these samples is performed in accordance with the SOPs contained in the Monitoring Plan. SOPs are written documents that detail the method for an

operation, analysis, or action with thoroughly prescribed techniques and steps and are officially approved as the method for performing certain routine and repetitive tasks. The SOPs provide instructions for removal of the filters, packaging, labeling, storage, and transportation. Transportation SOPs include the protocol for chain of custody documents.

Generally, the handling and shipping of the particulate matter samples are performed by the O&M subcontractor, TAHA, with oversight from Leidos staff.

3.7 Analytical Methods

Analytical methods are selected based on the constituents to be measured, the tolerable measurement uncertainty, and on the type of equipment in use at the monitoring stations. All laboratory analyses are performed by a certified environmental laboratory in accordance with EPA and/or other applicable methods.

Lab analyses are performed on $PM_{2.5}$ and PM_{10} sample filters in accordance with the following CARB SOPs:

- SOP 055-0.0: Determination of $PM_{2.5}$ Mass in Ambient Air by Gravimetric Analysis
- SOP 065-1.0: Organic and Elemental Carbon Analysis of Exposed Quartz Microfiber Filters

For occasional special monitoring studies, filter-based PM samples may undergo detailed analysis such as the methods noted below:

- SOP 034-2.0: Determination of Elemental Concentrations in Ambient Air by Energy-Dispersive X-Ray Fluorescent Spectroscopy
- SOP 064-0.0: Analysis of Anions and Cations in $PM_{2.5}$ Speciation Samples by Ion Chromatography

3.8 Quality Control

Quality control refers to the overall system of technical activities that measures the attributes and performance of the Monitoring Plan against defined standards to verify that they meet the stated established objectives. Quality control is both corrective and proactive in establishing techniques to prevent the generation of unacceptable data. General quality control checks are listed in 40 CFR Part 58 Appendix A. Specific quality control checks are also listed in the FRMs in Section 3.5. Applicable checks contained in these regulations are utilized for the Port's monitoring program.

3.9 Monitoring Station Instrument Inventory

Each of the four (4) monitoring stations consists of the equipment listed below:

Monitoring Station Instruments:

- Thermo Fisher Model 49iQ: O_3 UV Photometric Analyzer
- Thermo Fisher Model 48iQ: CO Gas Filter Correlation Analyzer
- Thermo Fisher Model 43iQTL: SO_2 Pulsed Fluorescent Trace Level Analyzer
- Teledyne API Model N500: CAPS True NO_2-NO_X-NO Analyzer
- Thermo Fisher Model 146iQ: Multi-Gas Calibrator
- Thermo Fisher Model 111iQ: Zero Air Supply
- TSI Model 3783: Ultrafine Particle Counter
- Magee Scientific Model AE-33: Black Carbon Aethalometer
- Met One BAM Model 1020: $PM_{2.5}$ Beta-Attenuation Mass Monitor (BAM)
- Met One BAM Model 1020: PM_{10} Beta-Attenuation Mass Monitor (BAM)
- Met One Model 597A: Temperature Humidity Pressure Sensor
- Met One Model 30.5: Industrial Grade Sonic Anemometer (WS/WD)
- Data Collection System: Agilaire Site Node Logger Data Software

The Port procured new instrumentation and ancillary monitoring hardware for each of the four (4) stations in their monitoring network during 2021 - 2022. All new air quality and meteorological monitoring instrumentation was calibrated by the instrument manufacturer at the factory and tested prior to initial deployment in 2021 - 2023, depending on receipt of each instrument.

The table below lists approximate deployment dates for each category of instrument and hardware:

- Thermo Fisher Model 49iQ: November 2022
- Thermo Fisher Model 48iQ: April 2023
- Thermo Fisher Model 43iQTL: July 2023
- Teledyne API Model N500: October 2023
- Thermo Fisher Model 146iQ: February 2023
- Thermo Fisher Model 111iQ: February 2023
- TSI Model 3783: November 2022
- Magee Scientific Model AE-33: September 2021
- Met One $PM_{2.5}$ BAMs: August 2022

- Met One PM_{10} BAMs: August 2022
- Met One Model 597A: August 2022
- Met One Model 30.5: November 2022
- Data Logger Hardware: August 2022

During September 2022, each of the eight (8) Met One BAMs deployed in the Port's monitoring program underwent an onsite 72-hour Zero Filter Background Test to ensure that an initial background adjustment may be made, if necessary, per manufacturer's specifications.

3.10 Instrument/Equipment Testing, Inspection, and Maintenance

Inspection and periodic maintenance procedures are followed in accordance with the SOPs contained in the Monitoring Plan and with each equipment manufacturer's instruction manual(s). Following EPA's guidelines, all of the gaseous criteria pollutant analyzers undergo automatic zero and span (80% full value) calibrations on a daily basis at 2AM to verify that each gaseous instrument's performance continues to meet the manufacturer and EPA monitoring standards.

If any problems are identified during these daily calibrations, the TAHA technician and/or Leidos field supervisor visits the station to provide a follow-up investigation to ensure that the instrument is performing according to the manufacturer's specifications. In addition, each instrument's calibration results are transmitted in real-time (via email) to Leidos AQ monitoring staff, where they are reviewed on a daily basis. If any problems or questions arise with the calibration results or instrument operation, the TAHA technician is dispatched to provide a follow-up investigation. In this manner, the operation of the station is maintained at peak efficiency.

If any instrument in the Port's monitoring program has operational issues that require a resolution period of greater than 48-hours (e.g. – require a part order, or factory repair / calibration, etc.), the non-operational instrument will be replaced with a spare instrument within 48-hours to avoid extended periods of missing data. In addition, the operational status of each air quality instrument in the monitoring program will be updated in real-time on the Port's CAAP monitoring website (https://monitoring.cleanairactionplan.org/).

Leidos also established a Preventative Maintenance (PM) schedule for all of the instruments at the Port. This PM schedule is vital to the success of the Program and in maintaining the instruments at optimum performance. The PM schedule has been developed through review of each instrument manufacturer's maintenance schedule and Leidos staff's historical experience on maintenance of each individual instrument.

For example, there are some parts in various instruments that the manufacturer recommends for annual replacement. Leidos has a specific date in the PM schedule for replacement of these parts and maintains a supply of spare parts on hand that are used during these periodic replacements. This proactive approach maximizes instrument performance, minimizes instrument downtime, and ensures that data recovery is maintained as high as possible.

As another example of Leidos' proactive approach to station maintenance, we perform periodic flow checks, leak tests, and nozzle and vane cleaning per the manufacturer's recommendations. We also perform annual field zero background tests to ensure that the instruments are performing well, and that the data are valid.

In order to adhere to the highest standard of data collection, all maintenance activities are to be electronically documented, emailed via PDF files, and electronically archived on Leidos' servers. Information that needs to be recorded includes - date, station, description of the service activity, and start / completion times of service activity. Following this PM schedule helps to ensure the equipment is operating according to the manufacturer's guidelines.

3.11 Inspection/Acceptance of Supplies and Consumables

Management of supplies and consumables is an important aspect of the QA program. It is important that specifications are prepared for each item and the following should be provided: identity, purity, potency, source, quality and purity tests, purification needs, storage and handling procedures, and replacement dates. All standards and reagents must be maintained, stored, and handled under secure conditions.

The sampling equipment at the Port's monitoring stations require specific consumables and a regularly scheduled maintenance program to ensure quality data is collected by all samplers. The following paragraphs outline the consumables and regularly scheduled maintenance program employed at the Port's four (4) monitoring sites.

Each gaseous instrument's sampling inlet requires filtering of entrained particulate matter from the sample gas via 47-millimeter (mm) Teflon filters. These filters operate on a continuous basis for a period of two-weeks before they are replaced for optimum performance.

Daily calibrations are performed for all gaseous instrumentation at the Port's monitoring stations. These calibrations are conducted using a blended calibration gas (SO_2/NO_2/CO) and a multigas calibrator instrument. The multigas calibrator is designed to perform calibrations on each individual gaseous component (SO_2, NO_2 or CO) by removing the other gaseous components from the single calibration gas stream. To accomplish this, the multigas calibrator employs two scrubber assemblies; one containing charcoal to remove SO_2/CO, and a second containing Puri-fill, which scrubs out oxides of nitrogen (i.e., NO, NO_2, NO_x). Per manufacturer specifications, the charcoal and Puri-fill within the scrubber assemblies require replacement on a semi-annual basis. The Leidos O&M lead will change the charcoal and Puri-fill scrubber assemblies for the multigas calibrator at a six-month interval.

Analysis of the filter samples for the Port's monitoring stations are performed under subcontract by the Desert Research Institute (DRI). The weighing, purity, and analysis of the filter particulate matter samples are conducted in accordance with DRI SOPs. The chain of custody documentation provided by DRI is maintained by the Leidos O&M lead in conjunction with the TAHA technicians supporting the sampling.

The following management activities are recommended for general supplies:

Filters for sampling particulate matter ($PM_{2.5}$ and PM_{10}) must meet the acceptance criteria listed below. It is important to use a filter that is compatible with the sampler, based on manufacturer specifications.

- Collection efficiency greater than 99% as measured by Dioctyl Phthalate (DOP) Test (Check in 40 CFR Part 58) test with 0.3 micrometer particles at the sampler's operating face velocity; and
- Alkalinity less than 0.005 milliequivalent/gram of filter following at least 2 months storage at ambient temperature and relative humidity.

A visual inspection for any defects or damage should be made prior to filter installation and during laboratory pre- and post-weightings. The filters are changed on the 3-day and 6-day USEPA schedules for $PM_{2.5}$ and PM_{10}, respectively.

3.12 Data Management

Data collected through automated systems must be managed in accordance with the USEPA's Good Automated Laboratory Practices (GALP). Data must be collected and managed to ensure that the data meet the following criteria:

- Reliable
- Easily accessible to a variety of users
- Of known quality

All real-time monitoring data are collected and stored on a centralized database on each monitoring station's onsite computer using Agilaire's Site Node Logger software. The Site Node Logger software is configured to automatically (on an hourly basis) transmit the hourly data collected at each station to the CAAP website, developed and hosted by subcontractor West Hills Web (WHW). Leidos staff perform monthly QA/QC review of all real-time air quality and meteorological monitoring data collected at the Port monitoring stations. After QA review, Leidos staff uploads the QA'd real-time data to the Clean Air Action Plan (CAAP) website on monthly basis to ensure the most representative monitoring data is provided for public consumption.

Data quality is maintained on this program by daily data checks completed each sampling day by Leidos staff, instrument checks by the TAHA technician during site visits for the 3-day EPA filter-based sampling schedule, daily project communications between the TAHA onsite technician and Leidos program management staff, and data review by multiple Leidos staff (Leidos PM, Technical QA officer, and O&M Lead).

Further, data quality assurance is provided though an independent, semi-annual audit on each air quality and meteorological monitoring instrument in the Port's network. This ensures an independent measure of instrument performance through evaluation of performance versus manufacturer and USEPA guidelines. The semi-annual audits are performed by qualified technicians at the Desert Research Institute. Semi-annual audit reports are promptly provided to Leidos the program manager after each audit to ensure any corrective actions required are addressed in a timely manner.

See Section 4.3 for additional details on the semi-annual audit process.

4.0 ASSESSMENTS AND OVERSIGHT

4.1 Assessments and Response Actions

Assessments are performed to measure the performance and effectiveness of the Port's monitoring program. The following types of assessments are performed: network reviews, performance evaluations, technical systems audits, and data quality assessments. Each assessment is discussed in greater detail in the following sections.

4.2 Network Reviews

Quarterly network reviews are performed through consultation with Port staff and the Leidos program manager to determine the network's ability to meet its monitoring objectives. Leidos' communication generally provides Port staff with information on instrument performance, instrument issues, and consultation on whether the network may require modification or repair. If necessary, Leidos will provide Port staff with a list of specific modifications, timelines, and cost to Port staff so that the Port's objectives can continue to be met by the monitoring network.

Leidos staff determine the adequacy of the network in accordance with 40 CFR Part 58 Appendix D (Network Design Requirements). In addition, compliance with 40 CFR Part 58 Appendix E (Instrument Siting Requirements) are evaluated. In general, the network review can cover the following topics:

- Instrument performance, issues and suggested solutions
- Problems with data submittals and data completeness
- Maintenance and replacement of monitors and related equipment
- Data communications issues, and/or QA problems
- Funding

This is generally an ongoing process by Leidos staff, where network evaluation and recommendations are provided to Port staff upon completion of network review. The evaluation includes any deficiencies identified in the review, corrective actions, and a schedule for implementing the corrective actions.

4.3 Performance Evaluations

Independent, semi-annual audit performance evaluations are performed to verify and evaluate the quality of data from a measurement phase through the use of samples that produce a known effect. These samples can be used to control and evaluate bias, accuracy, and precision.

The Port program utilizes semi-annual Performance Evaluations performed in accordance with the requirements specified at 40 CFR Part 58 Appendix A, the USEPA Quality Assurance Handbook for Pollution Measurement Systems Volume I (EPA-600/R-94/038a) and Volume II, and applicable USEPA Meteorological Monitoring Guidelines. The evaluations use independent audit analyzers, flow standards, and meteorological audit devices that are traceable to NIST standards to assess the performance of the monitoring network.

The evaluations are performed using a variety of audit systems to generate pollutant concentrations and flowing air streams which are introduced into the sampling system. The outputs from the sampler that result from the use of the audit system are recorded on a data form and compared to the concentration or flow rate that should have been generated by the audit system under the environmental conditions at the site. The following table lists the acceptance criteria. A description of each criterion is listed in the USEPA Quality Assurance Handbook (Volume II, Section 15).

Table 3. NPAP Acceptance Criteria

Criteria	Federal Reference Method
High Volume/PM_{10} (SSI)	% difference ≤ 15% for 1 or more flows
Dichot (PM_{10})	% difference ≤ 15% for 1 or more flows
SO_2, NO_2, and CO	Mean absolute % difference ≤ 15%
O_3	Mean absolute % difference ≤ 10%

While this approach is consistent with Prevention of Significant Deterioration (PSD) requirements and the USEPA National Performance Audit Program (NPAP), ***the Port network is not subject to PSD or the NPAP***. Participation in the NPAP is required for USEPA and state and local agencies that operate SLAMS, NAMS, PAMS or PSD monitors pursuant to Section 2.4 of 40 CFR Part 58, Appendix A. The Port program is not covered by any of those groups and is applying this approach as a best practice.

4.3.1 Data Quality Assessments

A data quality assessment is the statistical analysis of data to determine whether the quality of data is adequate to support the decisions based on the information. The assessment procedures are described in detail in *Data Quality Assessment: A Reviewers Guide,* EPA QA/G-9R[3]. These assessments will be performed as part of the semi-annual Performance Evaluation.

5.0 DATA REVIEW, VERIFICATION, AND VALIDATION

Data review, verification, and validation techniques are used to accept, reject, or qualify data. Data verification is the confirmation that specific requirements and data quality objectives of the Monitoring Plan have been fulfilled whereas data validation is the confirmation that the information obtained from the data meets the requirements for its intended end-use. The following sections discuss in greater detail data review, verification, and validation methods.

[3] *Data Quality Assessment: A Reviewers Guide*, QA/G-9R, USEPA, EPA/240/B-06/002, February 2006.

5.1 Data Review Methods

Leidos performs monthly QA/QC review of continuous data collected at the monitoring stations and the quarterly QA/QC review of the particulate filter results, as the analytical results are received by Leidos from DRI staff (generally on a quarterly basis). Leidos performs the reviews prior to data archiving, performing any analyses, fulfilling any public-data requests and, in the case of filter analysis results, prior to uploading such data to the Port's website.

Data from continuous instruments (pollutant and meteorological) are subjected to an automated data processing system in the Site Node Logger software, where data logging software is programmed to scan the raw data for data outliers. The program flags data values to indicate a possible error(s). This automated data processing is helpful to ensure that non-representative data is not transmitted to the CAAP website.

5.2 Data Verification Methods

The methods for verifying the data obtained from the monitoring equipment are included in the SOPs. The SOPs define the method, responsibilities, and frequency for ensuring that the specific requirements and data quality objectives of the Monitoring Plan have been fulfilled.

5.3 Data Validation Methods

The methods for validating the data obtained from the monitoring equipment are included in the SOPs. The SOPs define the method, responsibilities, and frequency for ensuring that the data meets the requirements for its intended end-use.

5.4 Data Quality Assessment

It is important to evaluate the data obtained from the monitoring instrumentation against the data quality objectives discussed in Section 3.1.1. This evaluation is called the Quality Assessment (QA) process. The QA process involves five steps:

1. Collection of Raw Data - The collection of real-time air quality and meteorological data must initially fall within the ranges specified by the automated data processing system in the Site Node Logger software. Each instrument has data quality ranges programmed to assure that non-representative data (i.e. - negative concentrations, full-scale values, etc.) are flagged and not reported to the CAAP website. In certain instances, this raw data may still be applicable to the overall monitoring program as the data may be corrected (i.e. - incorrect background set, calibration adjustment, etc.). This data is stored in raw format to ensure QA protocols are well-documented and raw data is available in troubleshooting steps. Data collection protocols are continuously reviewed for consistency with the data quality objectives (i.e. tolerable limits, error handling, etc.).
2. Conduct Preliminary Data Review - This step is performed by Leidos staff on a daily basis through checks of daily instrument reports and daily calibration results for the gaseous instruments. All QA/QC reports are reviewed to identify trends, determine any relationships between similar data from nearby regulatory agency monitors, or data anomalies based on historical trends or unusual events. Basic

assessment of the hourly data sets, including graphs of data, is used to assist the data review.

3. Adjustment of Raw Monitoring Data - Based on EPA QA protocols, instrument calibration results, known instrument performance, and/or data quality assessment versus other monitoring stations' data (both other Port stations and regulatory agency stations' data), Leidos' qualified air quality professionals may make adjustment to, or potentially exclude, specific data points in the raw monitoring data, if necessary. This QA analysis is performed using USEPA methodologies and protocols to ensure the most representative air quality and meteorological data is available for research analysis and public consumption via the CAAP website.
4. Transmission of QA'd Data to CAAP Website - On a monthly basis, all real-time air quality and meteorological data that have undergone the QA protocols are uploaded to the CAAP website to ensure the most accurate data is available for public consumption. On a quarterly basis, all filter-based PM measurements are uploaded to the CAAP website reporting monthly and annual results for EC, $PM_{2.5}$ mass and PM_{10} mass analyzed by the Desert Research Institute.
5. Data Archiving - All real-time and filter-based monitoring data are archived on a monthly (real-time) and quarterly (filter-based PM) basis for long-term storage and any public data requests.
6. Annual Data Reporting - On an annual basis, the Port provides a monitoring report detailing the monitoring program's results for the prior monitoring year. Evaluation of data results compared to California and National Ambient Air Quality Standards are provided, as well as trend analysis over the program's period of record.

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EXHIBIT Q
POLB AIR MONITORING PLAN

Port of Long Beach
Port Air Quality Monitoring Plan

Port of Long Beach

Air Quality Monitoring Plan

Prepared For:

Port of LONG BEACH
The Green Port

Prepared by:

SAIC
From Science to Solutions

November 2010 Update

Table of Contents

Appendices

LIST OF ACRONYMS

BAM	Beta Attenuation Monitor
CARB	California Air Resources Board
CFR	Code of Federal Regulations
Cl	Chlorine
CO	Carbon Monoxide
DAHS	Data Acquisition and Handling System
DRI	Desert Research Institute
EC	Elemental Carbon
FEM	Federal Equivalent Method
FRM	Federal Reference Method
GALP	Good Automated Laboratory Practices
K	Potassium
Na	Sodium
NH_4	Ammonium
NO_2	Nitrogen Dioxide
NO_3	Nitric oxide
O_3	Ozone
OC	Organic Carbon
O&M	Operations and Maintenance
MMC	Master Monitoring Checklist
PM	Particulate Matter
$PM_{2.5}$	Particulate Matter Less than 2.5 microns in aerodynamic diameter
PM_{10}	Particulate Matter Less than 10 microns in aerodynamic diameter
POC	Point of Contact
POLB	Port of Long Beach
Port	Port of Long Beach
PPM	Parts per million
PAH	Polycyclic Aromatic Hydrocarbon
QA	Quality Assurance
ROI	Region of Influence
SCAB	South Coast Air Basin
SCAQMD	South Coast Air Quality Management District
SFS	Sequential Filter Samplers
SO_2	Sulfur Dioxide
SO_4	Sulfate
SOP	Standard Operating Procedures
USEPA	United States Environmental Protection Agency

1. INTRODUCTION

The Port of Long Beach (Port) has a program in place to collect representative ambient air quality and meteorological data within the Port operational region of influence (ROI). The Port operates two monitoring stations which are designed to monitor the following parameters:

- Real-time measurement of ambient air quality concentrations for nitrogen dioxide (NO_2), ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter less than 10 microns in aerodynamic diameter (PM_{10}), and particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$).
- Sampling for filter-based analysis of ambient PM_{10} and $PM_{2.5}$ concentrations.
- Real-time measurement of meteorological parameters, including wind direction, wind speed, ambient temperature, humidity, and barometric pressure, precipitation, and solar radiation.

The monitoring program began with the continuous monitoring of PM, gaseous criteria pollutants, and meteorological parameters at both monitoring sites on October 1, 2006. The collection of filter-based samples from both of these sites started shortly thereafter, in November 2006. The data from both of the Port's monitoring sites are regularly compared to the nearby South Coast Air Quality Management District (SCAQMD) monitoring sites located on Pacific Coast Highway in central Long Beach, and on Long Beach Boulevard in north Long Beach (PCH and NLB, respectively).

This Air Quality Monitoring Plan presents an overview of the design of the ambient air quality and meteorological monitoring stations, including the specifications for all of the monitoring equipment, calibration systems, and flow recorders. The design also specifies the locations for probes and samplers in a manner consistent with 40 CFR 58 and the U.S. Environmental Protection Agency's (USEPA) Quality Assurance Handbook for Air Pollution Measurement Systems.

In developing this monitoring plan, Port staff and their consultants referenced different information sources including USEPA and California Air Resources Board (CARB) guidance documents, local agencies, and information from similar monitoring projects. The Port has also consulted the SCAQMD and CARB on the components of the proposed monitoring program.

This monitoring plan was originally published in March 2008.

2. ENVIRONMENTAL SETTING

2.1. Topography

The Port of Long Beach is located in the southwestern portion of the Los Angeles Basin. The basin consists of a broad coastal plain of low relief that slopes gradually seaward (southwest and south) to the Pacific Ocean. The Port harbor is located in the southern portion of San Pedro Bay, a natural embayment formed by a westerly protrusion of the coastline and the dominant onshore topographic feature, the Palos Verdes Hills. Located approximately 3.5 miles west and northwest of Long Beach Harbor, the hills form an uplifted, terraced peninsula approximately 1,400 feet high. The topography of

the Port is generally flat and slightly undulating, but overall slopes gently to the south-southeast, toward the Cerritos Channel and Channel Two.

2.2. Land Use

The Port of Long Beach Master Plan divides the region into 10 planning areas, or Districts, based on land and water area configurations and physical constraints. The designation of Districts is intended to consolidate similar and compatible land and water uses, encourage maximum use of existing Port facilities, increase cargo handling efficiency, promote joint use of terminals by multiple companies, and isolate hazardous cargo uses. The planning goals for each district are guidelines for long-term development.

2.3. Local and Regional Climate

The climate of the project region is classified as Mediterranean, which is characterized by cool, dry summers and mild winters. The major influences on the regional climate are the Eastern Pacific High, a strong, persistent high-pressure system, and the moderating effects of the Pacific Ocean. Seasonal variations in the position and strength of the Eastern Pacific High are a key factor in the weather changes in the area.

The Eastern Pacific High attains its greatest strength and most northerly position during the summer, when it is centered west of northern California. In this location, the High effectively shelters southern California from the effects of storm systems. Large-scale atmospheric subsidence associated with the High produces an elevated temperature inversion along the West Coast. The base of this subsidence inversion is generally from 300 to 800 meters (1,000 to 2,500 feet) above mean sea level during the summer. Vertical mixing is often limited to the base of the inversion and air pollutants are trapped in the lower atmosphere. The mountain ranges that surround the SCAB constrain the horizontal movement of air and also inhibit the dispersion of air pollutants out of the region. These two factors, combined with the air pollution sources of over 15 million people, are responsible for the high pollutant conditions that can occur in the SCAB.

Marine air trapped below the base of the subsidence inversion is often condensed into fog and stratus clouds by the cool Pacific Ocean. This is a typical weather condition in the San Pedro Bay region during the warmer months of the year. Stratus clouds usually form offshore and move into the coastal plains and valleys during the evening hours. When the land heats-up the following morning, the clouds burn-off to the immediate coastline, but often reform again the following evening.

As winter approaches, the Eastern Pacific High begins to weaken and shift to the south, allowing storm systems to pass through the region. The number of days with precipitation varies substantially from year to year, which produces a wide range of variability in annual precipitation totals. The annual precipitation for the Long Beach Airport, approximately 6 miles northeast of the project site, has ranged from 3.0 to 27.7 inches from 1958 through 2003, with an average of 11.9 inches (Western Regional Climate Center 2004). About 94 percent of the annual rainfall occurs during the months of November through April, with a monthly average maximum of 2.9 inches in February. This wet-dry seasonal pattern is characteristic of most of California. Infrequent

precipitation during the summer months usually occurs from tropical air masses that originate from continental Mexico or tropical storms off the West Coast of Mexico.

The average high and low temperatures at the Long Beach Airport in August are 84°F and 65°F, respectively. January average high and low temperatures are 67 °F and 46 °F. Extreme high and low temperatures recorded from 1951 through 1993 were 111 °F and 25 °F, respectively (Western Regional Climate Center 2004). Temperatures in the San Pedro Bay area are generally less extreme than inland regions, due to the moderating effect of the ocean.

3. AIR MONITORING IN THE PORT AREA

The Port's system was developed to expand upon other regional air monitoring efforts in the South Coast Air Basin, including those conducted by the SCAQMD, the ARB and the Port of Los Angeles, by using compatible and complimentary monitoring systems.

4. MONITORING STATION DESIGN AND SPECIFICATION

4.1. Location of the Monitoring Stations

The locations of the two monitoring stations are shown in Figure 1 and a description of each is given below. Information on the monitoring station site selection process is presented in Appendix 2. The SCAQMD North Long Beach and South Long Beach monitoring stations are shown in Figure 2 to show its relative location to the Port monitoring stations.

4.1.1. "Superblock" Inner Harbor Station

This site is located near the intersection of Canal Avenue and 12th Street, is owned by the Port, and is known as "Superblock." Superblock is a large paved area used as a shipping container storage and staging site and is heavily populated with mobile sources of air pollution (i.e. on-road diesel trucks); in addition the surrounding area is labeled as being industrial. There are several smaller container distribution sites and smaller stationary sources present at Superblock as well. The major roadways in the area are not adjacent to the site, minimizing near-field sampling bias from mobile sources. The Superblock location is situated downwind of the Port during typical onshore air flow patterns, and is representative of the heavily industrialized setting that is the Inner Harbor area. Based on information gathered from the Port and from maps, photographs, and operations, the site has adequate security and site access and no adverse geographical conditions

Figure 1: Locations of Air Quality Monitoring Stations at the Port of Long Beach

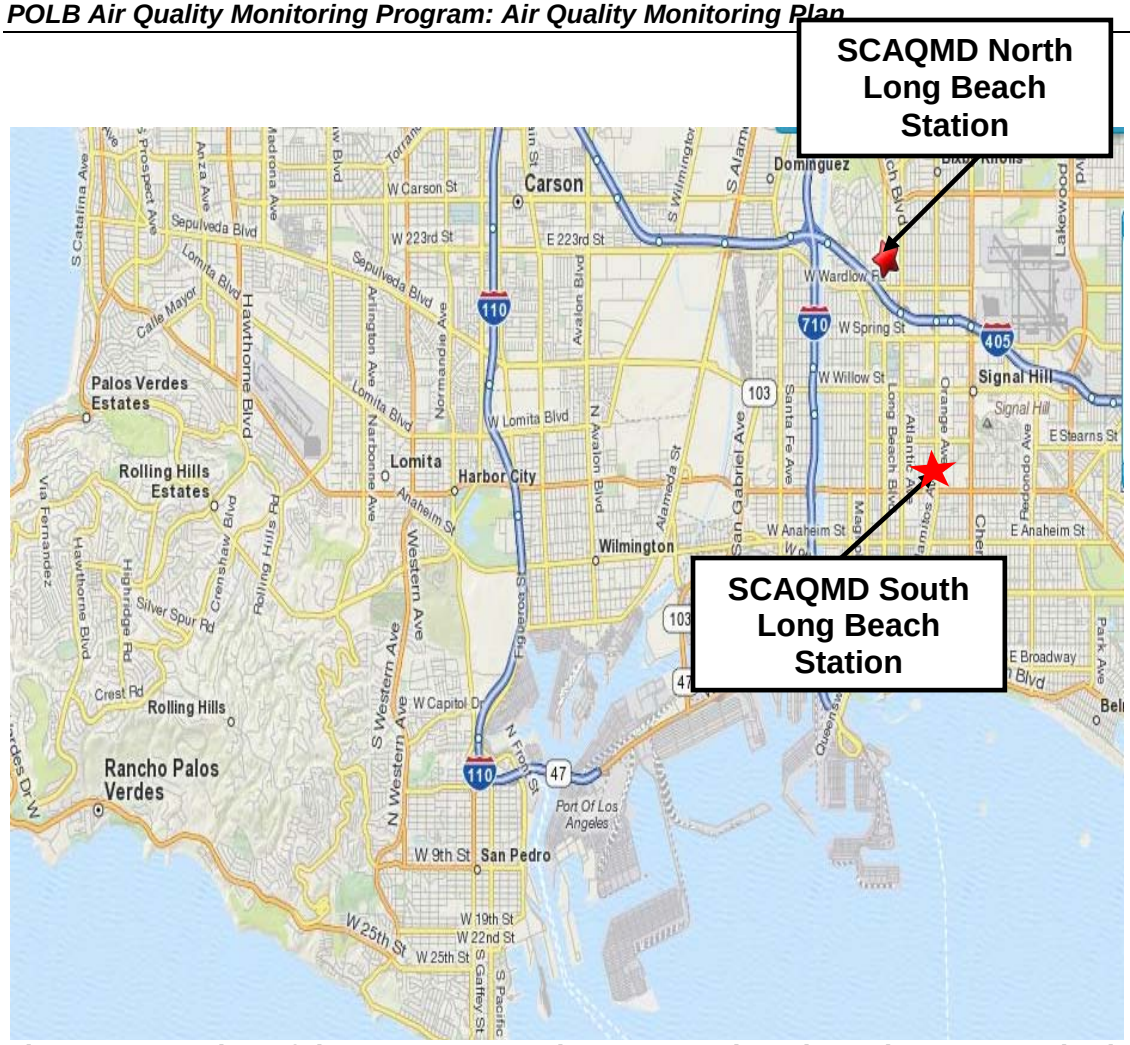

Figure 2: Location of the SCAQMD North Long Beach and South Long Beach Air Quality Monitoring Stations

4.1.2. "Gull Park" Outer Harbor Station

The Gull Park site is located at the eastern end of the "Navy Mole" (4000 Nimitz Road), which is a peninsula that terminates at the Long Beach Channel. Unlike the Superblock site, there are no nearby stationary emission sources at the Gull Park site. However, sources that may impact the monitoring site at times include ocean-going vessels transiting the Long Beach Channel, as well as vessel and shore-side operations at the adjacent Sea Launch facility and other nearby Port terminals. The Gull Park site should have less impacts from Port-related sources much of the time, and any impacts should be due primarily from ships and terminal operations, rather than on-road trucks as is the case at the Superblock station. Based on information gathered from the Port and from maps, photographs, and operations, the site has adequate security and site access and no adverse geographical conditions

4.2. Description of the Monitoring Protocol

4.2.1. Data Types

The program collects three different types of data: (1) air pollutant concentrations measured by real-time analyzers, (2) particulate matter (PM) concentrations as measured by filter-based samplers, and (3) meteorological data from real-time measurement.

Real-Time Air Pollutant Data

Real-time air pollutant concentrations are determined for several gaseous pollutants (i.e. NO_X, O_3, CO, and SO_2) using continuous analyzers. In addition, real-time PM_{10} and $PM_{2.5}$ concentrations are monitored using beta-attenuation monitors (BAM).

PM Filter-Based Samplers

Particulate matter concentrations are measured using a combination of Federal Reference Method (FRM) and Federal Equivalent Method (FEM) samplers. PM_{10} and $PM_{2.5}$ are collected using FRM samplers. For detailed $PM_{2.5}$ speciation, $PM_{2.5}$ samples are collected using multi-port FEM samplers equipped with different filter media (Teflon & quartz). All filter samples are collected for a 24-hour period, and then the filters are sent to an independent laboratory for analysis.

Meteorological Data

Meteorological data is collected in real-time, at both monitoring sites, using sensors located on a 10-meter tower, and connected to a datalogger which average and store the data. These meteorological parameters include ambient temperature, humidity, wind direction, wind speed, and barometric pressure. The Superblock site is also configured to measure precipitation (the precipitation gauge is not located on the tower), and solar radiation.

4.2.2. Sampling and Analysis Methods

Real-Time Data

Gaseous NO_2, O_3, CO, and SO_2 concentrations and the real-time PM_{10} and $PM_{2.5}$ concentrations are measured through the use of continuous real-time analyzers.

FRMs or FEMs PM Filter-Based Samplers

Generally, filter-based particulate matter concentrations are sampled using either FRMs or FEMs. FRMs are methods of sampling and analyzing the ambient air for an air pollutant or a method that have been designated as a reference method in accordance with 40 CFR Part 53. FEMs are methods of sampling and analyzing the ambient air for an air pollutant that have been designated as an equivalent method in accordance with 40 CFR Part 53. The FRM sampling methods that are used for PM_{10} and $PM_{2.5}$ under this program are shown below in Table 1.

Table 1. FRM Sampling Methods

Parameter	Federal Reference Method
PM_{10}	40 CFR, part 50, Appendix J
$PM_{2.5}$	40 CFR, part 50, Appendix L

The FEM sampling methods that are used for PM_{10} and $PM_{2.5}$ under this program are shown below in Table 2.

Table 2. FEM Sampling Methods

Parameter	Federal Equivalent Method
PM_{10} Beta Attenuation Mass (BAM) Monitors	40 CFR, part 53
$PM_{2.5}$ BAM Monitors	40 CFR, part 53

Data from the Port's monitoring program that are collected using FRM sampling methods are used to show compliance relative to PM_{10} and $PM_{2.5}$ standards, and to validate data collected from BAMS and Sequential Filter Sampler (SFS) monitors.

SFS PM Filter-Based Samplers

In order to further discern the types of particulates that make up $PM_{2.5}$, samples can be collected on different filter media (Teflon and quartz) using Sequential Filter Samplers (SFS) fabricated by the Desert Research Institute (DRI). Samples collected on these SFS units allows for detailed $PM_{2.5}$ speciation analysis which includes the concentration determination of Elemental Carbon (EC)/Organic Carbon (OC), various metals, ions and polycyclic aromatic hydrocarbons (PAH). $PM_{2.5}$ speciation analysis is not occurring currently and as a result the SFSs have been removed from the monitoring stations.

The SFS sampling methods that were used for $PM_{2.5}$ speciation analysis under this program are shown below in Table 3.

Table 3. SFS Sampling Methods

Parameter	Federal Equivalent Method
$PM_{2.5}$ Sequential Filter Samplers (SFS)	40 CFR, part 53

$PM_{2.5}$ speciation sampling occurred from January 2007 to March 2008. The Port has not continued to perform speciation sampling beyond this onetime period, but may choose to resume this sampling in future years.

Meteorological Data

Meteorological conditions are measured in real-time using various equipment and analyzers. Samples are not collected.

4.2.3. Analytical Methods

Real-Time Data

As noted above, real-time measurements of gaseous NO_2, O_3, CO, and SO_2, and particulate matter measurements are recorded by individual instruments and stored on a station datalogger, along with the meteorological data.

PM Filter-Based Samplers

Lab analyses of $PM_{2.5}$ and PM_{10} sample filters follow the Standard Operating Procedures (SOPs) developed by the California Air Resources Board (CARB). All analyses are performed by a certified environmental laboratory in accordance with EPA and/or other applicable methods.

$PM_{2.5}$ speciation laboratory analyses are performed on select $PM_{2.5}$ sample filters for the following constituents:

- Elemental carbon / organic carbon
- X-ray fluorescence for trace metals
- Ion analysis for ammonium (NH_4), chlorine (Cl), nitric oxide (NO_3), sulfate (SO_4), sodium (Na), and potassium (K).
- Polycyclic aromatic hydrocarbon (PAH) analysis

The following table lists the SOPs for analyzing various constituents.

Table 4. Standard Operating Procedures

SOP – Version Number	Standard Operating Procedure Title
029-2.0	Analyzing the Mass of Dichotomous PM_{10} Filters
055-0.0	Determination of $PM_{2.5}$ Mass in Ambient Air by Gravimetric Analysis
065-0.0	Organic and Elemental Carbon Analysis of Exposed Quartz Microfiber Filters
034-2.0	Determination of Elemental Concentrations in Ambient Air by Energy-Dispersive X-Ray Fluorescent Spectroscopy
064-0.0	Analysis of Anions and Cations in $PM_{2.5}$ Speciation Samples by Ion Chromatography
028-3.2	Determination of Selected Polyaromatic Hydrocarbons (PAH) in Ambient Air

Meteorological Data

Meteorological data is collected using real-time measurements and stored on a station datalogger.

4.3. Description of the Monitoring Equipment

The Port's monitoring program utilizes two stations, sited to represent conditions in the inner harbor area (Superblock site) and outer harbor area (Gull Park site). The monitoring equipment currently used at each station is as follows:

Table 5. Station #1 (Superblock Site) - Monitoring Equipment

Equipment Function	Make and Model
Pulsed Fluorescence Ambient SO_2 Analyzer	Thermo Model No. 43i
Chemiluminescent NO-NO_2-NO_x Analyzer	Thermo Model No. 42i
Gas Filter Correlation CO Analyzer	Thermo Model No. 48i
U.V. Photometric Ozone (O_3) Analyzer	Thermo Model No. 49i
Multigas Calibrator	Thermo Model No. 146i
Single Channel FRM Samplers: Model 2000 Partisol-FRM PM-2.5 Sampler 120 VAC	Thermo Model No. 99-004145-0120
Partisol-FRM PM-10 Sampler 120 VAC	Thermo Model No. 99-005916-0120
Streamline Pro MultiCal System	Thermo Model No. 57-008887
EMC Complete Data System	Thermo Model No. Data Logger 5000 Series
Sample Manifold System	Thermo Model No. SM-7
Environmentally Controlled Equipment Shelter	Thermo Model No. Shelter 8810
(SO_2/NO/CO) Cylinder with Regulator	Thermo Model SO_2/NO/CO
PM-10 Beta-Attenuation Mass Monitor	Met One Instruments Model No. BAM 1020
PM-2.5 Beta-Attenuation Mass Monitor	Met One Instruments Model No. BAM 1020
Wind Speed Sensor	Met One Instruments Model No. 010C-1
Wind Direction Sensor	Met One Instruments Model No. 020C-1
Humidity/Temperature Sensor	Met One Instruments Model No. 083D-1-35
Radiation Shield, Six Plate	Met One Instruments Model No. 5890
Barometric Pressure Sensor	Met One Instruments Model 092D
Solar Radiation Sensor	Met One Instruments Model 096-1
8 Inch Rain Gauge	Met One Model 370

Table 6. Station #2 (Gull Park Site) - Monitoring Equipment

Equipment Function	Make and Model
Pulsed Fluorescence Ambient SO_2 Analyzer	Thermo Model No. 43i
Chemiluminescent NO-NO_2-NO_x Analyzer	Thermo Model No. 42i
Gas Filter Correlation CO Analyzer	Thermo Model No. 48i
U.V. Photometric Ozone (O_3) Analyzer	Thermo Model No. 49i
Multigas Calibrator	Thermo Model No. 146i
Partisol-FRM PM-10 Sampler 120 VAC	Thermo Model No. 99-005916-0120
Streamline Pro MultiCal System	Thermo Model No. 57-008887
EMC Complete Data System	Thermo Model No. Data Logger 5000 Series
Sample Manifold System	Thermo Model No. SM-7
Environmentally Controlled Equipment Shelter	Thermo Model No. Shelter 8810
(SO_2/NO/CO) Cylinder with Regulator	Thermo Model SO_2/NO/CO
PM-10 Beta-Attenuation Mass Monitor	Met One Instruments Model No. BAM 1020
PM-2.5 Beta-Attenuation Mass Monitor	Met One Instruments Model No. BAM 1020
Wind Speed Sensor	Met One Instruments Model No. 010C-1
Wind Direction Sensor	Met One Instruments Model No. 020C-1
Humidity/Temperature Sensor	Met One Instruments Model No. 083D-1-35
Radiation Shield, Six Plate	Met One Instruments Model No. 5890
Barometric Pressure Sensor	Met One Instruments Model 092D

5. FIELD PROCEDURES

Under this monitoring program, the Port is collecting data for a variety of air pollutants and meteorological parameters. With the exception of the filter-based particulate matter samplers, the data is collected using continuous, real-time analyzers. The filter-based PM samplers collect samples which require off-site analysis at a laboratory.

This section describes the data collection techniques, responsibilities of the on-site Operations and Maintenance (O&M) technicians, and quality assurance (QA) measures employed by this air quality monitoring program.

5.1. Monitoring Tasks

5.1.1. Real-Time Analyzers

Each time the O&M technicians visit a monitoring station the following task are performed:

- The technicians perform checks on the status of the meteorological monitoring station. Any abnormalities are reported to SAIC.
- The technicians perform checks on the real time instrumentation, to make sure that everything is performing to the manufacturer's recommendations. Any abnormalities are reported to SAIC.

5.1.2. PM Filter-Based Samplers

Each sampling day, the following tasks are performed by the on-site technicians upon arrival for the particulate matter filter-based samplers:

1) The technicians conduct routine maintenance service checks on each PM sampler following the procedures outlined in the flowchart in Appendix 1, Figure 2. Final flow rates and elapsed times are recorded on the field datasheets (Appendix 1, Figure 4), filter cartridges are exchanged, and the initial flow rate for the next sampling run is recorded on the field data sheet. A detailed step-by-step checklist for the monitors is provided in Appendix 1, Figure 3.

2) The technicians recover the exposed PM_{10}/$PM_{2.5}$ filters and install new filters. The technicians also perform routine maintenance checks on each of the FRM and FEM particulate matter monitors and record any unusual conditions on the field datasheet (Appendix 1, Figure 5). A detailed service schedule for the FRM and FEM monitors is presented in Appendix 1, Figure 6.

3) After every site visit, the O&M technicians complete a "Master Monitoring Checklist" (Appendix 1, Figure 1) which summarizes the status of all instruments in the monitoring program. Upon completion, this checklist is sent to SAIC by fax or email to document the status of the monitoring program. In addition, if there are any problems or issues with the monitoring program, the technicians call Joel Torcolini or Gary Bertolin (SAIC Point of Contact [POC)] to provide a more detailed update and discussion of the monitoring program status. Any necessary corrective action is documented by the SAIC POC on a corrective action form.

5.1.3. Meteorological Data

Each time the O&M technicians visit a monitoring station they perform the following tasks:

- Check the operation of the meteorological monitoring station. The technicians verify the operation by completing the real-time monitor checklist (Appendix 1, Figure 7).

5.2. Sampling Schedule and Frequency

5.2.1. Real-Time Analyzers

The real-time analyzers are sampling on a continuous basis.

5.2.2. PM Filter-Based Samplers

The sampling schedule for the Port of Long Beach air quality monitoring program follows the published EPA monitoring schedule for 2010 and future years.

5.2.3. Meteorological Analyzers

These real-time analyzers are sampling on a continuous basis.

5.3. End of Day Communication

Each day the Operations and Maintenance (O&M) technicians visit the sampling sites, they fill out the Master Monitoring Checklist (Appendix 1, Figure 1) to ensure the proper operation of monitoring equipment on that sampling day. At the end of each sampling day, the Master Monitoring Checklist (MMC) are faxed or emailed to SAIC staff at (858) 826-2735 where the checklists are filed throughout the duration of the monitoring program.

In addition, O&M technicians verbally update SAIC staff in San Diego at the conclusion of every site visit. The status of all sampling instruments is reviewed, and any instrument or sampling problems are discussed in detail. Any necessary corrective actions are worked out at that time.

At the conclusion of each sampling visit, O&M technicians call one staff member at SAIC to report on the status of the monitoring activities. The primary point of contact at SAIC is Mr. Joel Torcolini (SAIC Field Manager). If Mr. Torcolini is not available, then either Dr. Gary Bertolin (SAIC Technical Director) or Mr. Scott Weaver (SAIC Program Manager) should be briefed on the status of the day's monitoring activities.

SAIC Staff can be reached at the following numbers:

Primary Point of Contact:

Mr. Joel Torcolini	SAIC Field Manager
Office:	(858) 826-2732
Cell:	(760) 214-0797
Email:	torcolinij@saic.com

Secondary Point of Contact:

Dr. Gary Bertolin	SAIC Technical Director
Office:	(858) 826-2725
Email:	bertoling@saic.com

Tertiary Point of Contact:

Mr. Scott Weaver	SAIC Project Manager
Office:	(626) 440-8347
Email:	michael.s.weaver@saic.com

Port of Long Beach Contacts:

Ms. Heather Tomley	Assistant Director of Environmental Planning
Office:	(562) 590-4160
Email:	tomley@polb.com

Ms. Janna Watanabe	Project Manager
Office:	(562) 590-4160
Email:	watanabe@polb.com

5.4. Shipping PM Filters to the Laboratory

The O&M technicians are responsible for shipments of samples to the laboratory. Following each site visit, the plastic bag containing the exposed filter cassettes and data sheet is taken back to the storage office and stored in a clean, dry refrigerator. During filter storage, the O&M technicians make copies of all field datasheets, monitoring checklists, and send those copies to SAIC staff at designated intervals (TBD). At appropriate intervals determined by SAIC and O&M staff, the filters are shipped to the designated laboratory.

6. DATA STORAGE AND REPORTING

Data is collected and managed to ensure that the data are:

- Reliable
- Easily accessible to a variety of users
- Of known quality

Data collected through automated systems are managed in accordance with the EPA's Good Automated Laboratory Practices (GALP).

Monitoring data is gathered and stored on a centralized server using an Environmental Data Acquisition and Handling System (DAHS) provided by Thermo Electron Corporation. The data storage format is compatible with the Port's Oracle database system. In addition, the DAHS automatically uploads the real-time data to the Clean Air Action Plan website (http://www.cleanairactionplan.org/), where it is available to the public for review. It should be cautioned these data are uploaded on a real-time basis, so it has not yet gone through the normal quality review process for this project and should be considered as preliminary. SAIC provides a monthly QA/QC review of data collected at the Port monitoring stations.

Data quality is maintained for this program by the use of instrument checklists completed for each sampling day, routine project communications between the site technicians and SAIC staff, and procedures and the data review procedures employed during the air quality monitoring program. Furthermore, data quality is maintained by periodic audits.

7. REPORTING SCHEDULE

Real-time data is continuously uploaded to the web server after certain quality assurance and quality control measures are performed.

The reporting schedule for the PM samplers follows the USEPA three (3) or six (6) day sampling cycles for $PM_{2.5}$ and PM_{10}. On that frequency, the particulate filters are replaced. Sample filters are stored in a climate-controlled environment until being sent to a laboratory for analysis.

REFERENCES

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APPENDIX 1

Field Worksheets and Checklists

Figure 1. POLB Air Quality Program Master Monitoring Checklist

Field Tech _____ Date_____ Checklist Fill Out Time:_____

Please answer status with either:: *A) No Unusual Conditions* *B) Sampler Malfunction* *C) Power Loss* *D) Other*	***Daily Status***	***Comments***
1. Inner Harbor Site ("Superblock")		
A. FRM - PM_{10} Sampler?		
B. FRM - $PM_{2.5}$ Sampler?		
C. SFS - $PM_{2.5}$ EPA Schedule?		
D. SFS – PM_{10} EPA Schedule?		
E. Thermo Electron SO2 Analyzer?		
F. Thermo Electron NOx Analyzer?		
G. Thermo Electron CO Analyzer?		
H. Thermo Electron O3 Analyzer?		
I. Met Station Operation?		
J. BAM for PM_{10}?		
K. BAM for $PM_{2.5}$?		
2. Outer Harbor Site ("Gull Park")		
A. FRM - PM_{10} Sampler?		
B. FRM - $PM_{2.5}$ Sampler?		
C. SFS - $PM_{2.5}$ EPA Schedule?		
D. SFS – PM_{10} EPA Schedule?		
E. Thermo Electron SO2 Analyzer?		
F. Thermo Electron NOx Analyzer?		
G. Thermo Electron CO Analyzer?		
H. Thermo Electron O3 Analyzer?		

Figure 1. POLB Air Quality Program Master Monitoring Checklist

I. Met Station Operation?		
J. BAM for PM_{10}?		
K. BAM for $PM_{2.5}$?		

Figure 2. Diagram of Routine Maintenance Steps for Samplers During Site Visit

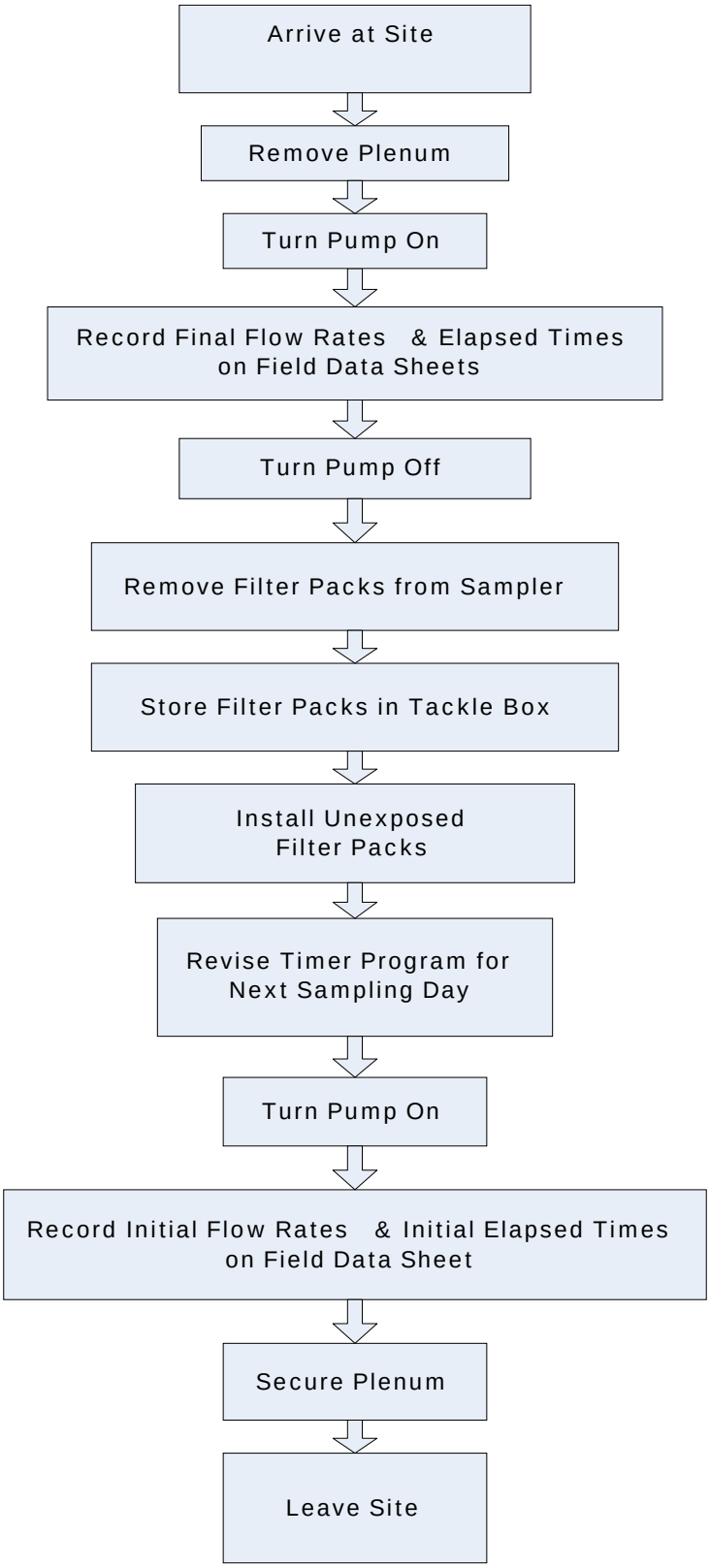


Figure 3. Step-by-Step Checklist for SFS Monitors

1. Remove plenum from SFS monitor.
2. Push Channel 1 override to turn pump on.
3. Verify that the correct sampling ports were used during the last sampling run.
4. Record elapsed time on DRI-supplied field data sheet (FDS) and SAIC SFS checklist form.
5. Measure flow rates through all samples using DRI-supplied flow calibrator and record on FDS and checklist form.
6. Calculate elapsed time.
7. Place top caps on exposed filter samples.
8. Remove exposed samples and put into Ziplock bag with FDS.
9. Remove bottom caps and place unexposed filter samples on SFS units. Remove top cap. Look at data sheet to match each filter pack to the proper port.
10. Measure flow rates through all filter packs with the flow calibrator and record on FDS and checklist form.
11. Record beginning time for next sampling run on FDS and checklist form.
12. Assure that proper port is on for the next sampling day.
13. Cycle through timer program and modify it as necessary for the next sampling day.
14. Assure that Channel 2 is on "OFF."
15. Secure the plenum.
16. DOUBLE CHECK THE FOLLOWING:

    Power switch is "ON."

    Current port POSITION is correct.

    Timer has been reset correctly for next sampling day.

    Channel 2 is "OFF."

    Plenum is secured.

Figure 4. POLB Air Monitoring Program - SFS Monitor Procedure

Field Tech _____Date_____Site Arrival Time:_____Site ID_____

SFS Monitor Identification Number: _____

SFS Filter Number: _____

Filter Installed: _____/_____/_____

Month Day Year Time (local)

Filter Removed: _____/_____/_____

Month Day Year Time (local)

Scheduled Sampling Day: _____/_____/_____

Month Day Year

Elapsed Time Meter Reading:

	Initial Reading	Final Reading	Total Elapsed Time
Port 1	_____	_____	_____
Port 7	_____	_____	_____
Port 2 (if appropriate)	_____	_____	_____
Port 8 (if appropriate)	_____	_____	_____

Sampler Flow Rate (CFH):

	Initial Flow	Final Flow
Port 1	_____	_____
Port 7	_____	_____
Port 2 (if appropriate)	_____	_____
Port 8 (if appropriate)	_____	_____

Verify the Following:

_____ Gaskets are in good condition.

_____ PM_{10} head is secure.

Comments:_____

Figure 5. POLB Air Monitoring Program - FRM Monitor Checklist

SAIC 24-HOUR – FIELD SAMPLE REPORT
PM2.5/PM10 SAMPLER

Bar Code:

LIMS Sample ID:

Site Name: _____
Site Number: _____
Field Technician: _____
Particle Size: _____

Cassette I. D. Number: _____
Scheduled Sampling Date: _____
Sampler Property #: _____

SAMPLE SUMMARY

☐ Check if data electronically submitted to Laboratory

Start Date / Time: _____ / _____
Total Elapsed Time: _____ Hr:min
Volume: _____ M^3
Flow CV: _____ %

	MIN	AVG	MAX
Ambient Temp(□C):			
Filter Temp (□C):			
Pressure (mmHg):			
Flow :			

Local Condition Codes: _____

Sampler Flag Codes: _____

A.	No Unusual Conditions	E.	Fire Nearby
B.	Wind/Blown Sand/Dust	F.	Sampler Malfunction
C.	Construction Nearby	G.	Rain
D.	Farming Operation Nearby	H.	Other (See Comments)

OK	Good	T.	Filter Temp.
F.	Flow Rate	I.	Inst. Elec. Temp
X.	Flow Cutoff	V.	Power Outage
S.	Ambient Temp.	E.	Elapsed Sample Time
P.	Ambient Pressure	C.	Percent CV

Operator Comments _____

Figure 6. POLB Air Quality Program - FRM Samplers Service Schedule

Service	Each Run	800-HR Intervals
Check and Record Initial Flow Meter Reading & True Air Flow Rate	X	
Inspect Faceplate Gasket	X	
Check Operation of Flow Recorder	X	
Record Initial and Final Elapsed Time Meter Readings	X	
Check Flow Recorder Inking	X	
Replace Motor Brushes		X
Calibration		X
Inspect Flow Meter Tubing		X
Clean Rotometer	As required	
Replace Motor	As required	

Field Tech _____Date_____Site Arrival Time: _____Site ID_____

Unless a specific question is asked, please answer with a "Yes" or "No."	***Status or Response***	***Comments***
1. General Station Condition		
A. Is the station secure?		
B. Is fencing intact?		
C. Are the external structures free from vandalism?		
2. Datalogger		
A. Is there power to the datalogger?		
B. Enter time and date from display		
3. Meteorological Equipment		
A. Wind Speed		
(1) WS output from datalogger (m/s)		
(2) Does indicated WS seem reasonable?		
(3) Are signal cables free from damage?		
B. Wind Direction		
(1) WD output from datalogger (^{o})		
(2) Does indicated WD seem reasonable?		
(3) Are signal cables free from damage?		
C. Wind Variance		
(1) Enter last hourly sigma theta value from datalogger.		
D. Temperature of Air		
(1) Temperature reading from datalogger (^{o}C)		
(2) Are radiation shields & signal cables free from damage?		

Unless a specific question is asked, please answer with a "Yes" or "No."	***Status or Response***	***Comments***
E. Relative Humidity		
(1) Output from datalogger (%)		
(2) Does this value seem reasonable?		
F. Solar Radiation		
(1) Output from datalogger (mw/cm^2)		
(2) Is signal cable secure and free from damage?		
(3) Is glass hemisphere dirty or damaged? (check weekly)		
(4) Is sensor level? (check weekly)		
4. Thermo Electron Pollutant Analyzers (NO_2, O_3, SO_2, and CO)		
A. NO_2 Analyzer		
(1) Output from datalogger (%)		
(2) Does this value seem reasonable?		
B. O_3 Analyzer		
(1) Output from datalogger (%)		
(2) Does this value seem reasonable?		
C. SO_2 Analyzer		
(1) Output from datalogger (%)		
(2) Does this value seem reasonable?		
D. CO Analyzer		
(1) Output from datalogger (%)		
(2) Does this value seem reasonable?		

Unless a specific question is asked, please answer with a "Yes" or "No."	*Status or Response*	*Comments*
5. Beta Attenuation Monitor (BAM) – PM_{10}		
(1) Is flash lamp and pump operating properly?		
(2) Is display indicating reasonable concentrations and is datalogger storing data?		
(3) Enter time, date and PM_{10} concentration from display		
6. Beta Attenuation Monitor (BAM) – $PM_{2.5}$		
(1) Is flash lamp and pump operating properly?		
(2) Is display indicating reasonable concentrations and is datalogger storing data?		
(3) Enter time, date and $PM_{2.5}$ concentration from display		

APPENDIX 2

Monitoring Station Site Selection

SITE SELECTION PROCESS

1. INTRODUCTION

The Port selected two monitoring station sites to provide representative ambient air quality and meteorological conditions in (1) the inner harbor area, and (2) the outer harbor area. The Port identified a number of sites that could potentially be used for the program. This selection process is described below. The monitoring station siting is consistent with U.S. Environmental Protection Agency (USEPA) guidance in Title 40, Code of Federal Regulations (CFR) Part 58 and USEPA's Quality Assurance Handbook for Air Pollution Measurement Systems.

2. MONITORING STATION SITE SELECTION

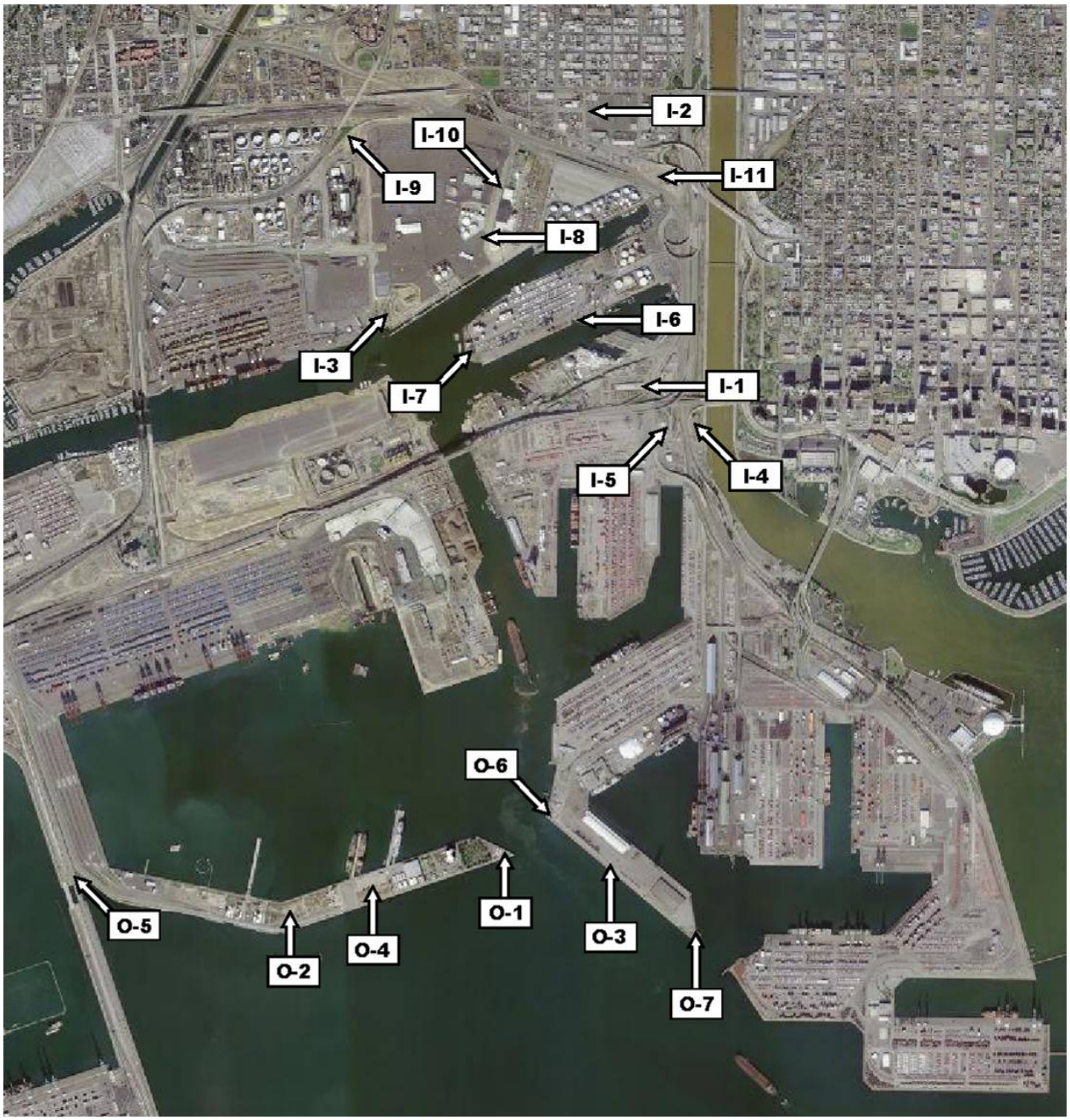
2.1 Site Selection Criteria

The Port of Long Beach only considered locations within the Harbor District as candidates for the air monitoring program. The goal of the monitoring program was to characterize air quality in the area of the port. These stations compliment air monitoring efforts in the surrounding areas currently being conducted by the California Air Resources Board, South Coast Air Quality Management District, and Port of Los Angeles, in order to provide a more comprehensive picture of air quality in the region.

These sites were reviewed to identify those that could provide adequate and unobstructed exposure to Port emission sources and the local environment, while minimizing near-field sampling bias due to proximity of emission sources. The sites were also reviewed to determine whether each would be affected by known or expected development activities, and to determine which sites would be secure from natural and human elements. These criteria were important to ensure the survivability of the stations for the duration of the program. And lastly, the Port considered access to necessary infrastructure, such as electrical power. Figure 1.1 shows an aerial photograph of the Port of Long Beach indicating the location of the sites considered for the monitoring stations.

The following sections present the siting analysis.

Figure 1.1: Sites Considered for the Port of Long Beach Monitoring Stations



2.2 Analysis of Potential Inner Harbor Sites

This section describes the locations that were considered for the location of the "Inner Harbor" monitoring station. Figure 1.2 shows an aerial photograph of the Port of Long Beach Inner Harbor subregion, which shows the relative locations of the sites considered to represent the inner harbor region.

Figure 1.2: Sites Considered for the Inner Harbor Monitoring Stations

2.2.1 Site No. I-1: Former Coast Guard Building

2.2.1.1 Site Description

This site is located at the former Coast Guard Building near the intersection of Broadway and Pico Avenue. The site consists of a flat paved surface with a fence perimeter covered with shrubbery. The building has a main parking lot on the east side, which is where the monitoring equipment could be located. According to Port

Properties Management, this area may be impacted by the Gerald Desmond Bridge replacement project in the future.

2.2.1.2 Site Location

The site is labeled as I-1 on the attached map (Fig. 1.2). The site is situated to the west of Pico Avenue and to the north of Ocean Boulevard. The photographs of the area (Appendix 3, Fig. 1.1-2) show that the most suitable place to situate the monitoring station would be the larger parking area to the east of the building. This site is near sources of mobile on-road emissions traveling along Pico Avenue and Ocean Boulevard, which are heavily traveled by heavy-duty diesel trucks. The site is surrounded by a perimeter fence and is accessible from a service road off of Broadway and Pico Avenue. A gate will be installed; if not already present, to close off access from the surface road.

2.2.1.3 Local Surroundings

The site, as measured from the center of the main parking lot, is approximately 50 feet from the building and fence perimeter. Pico Avenue lies just over 100 feet beyond the fence perimeter. The Ocean Boulevard overpass is location approximately 100-150 feet to the south. The former Coast Guard Building is rectangular in shape, approximately 200 feet by 50 feet. The height of the building is that of a typical warehouse building; about 25 feet.

The site is bordered by Broadway to the north and west and Pico Avenue to the east and south. Ocean Boulevard is located to the south. Mobile on-road sources are present on the adjacent roads due to the heavy flow of traffic during the day. Mobile off-road sources are located at the terminals to the north and west of the site. The closest of these terminals is approximately 500 feet to the north. A freight rail line is located 500 feet to the east.

2.2.1.4 Conformance to USEPA Guidance

The USEPA Guidance Handbook recommends that several factors be evaluated when selecting a monitoring location. These factors include the security of the location, logistics of site access and data collection, meteorological conditions, exposure of the site, geographical variability, and pollutant considerations from ambient concentrations and existing sources. In addition to the USEPA Guidance, the site must be considered in terms of how well it represents the inner harbor area of the Port. Based on information gathered from the Port and from maps, photographs and a recent site visit, the site has adequate security and site access and no adverse geographical conditions. The site is also representative of the inner harbor area as it lies inland from most of the major piers.

2.2.1.5 Summary

This site may be significantly impacted by planned development. Site I-1 is not considered a viable location for the monitoring program.

2.2.2 Site No. I-2: "Superblock" Area

2.2.2.1 Site Description

This potential site is located on the west side of an area known at the "Superblock." The Superblock is located on the northeast side of the Port near the intersection of Canal Avenue and 12th Street. The site consists of a flat, paved surface with several nearby industrial and commercial buildings. The parcel of land is owed by the Port and is leased for container storage.

2.2.2.2 Site Location

The site is labeled as I-2 on the attached map (Fig. 1.2). The site is situated near the intersection of Canal Avenue and 12th Street. The photograph of the area (Appendix 3, Fig. 2.1-2) shows that the area around the intersection of Canal Avenue and 12th Street provides a suitable location that is free of obstacles, buildings and trees. According to the photograph of the site, there are several buildings and storage containers located to the north and south of the site. The site has a perimeter fence around the entire Superblock. A separate enclosure would be needed for the monitoring location.

2.2.2.3 Local Surroundings

The location of the monitoring equipment will be at the intersection of Canal Avenue and 12th Street. Nearby major roadways include the 710 Freeway, which is approximately three city blocks to the east of the site, and Anaheim Street which is one block to the north. The nearest structures in the area are approximately 150 feet from the location.

Within the Superblock area, there is a large warehouse building approximately 25 feet in height. In addition, containers are stored on site. Across Canal Avenue, there are several industrial buildings of about the same height.

Mobile sources are present within the Superblock and on the adjacent roads due to the flow of traffic during the day, especially on Anaheim Street to the north. The surrounding area is industrial, so there may be stationary sources of air pollution nearby as well.

2.2.2.4 Conformance to USEPA Guidance

Based on information gathered from the Port and from maps, photographs and a recent site visit, the site has adequate security and site access and no adverse geographical conditions. The site is representative of the inner harbor area as it is located downwind of the Port during typical onshore air flow patterns. The major roadways in the area are not adjacent to the site, minimizing near-field sampling bias from mobile sources. The site conforms to USEPA guidelines.

2.2.2.5 Summary

A suitable site could be selected within the Superblock area to characterize the Inner Harbor area. This site is considered viable for the monitoring program.

2.2.3 Site No. I-3: End of Carrack Avenue

2.2.3.1 Site Description

This site is located on the border between Pier A and B near Berth A88. The site is partially unpaved and located near three large electricity towers. The area is not

dominated by cargo handling traffic or associated equipment. The site is bordered on the south by the Cerritos Channel and the Turning Basin.

2.2.3.2 Site Location

The site is labeled as I-3 on the attached map (Fig. 1.2). The site is situated at the end of Carrack Avenue near Berth A88. The photograph of the area (Appendix 3, Fig. 3.1-2) shows that, aside from the electrical towers and areas of lower elevation, there are suitable locations in the area that are free of obstacles, buildings and high traffic roadways. The site does not have a perimeter fence around the location; access is possible via Carrack Avenue.

2.2.3.3 Local Surroundings

There are several buildings located to the southwest of the proposed site however they are over 500 feet away. There are also stacks of containers in the area, but are also not expected to have measurable impacts on the site. The container stacks are typically three-containers high, at a total of approximately 25 feet in height. The width of each container is eight feet and the length ranges from 20 to 40 feet. Cargo handling activities in the immediate area could adversely impact the monitoring site. However, the monitoring equipment could probably be positioned to avoid impacts from cargo handling activities and ocean-going vessels.

2.2.3.4 Conformance to USEPA Guidance

The site appears to be representative of the Inner Harbor area. The site could be located sufficiently far from sources of pollution, including cargo handling equipment and ocean-going vessels, so as to minimize any near-field sampling bias. The site conforms to the USEPA guidelines.

2.2.3.5 Summary

Site I-3 meets the factors listed above. Site I-3 is considered a viable location for use in the monitoring program.

2.2.4 Site No. I-4: Pico Avenue and Ocean Boulevard, Vacant Areas

2.2.4.1 Site Description

This site is located just to the south-east of the Pico and Ocean intersection in a vacant area adjacent to the railway. The area is currently unpaved.

2.2.4.2 Site Location

The site is labeled as I-4 on the attached map (Fig. 1.2). The site is situated in a vacant area (Appendix 3, Fig. 4.1-2) to the southeast of the Pico Avenue and Ocean Boulevard intersection. The photograph of the area shows that the area is free of obstacles and trees. However, several buildings lie to the west, including the International Seafarers Center and the Clean Coastal Waters Building. Also Ocean Boulevard lies directly north of the area as well as a railway to the east. The site does not have a perimeter fence around the location; access is permitted via a service road off of Ocean Boulevard. The immediate area is undeveloped and may not have sufficient electrical connections for the various monitoring equipment.

2.2.4.3 Local Surroundings

As mentioned, there are several buildings west and southwest of the proposed site. The nearest building is approximately 75-100 feet from the site. The buildings in the area are single-story of various sizes. The largest building is not more than 100 feet in length and about 30 feet in height. Mobile sources are located nearby due to the proximity of several roads and rail lines. The rail lines are sometimes heavily traveled and serve Piers D, F, and G.

2.2.4.4 Conformance to USEPA Guidance

The site is considered representative of the inner harbor area as it lies in the trajectory of the prevailing winds. However, the site is too close to existing sources of pollution, especially the adjacent rail lines. The site also has infrastructure concerns given that the immediate area is undeveloped.

2.2.4.5 Summary

Site I-4 does not meet all of the factors listed above. The site is located too close to existing sources of pollution and has infrastructure concerns. Site I-4 shall not be considered as a viable location for use in the monitoring plan.

2.2.5 Site No. I-5: Pico and Ocean, Building Parking Lot

2.2.5.1 Site Description

This site is located in the parking lot of a building just to the south-east of the Pico and Ocean intersection. It is directly west of Site No. I-4. The area is currently paved.

2.2.5.2 Site Location

The site is labeled as I-5 on the attached map (Fig. 1.2), and is situated in a parking lot of a building to the southeast of the Pico Avenue and Ocean Boulevard intersection. The photograph of the area (Appendix 3, Fig. 5.1-2) shows that there are several trees located at the north end of the parking lot. There are also buildings to the south and east of the site. The site has a perimeter fence around the location and access is possible via a service road off of Pico Boulevard. The area is developed and is assumed to have the necessary electrical connections for the monitoring equipment.

2.2.5.3 Local Surroundings

As mentioned, there are several buildings east and southeast of the proposed site. The nearest building is approximately 75-100 feet from the site. The buildings in the area are single-story of various sizes. The largest building is not more than 100 feet in length and about 30 feet in height. Mobile sources are located nearby due to the proximity of several roads and rail lines. The rail lines are sometimes heavily traveled and serve Piers D, F, and G.

2.2.5.4 Conformance to USEPA Guidance

Based on information gathered from the Port and from maps, photographs and a recent site visit, the site has adequate security and site access and no adverse geographical conditions. The site is representative of the inner harbor area as it lies in the proper trajectory of the prevailing winds. However, the site is not located sufficiently far enough from structures to minimize the impacts of building downwash. The site is also

located near existing sources of pollution. Based on these considerations, the site does not conform to the USEPA guidelines.

2.2.5.5 Summary

Site I-5 does not meet the factors listed above. This site is not considered a viable location for the monitoring program.

2.2.6 Site No. I-6: Pier C, Berth C59

2.2.6.1 Site Description

This site is at Berth C59 on Pier C to the southwest of the ARCO above ground storage tanks. It is adjacent to several silos.

2.2.6.2 Site Location

The site is labeled as I-6 on the attached map (Fig. 1.2). The site is situated at Berth C59 at the end of Pier C Street. The area is currently paved. The photograph of the area (Appendix 3, Fig. 6.1-2) shows that there are no major obstacles or buildings in the immediate area. The site does not have a perimeter fence around the location and access is permitted via Pier C Street. The area is developed and is assumed to have the necessary electrical infrastructure in the immediate vicinity.

2.2.6.3 Local Surroundings

There are several ARCO above ground storage tanks located to the northeast of the proposed site as well as equipment chassis storage piles and the silos. There are also several buildings to the south and southeast operated by G-P Gypsum Corporation and Norske Canada. The structures in the area range in height from approximately 20 feet to 40 feet. The building in the area consists of large warehouse structures. Mobile sources are located nearby due to the proximity of cargo handling operations.

2.2.6.4 Conformance to USEPA Guidance

The site is representative of the inner harbor area, but it is not located sufficiently distant from structures. The site does not conform to the USEPA guidelines.

2.2.6.5 Summary

Site I-6 does not meet the factors listed above. Site I-6 is not considered viable for the monitoring program.

2.2.7 Site No. I-7: Pier C, Berth C64

2.2.7.1 Site Description

This site is located on Berth C64, which lies at the end of Pier C. The area is currently paved and developed.

2.2.7.2 Site Location

The site is labeled as I-7 on the attached map (Fig. 1.2). The site is situated at Berth C64, which lies at the end of Pier C. The site is currently paved and there are no obstacles, trees, or buildings located nearby. The area is used to unload shipping containers from ocean going vessels. The site does not have a perimeter fence around the location; access is permitted via Pier C Street. The area is developed and is assumed to have the necessary electrical infrastructure in the vicinity.

2.2.7.3 Local Surroundings

The site lies at the end of the pier and is located near container storage areas. The nearest containers are located approximately 100 feet away, depending on the exact site of the monitoring station. The container stacks are typically three-containers high, at a total of approximately 25 feet in height. Mobile sources are located nearby due to the proximity of cargo terminaling operations. These sources include land-based cargo handling equipment as well as ocean going vessels.

2.2.7.4 Conformance to USEPA Guidance

The site is representative of the inner harbor area, but is not distant enough from structures to minimize the impacts of building downwash. Also, the site is near existing emission sources. The site does not conform to the USEPA guidelines.

2.2.7.5 Summary

Site I-7 is not considered a viable location for the monitoring program.

2.2.8 Site No. I-8: Edison Avenue, adjacent to Petro Diamond Terminal

2.2.8.1 Site Description

This site is located on Pier B adjacent to Edison Avenue and Petro Diamond Terminal Company. The site is adjacent to National Gypsum and Petro Diamond Terminal Company; a petroleum storage facility.

2.2.8.2 Site Location

The site is labeled as I-8 on the attached map (Fig. 1.2). The site is situated off of Edison Avenue adjacent to the Petro Diamond Terminal Company. The site is currently paved and located near several above ground storage tanks and buildings. The photograph of the area (Appendix 3, Fig. 7.1) shows that there are several above ground storage tanks and buildings located nearby. The area is used to unload shipping containers from ocean going vessels. The site does not have a perimeter fence around the location and access is permitted via Edison Avenue. The area is developed and is assumed to have the necessary electrical connections for the monitoring equipment.

2.2.8.3 Local Surroundings

The site is adjacent to National Gypsum and Petro Diamond Terminal. There are several structures nearby including buildings and petroleum storage tanks. The petroleum storage tanks are immediately to the northwest of the site. The tanks are approximately 40-50 feet in height. Mobile sources are located nearby due to the proximity of cargo handling operations.

2.2.8.4 Conformance to USEPA Guidance

The site has adequate security and site access and no adverse geographical conditions. However, the site is not located sufficiently far enough from structures to minimize the impacts of building downwash. Furthermore, the site is not located sufficiently far enough away from nearby roadways to minimize sampling bias from

heavy-duty trucks. Based on these considerations, the site does not conform to the USEPA guidelines.

2.2.8.5 Summary

Site I-8 is not considered viable for the monitoring program.

2.2.9 Site No. I-9: Edison Avenue, adjacent to Toyota

2.2.9.1 Site Description

This site is located on Pier B adjacent to Edison Avenue and Toyota Logistics Services. It is just north of Site No. I-8. The area is paved and developed.

2.2.9.2 Site Location

The site is labeled as I-9 on the attached map (Fig. 1.2). The site is situated off of Edison Avenue adjacent to the Petro Diamond Terminal Company. The site is currently paved and located near several above ground storage tanks and buildings. The photograph of the area (Appendix 3, Fig. 8.1-2) shows that there are several above ground storage tanks and buildings located nearby. The area is used to unload shipping containers from ocean going vessels. The site does not have a perimeter fence around the location and access is permitted via Edison Avenue. The area is developed and is assumed to have the necessary electrical connections for the monitoring equipment.

2.2.9.3 Local Surroundings

The site lies adjacent to several buildings and storage tank farms. The storage tanks are approximately 40 to 50 feet in height. Nearby buildings are approximately 20-30 feet in height. Mobile sources are located nearby due to the proximity of cargo handling operations.

2.2.9.4 Conformance to USEPA Guidance

The site has adequate security and site access and no adverse geographical conditions. However, the site is not located sufficiently far enough from structures to minimize the impacts of building downwash. Furthermore, the nearby roadways are utilized by heavy-duty trucks. Based on these considerations, the site does not conform to the USEPA guidelines.

2.2.9.5 Summary

Site I-9 is not considered a viable location for the monitoring program.

2.2.10 Site No. I-10: Carrack Avenue, east of Valero (“Ultramar”) Refinery

2.2.10.1 Site Description

This site is located at the intersection of Carrack Avenue and Pier B Street adjacent to the Terminal Island Freeway, SR-103, and east of the Valero (“Ultramar”) Refinery.

2.2.10.2 Site Location

The site is labeled as I-10 on the attached map (Fig. 1.2). The site is situated at the intersection of Carrack Avenue and Pier B Street. The site is currently paved. The photograph of the area (Appendix 3, Fig. 9.1-2) shows that there are several above

ground storage tanks and buildings located nearby. The area is used to unload shipping containers from ocean going vessels. The site does not have a perimeter fence around the location and access is permitted via Carrack Avenue and Pier B Street. The area is developed and is assumed to have the necessary electrical connections for the monitoring equipment.

2.2.10.3 Local Surroundings

The site lies approximately 200 feet from nearby buildings located at the former Ultramar Refinery. There are several storage tanks and buildings in the area. The storage tanks are approximately 40-50 feet in height and buildings are of unknown height and diameter. The site lies approximately 200 feet from an oil refinery and adjacent to SR-103.

2.2.10.4 Conformance to USEPA Guidance

The site has adequate security and site access and no adverse geographical conditions. However, the site is not located sufficiently far enough from structures to minimize the impacts of building downwash. Furthermore, the nearby roadways are utilized by heavy-duty trucks and an oil refinery is located in the area. Based on these considerations, the site does not conform to the USEPA guidelines.

2.2.10.5 Summary

Site I-10 is not considered viable for the monitoring program.

2.2.11 Site No. I-11: Pico Avenue, across from Matson Auto Lot

2.2.11.1 Site Description

This site is located on Pico Avenue, across from the Matson Auto Lot. It is adjacent to the Pier B railyard and a major rail line. The immediate area is unpaved and undeveloped.

2.2.11.2 Site Location

The site is labeled as I-11 on the attached map (Fig. 1.2). The site is situated on Pico Avenue across from the Matson Auto Lot. There are several above ground storage tanks and buildings located nearby. The site is located between Pico Avenue and a railway. The Union Pacific Freight Station is located nearby. The site does not have a perimeter fence around the location; access is permitted via Pico Avenue. The area is developed and is assumed to have the necessary electrical connections for the monitoring equipment.

2.2.11.3 Local Surroundings

The site lies approximately 200 feet from nearby structures, which includes a tank farm and several buildings. The tanks located to the south are approximately 40 to 50 feet in height. The buildings are smaller at approximately 20-25 feet in height. Mobile sources are located nearby due to the proximity of a major rail line and railyard as well as Pier B Street.

2.2.11.4 Conformance to USEPA Guidance

The site has adequate security and site access and no adverse geographical conditions. However, the site is not located sufficiently far enough from existing sources of pollution, such as the rail line and railyard. Based on these considerations, the site does not conform to the USEPA guidelines.

2.2.11.5 Summary

Site I-11 is not considered as a viable location for the monitoring program.

2.2 Comparison of Potential Sites

The following table shows a comparison of potential sites for the "Inner Harbor" monitoring station.

Summary of Station Site Analysis

Site ID	Site Description	Is Site Viable?	Rationale
I-1	Former Coast Guard Building Parking Lot	No	Conflicts with future development (Gerald Desmond Bridge Replacement Project
I-2	"Superblock" Area	Yes	Meets siting criteria
I-3	End of Carrack Avenue	Yes	Meets siting criteria
I-4	Vacant Areas near Pico Avenue and Ocean Boulevard	No	Dominated by near-field emission sources (rail and I-710); Lack of infrastructure
I-5	Building Parking Lot Near Pico Avenue and Ocean Boulevard	No	Dominated by near-field emission sources (rail and I-710)
I-6	Pier C, Berth C59	No	Insufficient clearance from structures
I-7	Pier C, Berth C64	No	Site access and H&S concerns
I-8	Edison Avenue adjacent to Petro Diamond Terminal	No	Dominated by near-field emission sources (unpaved roads, terminals)
I-9	Edison Avenue adjacent to Toyota	No	Dominated by near-field emission sources (unpaved roads, terminals, refinery)
I-10	Carrack Avenue east of Valero "Ultramar" Refinery	No	Dominated by near-field emission sources (refinery, rail)
I-11	Pico Avenue across from Matson Auto Lot	No	Dominated by near-field emission sources (rail and I-710)

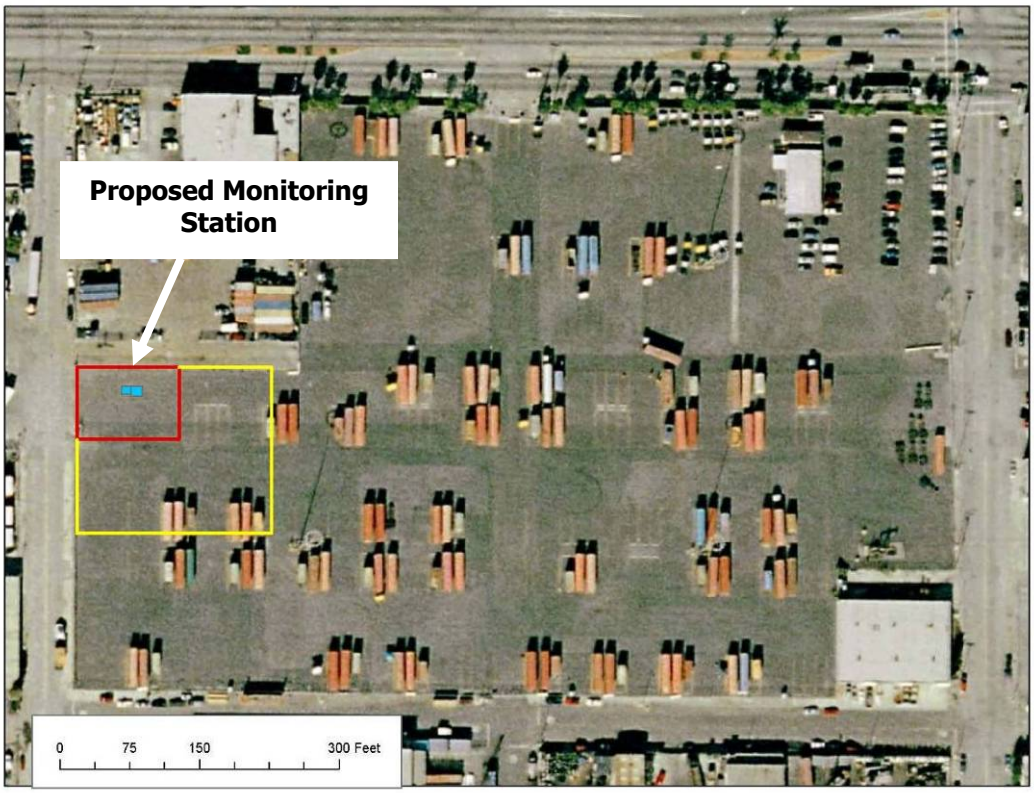
As shown in the above table, Site I-2 and Site I-3 meet all of the site selection criteria.

2.3 Selection of Preferred Site

The Port of Long Beach evaluated the candidate sites with the South Coast Air Quality Management District (AQMD). Based on a review of the available sites and the siting criteria, Site I-2 is considered the preferred site by both the Port and the AQMD. The Superblock area is more centrally located in the Port of Long Beach Inner Harbor area than the I-3 site. Site I-2 site is also preferred due to the current site conditions, including but not limited to foundations, electrical infrastructure, and site security.

Within this area the station is proposed to be located on the west side of the parcel, as shown in Figure 1.3. This area was chosen due to infrastructure and development considerations.

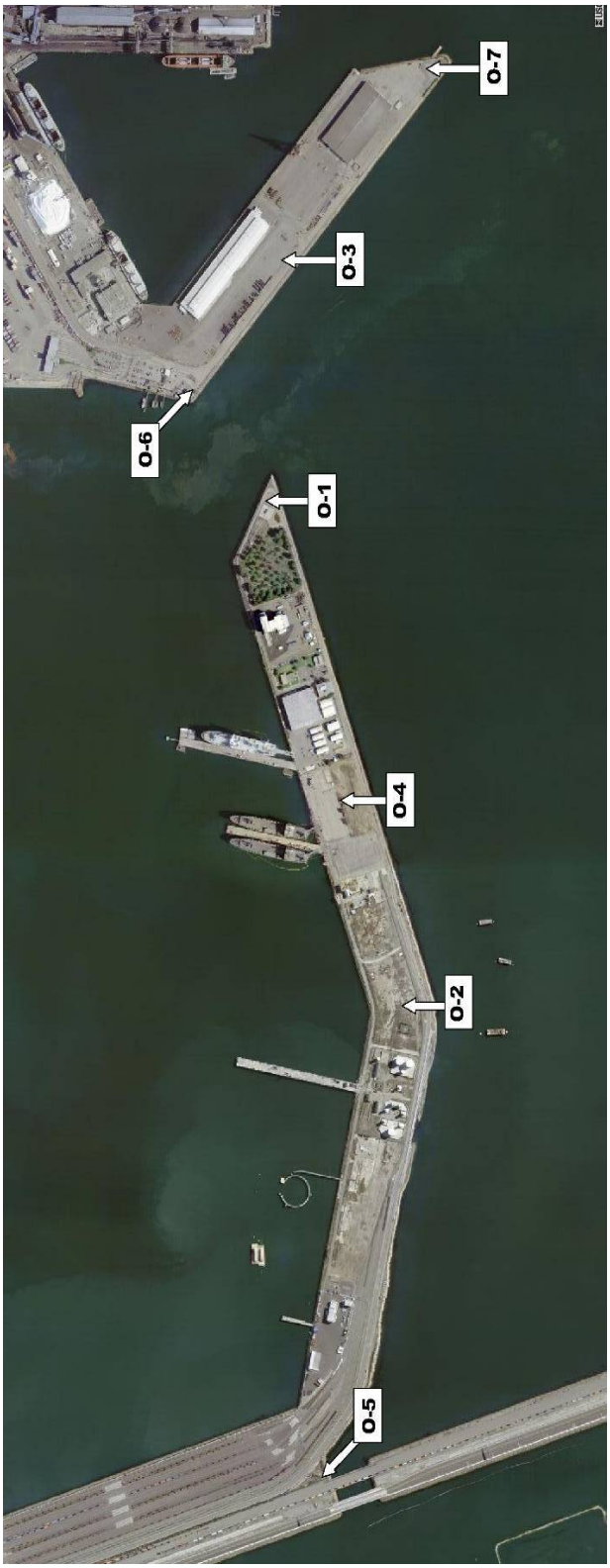
Figure 1.3: Site Detail for Preferred Site I-2



2.4 Analysis of Potential Outer Harbor Sites

This section describes the locations that were considered for the location of the "Outer Harbor" monitoring station. Figure 1.4 shows an aerial photograph of the Outer Harbor area of the Port of Long Beach and indicates the locations of the monitoring sites considered to represent the outer harbor.

Figure 1.4: Outer Harbor Monitoring Sites



2.4.1 Site No. O-1: Navy Mole/Gull Park

2.4.1.1 Site Description

The Navy Mole/Gull Park site is located at the end of Nimitz Road to the east of Pier 16. The site lies on a peninsula that terminates at the Long Beach Channel. There is a helipad at the site which is under concrete, and a large rectangular area to the east, which is paved with asphalt. This area is designated as a bird sanctuary and referred to as Gull Park.

2.4.1.2 Site Location

The site is labeled as O-1 on the attached map (Fig. 1.4). The site is located at the end of Nimitz Road, east of Pier 16, adjacent to the Long Beach Channel. The photograph of the area (Appendix 3, Fig. 10.1) shows that there are several trees are present, but not in substantial numbers so as to significantly effect the monitoring equipment. There are buildings to the west approximately 500 feet from the proposed site. The site has a fence separating the proposed location from the main part of the peninsula. Land access to the site is controlled by a gated entrance from Nimitz Road.

2.4.1.3 Local Surroundings

The buildings to the west of the site are approximately 500 feet away. Across the Long Beach Channel, the arm of Pier F is approximately one-quarter of a mile away. The largest buildings in the vicinity of the proposed site are located at the SeaLaunch terminal. These buildings are several stories high and approximately 150-200 feet across. Nearby emission sources include ocean-going vessels transiting the Long Beach Channel, as well as the vessel and shoreside operations at the adjacent SeaLaunch facility. The helipad is currently not in use and the access road has very little traffic. Existing electrical infrastructure is available at the site.

The Gull Park site has trees on the west side of the parcel, and a number of small structures are present in and around the helipad.

Access to the site requires special training due to the proximity to fueling operations at the nearby Sea Launch facility.

2.4.1.4 Conformance to USEPA Guidance

Based on information gathered from the Port and from maps, photographs and a recent site visit, the site has adequate security and site access and no adverse geographical conditions. The site is considered representative of the outer harbor area as it lies in the proper trajectory of the prevailing winds. The roadway in the area is not heavily traveled, minimizing near-field sampling bias from on-road mobile sources. Ocean-going vessels frequently travel the Long Beach Channel. The impacts in the area are considered typical for the outer harbor area.

2.4.1.5 Summary

Site O-1 meets the factors listed above. A suitable site can be selected within the area so as to minimize the potential impacts of mobile and stationary sources and avoid influence from structures or trees. This site should be considered for the monitoring program.

2.4.2 Site No. O-2: Navy Mole, Adjacent to Pier 12

2.4.2.1 Site Description

The site is located adjacent to Pier 12 on the Navy Mole. The surface is unpaved, and the site is near a fuel storage tank farm and adjacent to a rail spur.

2.4.2.2 Site Location

The site is labeled as O-2 on the attached map (Fig. 1.4). The site is located adjacent to Nimitz Road, Pier 12, and a rail spur. The photograph of the area (Appendix 3, Fig. 11.1-4) shows that the ground is largely unpaved with sparse vegetation. The site has a low perimeter fence around the location; access is permitted via Nimitz Road. The area is developed and is assumed to have the necessary electrical connections for the monitoring equipment.

2.4.2.3 Local Surroundings

There is a fuel storage tank farm to the west of the proposed site as well as several small buildings. These structures are single story and relatively small. The storage tanks vary in diameter and are approximately 20-30 feet high. Because of the large amount of open space in the area, a station could be sited so that impacts from the structures would be minimized. Sources of emissions near the proposed site include ocean-going vessels at Piers 12, 15, and 16, and the tank farm to the west. The site is potentially located downwind of the container operations at Pier 400 in the Port of Los Angeles.

2.4.2.4 Conformance to USEPA Guidance

Based on information gathered from the Port and from maps, photographs and a recent site visit, the site has adequate security and site access and no adverse meteorological or geographical conditions. The site is considered representative of the Outer Harbor area. The roadway in the area is not frequently traveled. Ocean-going vessels traverse the area, but their impacts are upwind. The site is located sufficiently far from emissions sources to minimize near-field sampling bias. Based on these considerations, the site conforms to the USEPA guidelines.

2.4.2.5 Summary

Site O-2 meets the factors listed above. A suitable site can be selected within the area so as to minimize the potential impacts of mobile and stationary sources. This site should be further considered for the monitoring program.

2.4.3 Site No. O-3: End of Pier F Avenue

2.4.3.1 Site Description

The site is located adjacent to Berth F205 on Pier F at the end of Pier F Avenue. The site consists of a flat paved surface in between two large warehouses.

2.4.3.2 Site Location

The site is labeled as O-3 on the attached map (Fig. 1.4). The site is located at the end of Pier F Avenue, adjacent to Berth F205 on Pier F. The photograph of the area (Appendix 3, Fig. 12.1) shows that there are two large warehouses to the north and south of the proposed site. The site is completely paved with little to no vegetation. The site does not have a perimeter fence and access is permitted via Pier F Avenue. The area is developed and is assumed to have the necessary electrical connections for the monitoring equipment.

2.4.3.3 Local Surroundings

There are several two large warehouses located to the north and south of the proposed site. The buildings are approximately 200 feet from the site. Sources of emissions close to the proposed site include ocean-going vessels and cargo handling operations. Also, there is a railway adjacent to the site that transports cargo from the area to the inner harbor area.

2.4.3.4 Conformance to USEPA Guidance

Based on information gathered from the Port and from maps, photographs and a recent site visit, the site has adequate security and site access and no adverse meteorological or geographical conditions. The site is considered representative of the outer harbor area as it lies in the proper trajectory of the prevailing winds. This site is not considered viable due inadequate property and site security concerns.

2.4.3.5 Summary

Site O-3 does not meet the factors listed above, and was not considered for the monitoring program.

2.4.4 Site No. O-4: Navy Mole, adjacent to Piers 15 and 16

2.4.4.1 Site Description

The site is located adjacent to Piers 15 and 16.

2.4.4.2 Site Location

The site is labeled as O-4 on the attached map (Fig. 1.4). The site is located adjacent to Nimitz Road and Piers 15 and 16. There are a few small buildings to the southwest and several larger buildings to the northeast. The ground is paved. The site has a perimeter fence around the location; access is permitted via Navy Mole Road. The area is developed and is assumed to have the necessary electrical connections for the monitoring equipment.

2.4.4.3 Local Surroundings

There are several large buildings located near the proposed site. Impacts from the structures may significantly impact the monitoring site. Emissions from ocean going vessels may adversely impact the monitoring site.

2.4.4.4 Conformance to USEPA Guidance

Based on information gathered from the Port and from maps, photographs and a recent site visit, the site has adequate security and site access and no adverse meteorological

or geographical conditions. The site is considered representative of the Outer Harbor area as it lies in the proper trajectory of the prevailing winds. The proximity to sources of pollution, such as ocean-going vessels and cargo handling equipment may impact the site. Based on this review of the criteria, the site does not conform to the USEPA guidelines.

2.4.4.5 Summary

Site O-4 does not meets the factors listed above and was not considered for the monitoring program.

2.4.5 Site No. O-5: West End of Navy Mole

2.4.5.1 Site Description

The site is located at the west end of Navy Mole between two major rail lines. The immediate area is unpaved.

2.4.5.2 Site Location

The site is labeled as O-5 on the attached map (Fig. 1.4). The site is located at between two major rail lines at the border between the Ports of Los Angeles and Long Beach at the west end of Navy Mole. The photograph of the area (Appendix 3, Fig. 13.1-4) shows that the site is in a depression between two major rail lines. Because the site is located between two major rail lines, there are some concerns regarding safety and ease of access. The area is developed and is assumed to have the necessary electrical connections for the monitoring equipment.

2.4.5.3 Local Surroundings

There are a few small buildings to the east of the location and are located approximately several hundred feet away. There structures are single story and relatively small. Impacts from the structures will be minimal. The area is bordered by elevated railways on either side, which are used to transport cargo from the outlying piers.

2.4.5.4 Conformance to USEPA Guidance

Based on information gathered from the Port and from maps, photographs and a recent site visit, the site has adequate security and site access and no adverse meteorological conditions. The site is considered representative of the outer harbor area, however, the proximity and elevation of the two rail lines is of concern. Thus, the site does not conform to the USEPA guidelines.

2.4.5.5 Summary

Site O-5 does not meet the factors listed above. The site is too close to existing sources of pollution and has elevation issues. This site was not considered for the monitoring program.

2.4.6 Site No. O-6: Jacobson Pilot Station

2.4.6.1 Site Description

The site is located on Pier F at the Jacobson Pilot Station.

2.4.6.2 Site Location

The site is labeled as O-6 on the attached map (Fig. 1.4). The site is located adjacent to a major rail line that runs the length of Pier F. The photograph of the area (Appendix 3, Fig. 14.1) shows that there are few buildings in the area. The site is accessible via Pier F Avenue. There is no existing perimeter fence. The area is developed and is assumed to have the necessary electrical connections for the monitoring equipment. However, there is insufficient property available at this location and may conflict with future development plans.

2.4.6.3 Local Surroundings

There are a few small buildings to the east of the location. They are located approximately several hundred feet away. There are also nearby container stacks. There structures are single story and relatively small. Impacts from the structures will be minimal. However, stacks of containers are located nearby, which are approximately 25 feet in height. The area is adjacent to Pier F Avenue and a major rail line. Also, ocean going vessels travel through the region, which may impact the site.

2.4.6.4 Conformance to USEPA Guidance

Based on information gathered from the Port and from maps, photographs and a recent site visit, the site has adequate security and site access and no adverse meteorological or geographical conditions. The site is considered representative of the Outer Harbor area as it lies in the proper trajectory of the prevailing winds. Therefore, the site does not conform to the USEPA guidelines.

2.4.6.5 Summary

Site O-6 does not meet the factors listed above and was not considered for the monitoring program.

2.4.7 Site No. O-7: End of Pier F

2.4.7.1 Site Description

This site is located at the end of Pier F.

2.4.7.2 Site Location

The site is labeled as O-7 on the attached map (Fig. 1.4). The site is located at the end of Pier F beyond the point where Pier F Avenue terminates. There is a large building to the north of the proposed site. The site does not have a perimeter fence around the location and access is permitted via Pier F Avenue. The area is developed and is assumed to have the necessary electrical connections for the monitoring equipment. However, because the site is located at the end of Pier F, access may be difficult to due to the volume of cargo handling operations.

2.4.7.3 Local Surroundings

The site lies approximately 200 feet from the nearest building and is located near a railway and cargo handling equipment. Additionally, nearby berthed ships at Pier F could impact the monitoring station.

2.4.7.4 Conformance to USEPA Guidance

The site is considered representative of the Outer Harbor area as it lies in the proper trajectory of the prevailing winds. The proximity to sources of pollution, such as ocean-going vessels, cargo handling equipment, and the railway, may impact the site. Additionally, there are site access concerns with the site.

2.4.7.5 Summary

Site O-7 does not meet the factors listed above and was not considered for the monitoring program.

2.5 Comparison of Potential Sites

The following table shows a comparison of potential sites for the location of the "Outer Harbor" monitoring station.

Summary of Station Site Analysis

Site ID	Site Description	Is Site Viable?	Rationale
O-1	Navy Mole Helipad/Gull Park	Yes	Meets siting criteria
O-2	Navy Mole adjacent to Pier 12	Yes	Meets siting criteria
O-3	Pier F at the end of Pier F Avenue	No	Insufficient property available; security concerns
O-4	Navy Mole adjacent to Piers 15 and 16	No	Dominated by near-field emission sources (vessels)
O-5	West end of Navy Mole	No	Dominated by near-field emission sources (rail); geographic concerns; security concerns
O-6	Jacobson Pilot Station/Pier F	No	Insufficient property available; conflict with potential development
O-7	End of Pier F	No	Site access and H&S concerns; dominated by near-field emission sources

As shown in the above table, Site O-1 and Site O-2 meet all of the site selection criteria.

2.6 Selection of Preferred Site

The Port of Long Beach evaluated the candidate sites with the AQMD. Based on a review of the available sites and the siting criteria, Site O-1 is considered the preferred site by both the Port and the AQMD. This determination is based on the fact that the Gull Park site is more centrally located, easily secured and less likely to be impacted by any future development on the Navy Mole. The O-2 site, while satisfactory, is located adjacent a rail spur and is an area that could be affected by future development.

Within the Gull Park area the station is proposed to be located on the east side of the parcel, as shown in Figure 1.5. This area was chosen due to distance from potential obstructions (e.g., trees). Necessary infrastructure is located in the area.

Figure 1.5: Site Detail for Preferred Site O-1 (Gull Park)

APPENDIX 3

Photos of Monitoring Station Candidate Sites

A. Potential Interior Harbor Monitoring Station Sites

Figure 1.1: I-1 Site Location

Figure 1.2: I-1 Site Location

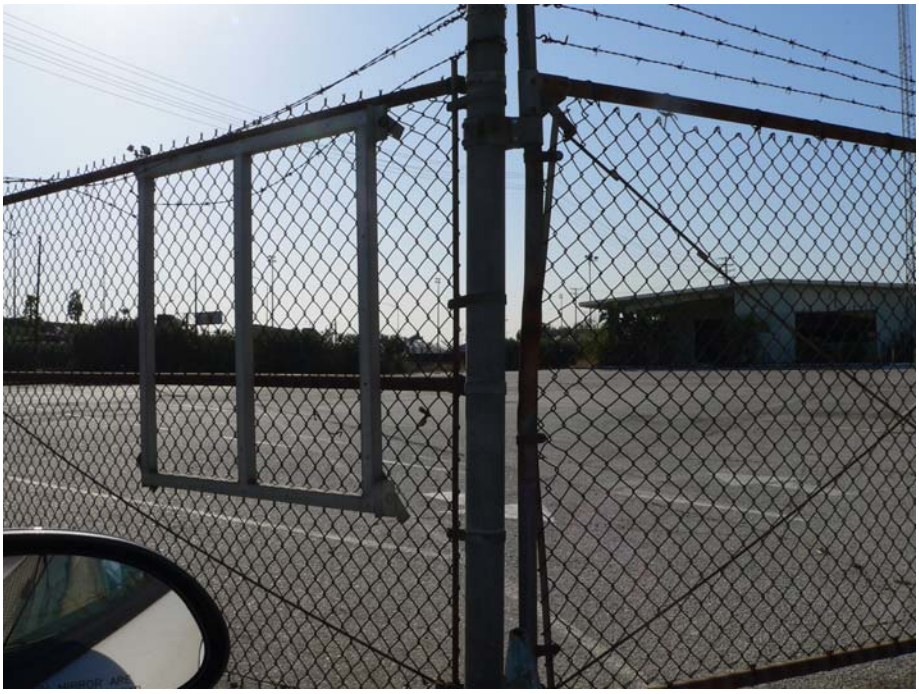


Figure 2.1: I-2 Site Location

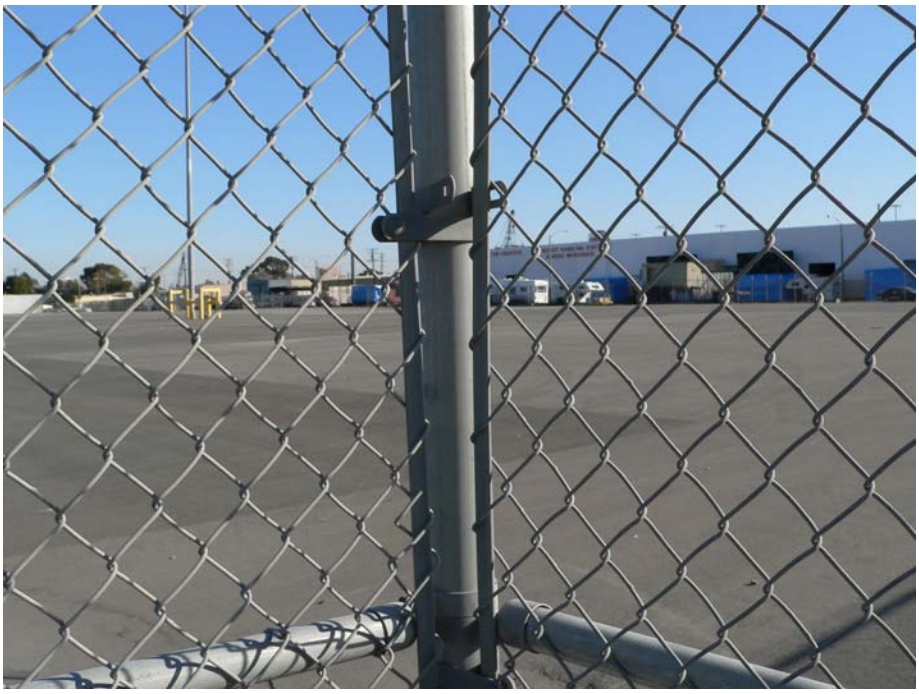


Figure 2.2: I-2 Site Location

Figure 3.1: I-3 Site Location

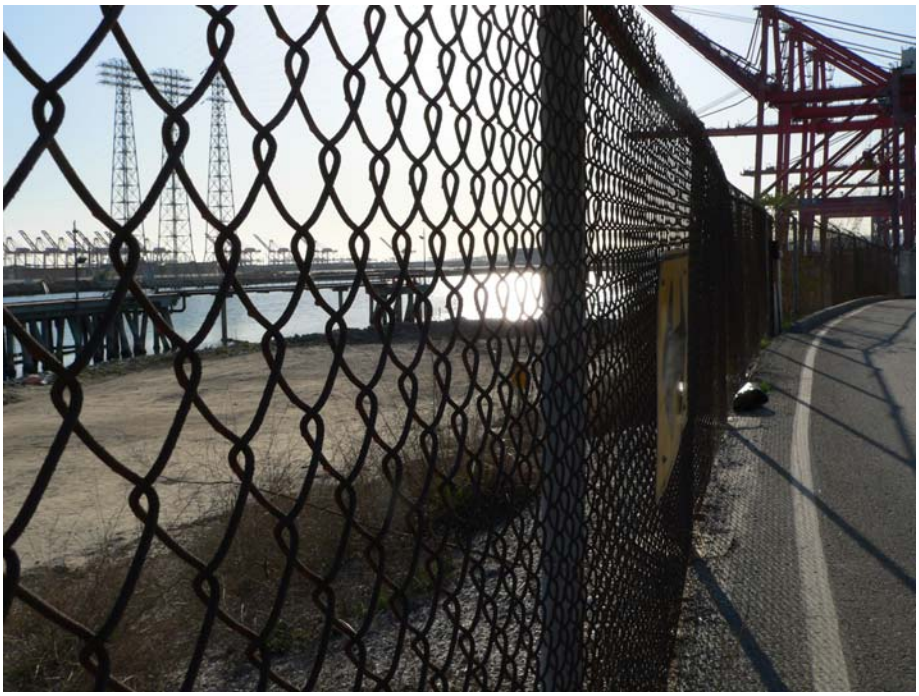


Figure 3.2: I-3 Site Location

Figure 4.1: I-4 Site Location

Figure 4.2: View from I-4, Facing South

Figure 5.1: I-5 Site Location

Figure 5.2: I-5 Site Location

Figure 6.1: I-6 Site Location

Figure 6.2: I-6 Site Location

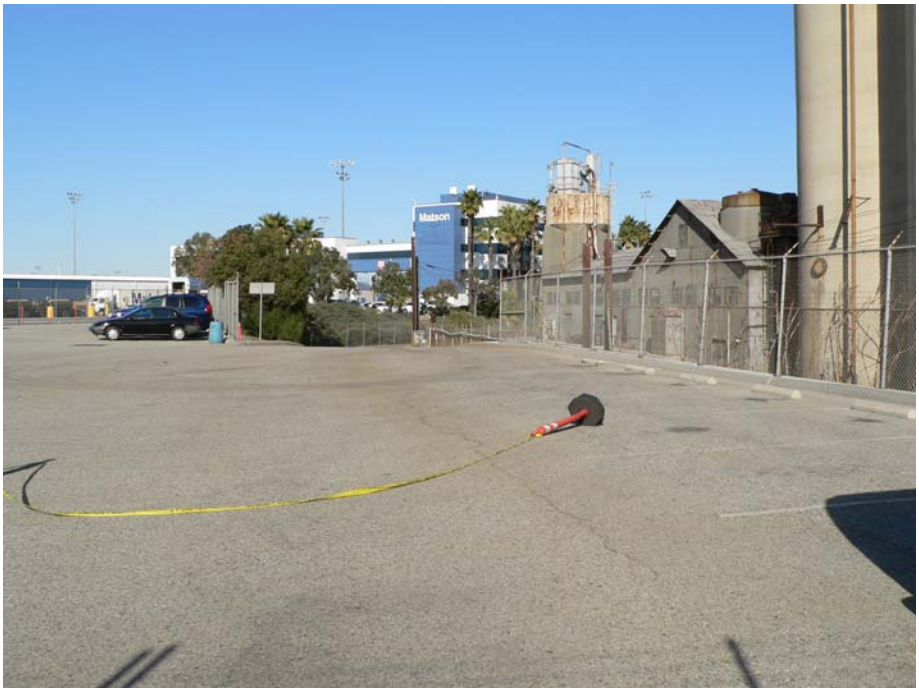


Figure 7.1: I-8 Site Location

Figure 8.1: I-9 Site Location

Figure 8.2: I-9 Site Location

Figure 9.1: I-10 Site Location

Figure 9.2: I-10 Site Location

B. Potential Outer Harbor Monitoring Station Sites

Figure 10.1: View of O-1 from Pier F

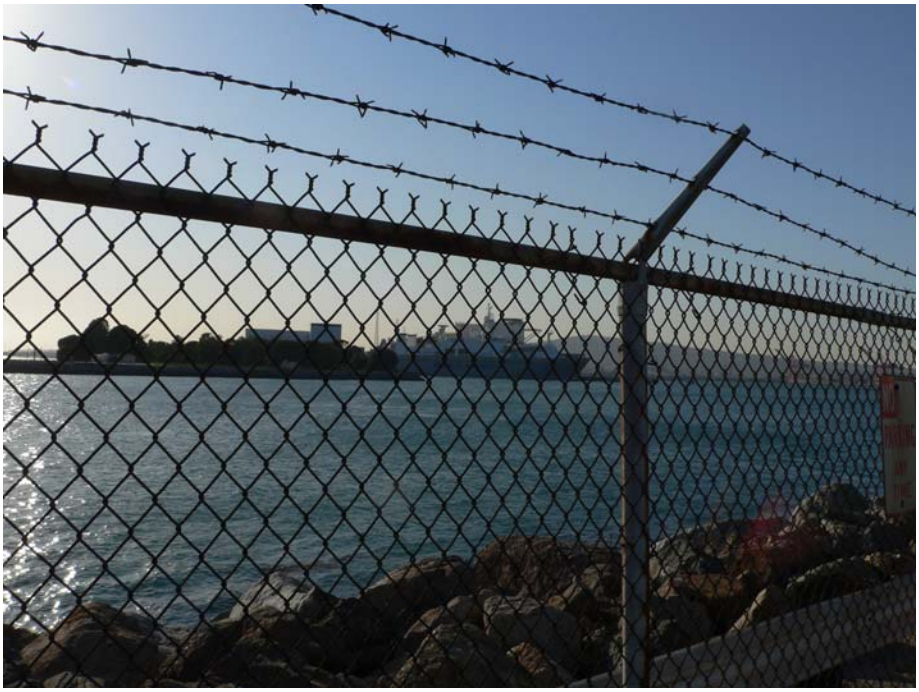


Figure 11.1: View from O-2 Facing South

Figure 11.2: View from O-2 facing South/Southwest

Figure 11.3: View from O-2, facing Northeast

Figure 11.4: View from O-2, facing West

Figure 12.1: O-3 Site Location

Figure 13.1: O-5 Site Location

Figure 13.2: View from O-5, facing Southeast

Figure 13.3: View from O-5, facing West

Figure 13.4: View from O-5, facing Southwest

Figure 14.1: O-6 Site Location

EXHIBIT R
POLB AIR MONITORING QUALITY ASSURANCE PLAN

Port of Long Beach
Port Air Monitoring Quality Assurance Plan

Port of Long Beach

Quality Assurance Plan for the Air Quality Monitoring Program

Port of LONG BEACH
The Green Port

November 2010 Update

Prepared by:

SAIC
From Science to Solutions

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List of Tables

List of Acronyms

BAM	Beta-attenuation mass
CARB	California Air Resources Board
CFR	Code of Federal Regulations
Cl	Chlorine
CO	Carbon monoxide
DAHS	Data Acquisition and Handling System
DBS	Database management system
DOP	Dioctyl Phthalate
DQA	Data Quality Assessment
EIR	Environmental Impact Report
FEM	Federal Equivalent Method
FRM	Federal Reference Method
GALP	Good Automated Laboratory Practices
K	Potassium
km	Kilometer
Na	Sodium
ND	Negative Declaration
NH4	Ammonium
NO_2	Nitrogen dioxide
NO_3	Nitric oxide
NPAP	National Performance Audit Program
O&M	Operation & Maintenance
O_3	Ozone
PAH	Polycyclic aromatic hydrocarbons
PM_{10}	Particulate matter with an aerodynamic diameter of 10 microns
$PM_{2.5}$	Particulate matter with an aerodynamic diameter of 2.5 microns
Port	Port of Long Beach
QA	Quality Assurance
QAO	Quality Assurance officer
ROI	Region of Influence
SAIC	Science Applications International Corporation
SO_2	Sulfur dioxide
SO_4	Sulfate
SOP	Standard Operating Procedures
TAHA	Terry A. Hayes & Associates
USEPA	United States Environmental Protection Agency

1.0 INTRODUCTION

The Port of Long Beach (Port) has developed a program to collect representative ambient air quality and meteorological data within the Port operational region of influence (ROI). The Port network consists of two monitoring stations which are designed to monitor the following parameters:

- Real-time measurement of ambient air quality concentrations for nitrogen dioxide (NO_2), ozone (O_3), carbon monoxide (CO), sulfur dioxide (SO_2), particulate matter less than 10 microns in aerodynamic diameter (PM_{10}), and particulate matter less than 2.5 microns in aerodynamic diameter ($PM_{2.5}$).
- Sampling for filter-based analysis of ambient PM_{10} and $PM_{2.5}$ concentrations.
- Real-time measurement of meteorological parameters, including wind direction, wind speed, ambient temperature, humidity, and barometric pressure, precipitation, and solar radiation.

This document presents the Quality Assurance (QA) plan for the Port's air quality monitoring program. This document was originally published in March 2008.

2.0 PROJECT MANAGEMENT

2.1 Project/Task Organization

The development and implementation of the QA Plan requires clearly defined responsibilities and lines of communication. The responsibilities of key project personnel are described below:

Port of Long Beach Assistant Director of Environmental Planning – Heather Tomley

- Responsible for overall management of project for the POLB
- Coordinates decisions made by the Port with respect to the monitoring program
- Works with POLB project manager to resolve project issues

Port of Long Beach Project Manager – Janna Watanabe

- Primary point of contact at the Port
- Coordinates decisions made by the Port with respect to the monitoring program
- Works with SAIC project manager and technical project manager to resolve project issues

SAIC Project Manager – Scott Weaver

- Responsible for overall management of project, including budget and schedule
- Works with SAIC technical project manager to resolve technical and project issues

SAIC Technical Manager – Gary Bertolin

- Overall responsibility for operation of monitoring program

- Works with SAIC project manager to meet project objectives
- Works with other SAIC team members (staff from SAIC, TAHA, and AIRSIS) to ensure the success of the monitoring program

SAIC Field Supervisor – Joel Torcolini

- Responsible for day-to-day operations of the monitoring program
- Works closely with TAHA technicians to ensure proper operation of monitoring stations
- Responsible for remotely downloading project air quality and meteorological data on a routine basis to ensure high data capture rate
- Works with technical project manager to resolve any project-related technical issues

TAHA Planner – Mike Sullivan

- Responsible for coordinating technician support
- Works with TAHA Technician to meet project objectives
- Responsible for maintaining contact with SAIC project scientist
- Responsible for shipments of samples to the laboratory

2.2 Project/Task Description

The QA Plan specifies all quality assurance and quality control (QC) procedures for calibration and operation of the monitoring stations, as well as the air quality and meteorological data. All QA methods are consistent with United States Environmental Protection Agency (USEPA) requirements specified in Title 40 of the Code of Federal Regulations (CFR), Part 58[1] and the USEPA *Quality Assurance Handbook for Air Pollution Measurement Systems*, and the California Air Resources Board (CARB) *Air Monitoring Quality Assurance Manual*.

2.3 Quality Objectives and Criteria for Measurement Data

All quality objectives and criteria for measurement data are consistent with USEPA requirements specified in 40 CFR Part 58 and the USEPA Quality Assurance Handbook, and CARB Quality Assurance Manual.

2.4 Special Training/Certification

Project personnel are trained in the proper use of all equipment and sample handling in accordance with standard operating procedures (SOPs) contained in the Monitoring Plan.

[1] Denoted as 40 CFR Part 58.

2.5 Documents and Records

All documentation and records are retained for 3 years in accordance with 40 CFR Part 31.42. The following documentation for the Port's air quality monitoring program is maintained:

- QA Plan
- SOPs
- Field and laboratory notebooks
- Sampling handling/custody records

3.0 DATA GENERATION AND ACQUISITION

3.1 Sampling Process Design

The Port's monitoring stations primarily collect data to provide an indication of real-time ambient air quality and meteorological conditions in the inner harbor and the outer harbor areas of the Port. The collected data may also be used to support various studies, response to actions by regulatory agencies regarding air emissions at the Port, and development of environmental documents (e.g. EIRs, NDs). In order to ensure that the data generation and acquisition are appropriate for these end-uses, the locations of the monitoring stations were selected with consideration of the following four parameters:

1. Identification of the monitoring objective and appropriate data quality objectives
2. Identification of the spatial scale for the monitoring objective
3. Identification of the most appropriate site location
4. Identification of the specific monitoring sites

The following sections describe these four parameters in greater detail.

3.1.1 Monitoring Objectives and Data Quality Objectives

The objective of the air quality monitoring program is to provide quantitative data of ambient air quality and meteorological conditions in the inner harbor and the outer harbor areas of the Port. The Port's monitoring stations are designed to measure and capture the ambient air quality concentrations for gaseous NO_2, O_3, CO, SO_2, PM_{10}, and $PM_{2.5}$. The measurement of meteorological parameters, such as ambient temperature, relative humidity, wind direction, horizontal wind speed, barometric pressure, solar radiation, and precipitation are also captured.

The data quality objectives are to have accurate and precise data recorded by each monitoring station. To achieve these objectives, the equipment is initially calibrated by the manufacturer. Any future calibrations are performed according to manufacturer specifications. The equipment is also tested and maintained according to manufacturer specifications. The data is sampled and downloaded on a regular basis and analyzed for errors using appropriate statistical methods. Sampling is conducted using reference or equivalent methods as specified in the USEPA Quality Assurance Handbook. Error analyses are performed using procedures listed in the USEPA Quality Assurance

Handbook as well as other appropriate documents.[2] The data is screened for errors prior to any further analysis or calculations in a consistent and appropriate manner. Additional information regarding equipment calibrations, testing, and maintenance are contained in Sections 3.9, 3.10, and 3.11. Additional information regarding sampling and error analyses are discussed in Sections 3.5, 3.6, and 3.7 and in Section 5.0, respectively.

3.1.2 Monitoring Spatial Scales

The Port covers more than 3,000 acres of land. In order to satisfy the monitoring objectives described in Section 3.1.1, the monitoring spatial scale of the stations has been classified as "Neighborhood," according to the USEPA Quality Assurance Handbook. This classification is appropriate for measuring concentrations within some extended area that has relatively uniform land use with dimensions in the 0.5 to 4.0 kilometer (km) range. This spatial scale allows the Port to obtain data representative of inner harbor and outer harbor areas. This spatial scale classification is also appropriate for each of the air pollutants being monitored.

3.1.3 Site Locations

The selection of monitoring site locations at the Port was dependant upon several criteria. These included the following:

1. Economics and resources available for the monitoring effort
2. Security of the location
3. Logistics of site access, data collection, etc.
4. Meteorological conditions
5. Geographical variability
6. Pollutant considerations (e.g. ambient concentrations, existing sources, etc.)
7. Inner harbor vs. Outer harbor area

The locations for the two proposed monitoring stations is discussed in the *Port of Long Beach Air Quality Monitoring Program: Air Quality Monitoring Plan* (Monitoring Plan). The Monitoring Plan analyzed the above criteria and described the location determinations.

[2] The procedures listed in the USEPA Handbook include: *Data Quality Assessment: A Reviewer's Guide*, QA/G-9R, USEPA, EPA/240/B-06/002, February 2006; Rhodes, R.C., "Guideline on the Meaning and Use of Precision and Accuracy Data Required by 40 CFR Part 58, Appendices A and B", EPA60014-83-023, June 1983; *Selecting Sites for Carbon Monoxide Monitoring*, EPA-450/3-75-077, September 1975; and *Validation of Air Monitoring Data*, USEPA, EPA-600/4-80-030, June 1980.

3.1.4 Specific Monitoring Sites

At each selected location, the monitoring stations are situated in an area that allows for maximal air flow. Proximity to obstructions, such as trees and fences, can alter air flow. Areas prone to ground dust may also adversely impact measurements. It is important for the air flow around the monitoring stations to be representative of the general air flow in the area to prevent sampling bias. Sampling bias occurs when there is a non-random difference between the conditions of a sample taken at a specific location and the average conditions over the area in which the sample is supposed to represent. The specific monitoring sites are determined in the Monitoring Plan so as to avoid or minimize such sampling bias to the extent feasible. The plan takes into consideration the various factors in order to minimize sampling bias.

3.2 Data Types

Under the Port's monitoring program, there are essentially three different types of data sets that are collected: (1) continuous pollutant data, (2) particulate matter filter-based samplers, and (3) meteorological.

Continuous Pollutant Data

Continuous data are obtained for the gaseous pollutants (i.e. NO_X, O_3, CO, and SO_2) using various gaseous analyzers as well as for PM_{10} and $PM_{2.5}$ using beta-attenuation mass (BAM) particulate analyzers.

Particulate matter filter-based samplers

This data type is obtained for PM_{10} and $PM_{2.5}$ using different types of filters and specially designed equipment to separate the particles into the appropriate sizes. PM_{10} is collected using equipment with a single filter. $PM_{2.5}$ is collected using equipment with a single filter and equipment with multi-port samplers using multiple filters. The reason for using multiple filters for $PM_{2.5}$ is to allow for $PM_{2.5}$ speciation analysis. Each of the filters operates for a specified length of time. A technician physically removes the filters from the monitoring equipment on a regular schedule at which time they are stored in a refrigerator until they are sent to a laboratory for analysis. Extra care must be taken when handling and shipping the filters.

Meteorological Data

Meteorological data is collected on a continuous basis using an array of equipment and analyzers. Measurement of meteorological parameters does not involve collection of any physical samples.

3.3 Number of Monitoring Stations

There are two monitoring stations in the Port's air quality monitoring program. One station is located in a representative location defined as the inner harbor area (Superblock site). The second station is located in a representative location defined as the outer harbor area (Gull Park site).

3.4 Data Retrieval and Sampling Schedules

Under the Port's monitoring program, data is regularly downloaded for real-time and meteorological data while filter-based samples are collected for particulate matter.

Continuous Pollutant Data

This data type is downloaded on a weekly schedule. The raw data is safely archived before any validation or calculations are performed. Error analyses are performed as specified in the data quality objectives in Section 3.1.1.

Continuous data is archived in three different manners within the Port's monitoring program. Each station employs a central datalogger (ADAM) that collects and stores data from all continuous monitoring equipment at the site. Each stations' central datalogger then interfaces with a Station Manager PC, which is a complete data management system designed to organize and store the data on the PC's hard drive.

The last methodology for archiving continuous data is by remotely polling into each of the Port's monitoring stations and transferring the data to a central storage station at SAIC offices in San Diego, CA. The Station Manager PCs at each monitoring site are designed with Signal Interface Unit Hardware, which allows remote polling for retrieval and storage of onsite data through a broadband wireless connection. The Station Manager is set up to retrieve each station's continuous data on a weekly basis, while manual polling is possible whenever deemed necessary.

Particulate matter filter-based samplers

The sampling is conducted on a schedule in accordance with 40 CFR Part 58 Section 58.12 and Appendix D: PM_{10} concentrations are sampled on the USEPA 6-day monitoring schedule and $PM_{2.5}$ concentrations on the USEPA 3-day monitoring schedule. Procedures from the equipment manufacturer are followed as to how to properly remove, handle and store the filter. A new filter is installed according to manufacturer procedures immediately after safely removing and storing the used filter.

Meteorological Data

Meteorological data is downloaded similarly to continuous pollutant data. The schedule coincides with the established schedule for the continuous pollutant data.

3.5 Sampling and Analysis Methods

The Port's monitoring program uses Federal Reference Methods (FRMs) and Federal Equivalent Methods (FEMs). FRMs are methods of sampling and analyzing the ambient air for an air pollutant or a method that has been designated as a reference method in accordance with 40 CFR Part 50. FEMs are methods of sampling and analyzing the ambient air for an air pollutant that has been designated as an equivalent method in accordance with 40 CFR Part 53. The data from the Port's monitoring program are used for a wide array of applications. Therefore, the sampling methods primarily utilize FRMs to achieve maximum applicability. The FRM sampling methods that are used are shown below in Table 1 and are incorporated by reference into this document.

Table 1. FRM Sampling Methods

Parameter	Federal Reference Method
NO_2	40 CFR, part 50, Appendix F
O_3	40 CFR, part 50, Appendix D
CO	40 CFR, part 50, Appendix C
SO_2	40 CFR, part 50, Appendix A
PM_{10}	40 CFR, part 50, Appendix J
$PM_{2.5}$	40 CFR, part 50, Appendix L

The FEM sampling methods that are used are shown below in Table 2 and are incorporated by reference into this document.

Table 2. FEM Sampling Methods

Parameter	Federal Equivalent Method
PM_{10} Beta Attenuation Mass (BAM) Monitors	40 CFR, part 53
$PM_{2.5}$ BAM Monitors	40 CFR, part 53
$PM_{2.5}$ Sequential Filter Samplers (SFS)	40 CFR, part 53

3.6 Sample Handling and Custody

As mentioned in Section 3.4, samples are not retained for real-time measurements of gaseous NO_2, O_3, CO, and SO_2 and for real-time particulate matter measurements. Data for real-time measurements are captured through continuous real-time measurement analyzers.

Filter-based samples are collected for PM_{10} and $PM_{2.5}$ using FRM samplers. A FRM sampler draws ambient air at a constant flow rate into a specially shaped inlet where the suspended particulate matter is inertially separated into one or more size fractions within the proper size range. The particles are collected on a single specially designed filter over a specified time range. For $PM_{2.5}$ speciation analyses, this program has used FEM SFS units, which work similarly to an FRM sampler, but have multiple inlets and can accommodate multiple filters. Currently, PM2.5 speciation analysis is not occurring and the SFSs have been removed from the monitoring stations.

Particular attention must be paid to the handling of filters for particulate matter (especially $PM_{2.5}$). Handling of these samples are performed in accordance with the SOPs contained in the Monitoring Plan. SOPs are written documents that detail the method for an operation, analysis, or action with thoroughly prescribed techniques and steps and are officially approved as the method for performing certain routine and

repetitive tasks. The SOPs provide instructions for removal of the filters, packaging, labeling, storage, and transportation. Transportation SOPs include the protocol for chain of custody documents.

Generally, the handling and shipping of the particulate matter samples are performed by the O&M subcontractor, TAHA, with oversight from SAIC staff.

3.7 Analytical Methods

Analytical methods are selected based on the constituents to be measured, the tolerable measurement uncertainty, and on the type of equipment in use at the monitoring stations. All laboratory analyses are performed by a certified environmental laboratory in accordance with EPA and/or other applicable methods. Lab analyses are performed on $PM_{2.5}$ and PM_{10} sample filters in accordance with the following CARB SOPs:

- SOP 055-0.0: Determination of $PM_{2.5}$ Mass in Ambient Air by Gravimetric Analysis
- SOP 065-1.0: Organic and Elemental Carbon Analysis of Exposed Quartz Microfiber Filters
- SOP 034-2.0: Determination of Elemental Concentrations in Ambient Air by Energy-Dispersive X-Ray Fluorescent Spectroscopy
- SOP 064-0.0: Analysis of Anions and Cations in $PM_{2.5}$ Speciation Samples by Ion Chromatography
- SOP 028-3.2: Determination of Selected Polyaromatic Hydrocarbons (PAH) in Ambient Air

3.8 Quality Control

Quality control refers to the overall system of technical activities that measures the attributes and performance of the Monitoring Plan against defined standards to verify that they meet the stated established objectives. Quality control is both corrective and proactive in establishing techniques to prevent the generation of unacceptable data. General quality control checks are listed in 40 CFR Part 58 Appendix A. Specific quality control checks are also listed in the FRMs in Section 3.5. Applicable checks contained in these regulations are utilized for the Port's monitoring program.

3.9 Instrument/Equipment Calibration and Frequency

Each of the monitoring stations consists of the equipment listed below. These equipment lists reflects the current conditions at each site.

Station #1 - Superblock

- Thermo Model No. 43i - Pulsed Fluorescence Ambient SO_2 Analyzer
- Thermo Model No. 42i - Chemiluminescent NO-NO_2-NO_x Analyzer
- Thermo Model No. 48i - Gas Filter Correlation CO Analyzer
- Thermo Model No. 49i - U.V. Photometric Ozone (O_3) Analyzer
- Thermo Model No. 146i - Multigas Calibrator
- Thermo Model No. 99-004145-0120 - Single Channel FRM Samplers: Model 2000 Partisol-FRM PM-2.5 Sampler 120 VAC
- Thermo Model No. 99-005916-0120 - Partisol-FRM PM_{10} Sampler 120 VAC
- Thermo Model No. 57-008887 - Streamline Pro MultiCal System
- Thermo Model No. Data Logger 5000 Series - EMC Complete Data System
- Thermo Model No. SM-7 - Sample Manifold System
- Thermo Model No. Shelter 8810 - Environmentally Controlled Equipment Shelter
- Thermo Model SO_2/NO/CO - (SO_2/NO/CO) Cylinder with Regulator
- Met One Instruments Model No. BAM 1020 – PM_{10} Beta-Attenuation Mass Monitor
- Met One Instruments Model No. BAM 1020 – $PM_{2.5}$ Beta-Attenuation Mass Monitor
- Met One Instruments Model No. 010C-1 - Wind Speed Sensor
- Met One Instruments Model No. 020C-1 - Wind Direction Sensor
- Met One Instruments Model No. 083D-1-35 - Humidity/Temperature Sensor
- Met One Instruments Model No. 5890 - Radiation Shield, Six Plate
- Met One Instruments Model 092D - Barometric Pressure Sensor
- Met One Instruments Model 096-1 - Solar Radiation Sensor
- Met One Instruments Model 370 – 8 Inch Rain Gauge

Station #2 - Gull Park

- Thermo Model No. 43i - Pulsed Fluorescence Ambient SO_2 Analyzer
- Thermo Model No. 42i - Chemiluminescent NO-NO_2-NO_x Analyzer
- Thermo Model No. 48i - Gas Filter Correlation CO Analyzer
- Thermo Model No. 49i - U.V. Photometric Ozone (O_3) Analyzer
- Thermo Model No. 146i - Multigas Calibrator
- Thermo Model No. 99-005916-0120 - Partisol-FRM PM_{10} Sampler 120 VAC
- Thermo Model No. 57-008887 - Streamline Pro MultiCal System
- Thermo Model No. Data Logger 5000 Series - EMC Complete Data System
- Thermo Model No. SM-7 - Sample Manifold System
- Thermo Model No. Shelter 8810 - Environmentally Controlled Equipment Shelter
- Thermo Model SO_2/NO/CO - (SO_2/NO/CO) Cylinder with Regulator

- Met One Instruments Model No. BAM 1020 – PM_{10} Beta-Attenuation Mass Monitor
- Met One Instruments Model No. BAM 1020 – $PM_{2.5}$ Beta-Attenuation Mass Monitor
- Met One Instruments Model No. 010C-1 - Wind Speed Sensor
- Met One Instruments Model No. 020C-1 - Wind Direction Sensor
- Met One Instruments Model No. 083D-1-35 - Humidity/Temperature Sensor
- Met One Instruments Model No. 5890 - Radiation Shield, Six Plate
- Met One Instruments Model 092D - Barometric Pressure Sensor

The equipment was calibrated and tested prior to initial operation in 2006. Each analyzer is calibrated in accordance with the analyzer's instruction manual. All of the calibration data and related calculations are recorded in a calibration log book.

The equipment calibration documentation must be kept on-site with each analyzer and in a backup file. This documentation includes calibration data, calibration equation(s), analyzer identification, calibration date, analyzer location, calibration standards, identification of calibration equipment, and the person conducting the calibration.

3.10 Instrument/Equipment Testing, Inspection, and Maintenance

Inspection and periodic maintenance procedures are followed in accordance with the SOPs contained in the Monitoring Plan and with the equipment manufacturer's instruction manual. Following EPA's guidelines, all of the gaseous criteria pollutant analyzers undergo automatic zero and span calibrations on a daily basis to verify that their performance continues to meet the manufacturer's standards. If any problems are identified during these daily calibrations, the TAHA technician and/or field supervisor visits the station to provide a follow-up investigation to ensure that the instrument is performing according to the manufacturer's specifications. In addition, the data is transmitted in real-time via cellular modem back to SAIC's offices, where they are reviewed on a daily basis. If any problems or questions in the operation of the stations arise, the TAHA technician is immediately dispatched to provide a follow-up investigation. In this manner, the operation of the station is maintained at peak efficiency. The Met Data instruments undergo calibrations and inspections during the semi-annual audits conducted at the Port. The met data instruments which are calibrated include the Wind Speed Sensor, the Wind Direction Sensor, and the Humidity/Temperature Sensor.

SAIC has established a Preventative Maintenance (PM) schedule for all of the instruments at the Port. This PM schedule is vital to the success of the Program and in maintaining the instruments at optimum performance. The PM schedule has been developed through SAIC's field experience and by working with the instrument manufacturer. For example, there are some parts in various instruments that the manufacturer recommends annual replacement. SAIC has a specific date in the PM schedule for replacement of these parts, and maintains a supply of spare parts on hand that are used during these periodic replacements. This proactive approach maximizes instrument performance, minimizes instrument downtime, and ensures that data recovery is maintained as high as possible.

As another example of SAIC's proactive approach to station maintenance, we perform periodic flow checks, leak tests, and nozzle and vane cleaning per the manufacturer's recommendations. We also perform annual field zero background tests to ensure that the instruments are performing well and that the data are valid.

In order to adhere to the highest standard of data collection, all maintenance activities are to be recorded in the log books found at every station. Information that needs to be recorded includes: date, station, concise description of the activity being performed as well as start and completion times and any problems encountered during the service, and the name of the individual making the entry. Following this PM schedule helps to ensure the equipment is operating according to the manufacturers guidelines.

3.11 Inspection/Acceptance of Supplies and Consumables

The management of supplies and consumables is an important aspect of the QA program. It is important that specifications are prepared for each item and the following should be provided: identity, purity, potency, source, quality and purity tests, purification needs, storage and handling procedures, and replacement dates. All standards and reagents must be maintained, stored, and handled under secure conditions.

The sampling equipment at the Port's monitoring stations require specific consumables and a regularly scheduled maintenance program to ensure quality data is collected by all samplers. The following paragraphs outline the consumables and the regularly scheduled maintenance program employed at both Port monitoring sites.

The main gaseous sampling inlet requires filtering of entrained particulate matter from the sample gas via Teflon filters. These filters operate on a continuous basis for a period of two-weeks before they are replaced for optimum performance.

The Chemiluminescent NO-NO_2-NO_x analyzer requires all moisture be removed from the ambient sample to ensure accurate measurement of NO-NO_2-NO_x concentrations. To remove this moisture, the sample gas is pulled through a dessicant scrubber before analysis in the analyzer. In humid coastal environments, this dessicant is consumed approximately on a two-week basis and is monitored and replaced as necessary by the SAIC team.

Daily calibrations are performed for all gaseous instrumentation at the Port's monitoring stations. These calibrations are conducted using a blended calibration gas (SO_2/NO/CO) and a multigas calibrator instrument. The multigas calibrator is designed to perform calibrations on each individual gaseous component (SO_2, CO, or NO) by removing the other gaseous components from the single calibration gas stream. To accomplish this, the multigas calibrator employs two scrubber assemblies; one containing charcoal to remove SO_2/CO, and a second containing Puri-fill, which scrubs out oxides of nitrogen (i.e., NO, NO_2, NO_x). Per manufacturer specifications, the charcoal and Puri-fill within the scrubber assemblies require replacement on a semi-annual basis. The SAIC field supervisor will change the charcoal and Puri-fill scrubber assemblies for the multigas calibrator on a six-month timeframe.

Analysis of the filter samples for the Port's monitoring stations are performed under subcontract by the Desert Research Institute (DRI). The weighing, purity, and analysis of the filter particulate matter samples are conducted in accordance with DRI SOPs.

The chain of custody documentation provided by DRI is maintained by the SAIC field supervisor in conjunction with the TAHA technicians supporting the sampling.

The following management activities are recommended for general supplies:

Filters for sampling particulate matter (PM_{10} and $PM_{2.5}$) must meet the acceptance criteria listed below. It is important to use a filter that is compatible with the sampler, based on manufacturer specifications.

- Collection efficiency greater than 99% as measured by Dioctyl Phthalate (DOP) Test (Check in 40 CFR Part 58) test with 0.3 micrometer particles at the sampler's operating face velocity; and
- Alkalinity less than 0.005 milliequivalent/gram of filter following at least 2 months storage at ambient temperature and relative humidity.

A visual inspection for any defects or damages should be made prior to filter installation and during laboratory pre- and post-weightings. The filters are changed on the 6-day and 3-day USEPA schedules for PM_{10} and $PM_{2.5}$, respectively.

3.12 Data Management

Data collected through automated systems must be managed in accordance with the USEPA's Good Automated Laboratory Practices (GALP). Data must be collected and managed to ensure that the data meet the following criteria:

- Reliable
- Easily accessible to a variety of users
- Of known quality

Monitoring data are gathered and stored on a centralized server using an Environmental Data Acquisition and Handling System (DAHS) provided by Thermo/EMC. The DAHS is capable of automatically uploading data to the AIRSIS-provided website. SAIC provides a monthly QA/QC review of data collected at the Port monitoring stations. SAIC also provides a monthly report for the Port monitoring network.

Data quality is maintained for this program by the use of instrument checklists completed for each sampling day, routine project communications between the site technicians and SAIC, and procedures and the data review procedures employed during the air quality monitoring program. Furthermore, data quality is maintained by independent, semi-annual audits.

4.0 ASSESSMENTS AND OVERSIGHT

4.1 Assessments and Response Actions

Assessments are performed to measure the performance and effectiveness of the Port's monitoring program. The following types of assessments are performed: network reviews, performance evaluations, technical systems audits, and data quality assessments. Each assessment is discussed in greater detail in the following sections.

4.2 Network Reviews

Annual network reviews are performed to determine the monitoring network's ability to meet its monitoring objectives. The review determines whether the network should be modified and, if necessary, provides a list of specific modifications, so that the network continues to meet its objectives.

The network reviewer determines the adequacy of the network in accordance to 40 CFR Part 58 Appendix D (Network Design Requirements). In addition, compliance with 40 CFR Part 58 Appendix E (Probe Siting Requirements) are evaluated. In general, the network review can cover the following topics:

- Relocation of monitors
- Siting criteria problems and suggested solutions
- Problems with data submittals and data completeness
- Maintenance and replacement of monitors and related equipment
- QA problems
- Funding

A written network evaluation is prepared upon completion of the network review. The evaluation includes any deficiencies identified in the review, corrective actions, and a schedule for implementing the corrective actions.

4.3 Performance Evaluations

Annual performance evaluations are performed to verify and evaluate the quality of data from a measurement phase through the use of samples that produce a known effect. These samples can be used to control and evaluate bias, accuracy, and precision.

The Port program utilizes semi-annual Performance Evaluations performed in accordance with the requirements specified at 40 CFR Part 58 Appendix A, the USEPA Quality Assurance Handbook for Pollution Measurement Systems Volume I (EPA-600/R-94/038a) and Volume II, and applicable USEPA Meteorological Monitoring Guidelines. The evaluations use independent audit analyzers, flow standards, and meteorological audit devices that are traceable to NIST standards to assess the performance of the monitoring network.

The evaluations are performed using a variety of audit systems to generate pollutant concentrations and flowing air streams which are introduced into the sampling system. The outputs from the sampler that result from the use of the audit system are recorded on a data form and compared to the concentration or flow rate that should have been generated by the audit system under the environmental conditions at the site. The following table lists the acceptance criteria. A description of each criterion is listed in the USEPA Quality Assurance Handbook (Volume II, Section 15).

Table 3. Acceptance Criteria

Criteria	Federal Reference Method
High Volume/PM_{10}(SSI)	% difference ≤ 15% for 1 or more flows
Dichot (PM_{10})	% difference ≤ 15% for 1 or more flows
Pb (analytical)	% difference ≤ 15% for 1 or more levels
SO_2, NO_2, and CO	Mean absolute % difference ≤ 15%
O_3	Mean absolute % difference ≤ 10%

While this approach is consistent with Prevention of Significant Deterioration (PSD) requirements and the USEPA National Performance Audit Program (NPAP), the Port network is not subject to PSD or the NPAP. Participation in the NPAP is required for USEPA and state and local agencies that operate SLAMS, NAMS, PAMS or PSD monitors pursuant to Section 2.4 of 40 CFR Part 58, Appendix A. The Port program is not covered by any of those groups and is applying this approach as a best practice.

4.3.1 Data Quality Assessments

A data quality assessment is the statistical analysis of data to determine whether the quality of data is adequate to support the decisions based on the information. The assessment procedures are described in detail in *Data Quality Assessment: A Reviewers Guide,* EPA QA/G-9R[3]. These assessments will be performed as part of the semi-annual Performance Evaluation.

4.4 Reports to Management

SAIC provides regular QA reports to the Port. The types of reports generated and the suggested reporting frequency are shown below in Table 4.

Table 4. Reporting Frequency of QA Reports to Management

Type of QA Report to Management	Contents	Suggested Reporting Frequency				
		As required	Monthly	Quarterly	Semi-Annual	Annual
Corrective Action Request	Description of problem	X				
Control chart with summary	Repetitive field or lab activity; control limits	X	X			
Performance Audit	Summary of audit results	X			X	X
System audits	Summary of system audit results; recommendations	X			X	X

[3] *Data Quality Assessment: A Reviewers Guide*, QA/G-9R, USEPA, EPA/240/B-06/002, February 2006.

Quality assurance report to management	Executive summary. Precision, bias, and system and performance audit results.		X			X
Monthly report to the Port	Report activities at the monitoring stations		X			

5.0 DATA REVIEW, VERIFICATION, AND VALIDATION

Data review, verification, and validation techniques are used to accept, reject, or qualify data. Data verification is the confirmation that specific requirements and data quality objectives of the Monitoring Plan have been fulfilled whereas data validation is the confirmation that the information obtained from the data meets the requirements for its intended end-use. The following sections discuss in greater detail data review, verification, and validation methods.

5.1 Data Review Methods

SAIC performs monthly QA/QC review of continuous data collected at the monitoring stations and the bi-monthly QA/QC review of the particulate filter analytical results. SAIC performs the reviews prior to performing any calculations or analyses and prior to uploading such data to the Port's website.

Data from the continuous instruments (pollutant and meteorological) are subjected to an automated data processing system, where the computer is programmed to scan data values for extreme values, outliers or ranges. The program flags data values to indicate a possible error. If automated data processing is not available, SAIC will use other appropriate data processing to complete the required review.

In 2010, website upgrades were implemented which included a filtering system for PM_{10} and $PM_{2.5}$ BAM data. This filtering system removes any data values greater than 900 micrograms per cubic meter of PM_{10} and $PM_{2.5}$. Values greater than 900 micrograms per cubic meter are known to be invalid, and are typically the result of power surges. Another website upgrade involved allowing the select data to be remotely replaced by SAIC staff after the QA/QC review. Previously the updating of the data in the website database was cumbersome. These changes will help to maximize the quality of the data presented on the website while continuing to provide real-time data access for the public.

5.2 Data Verification Methods

The methods for verifying the data obtained from the monitoring equipment are included in the SOPs. The SOPs define the method, responsibilities, and frequency for ensuring that the specific requirements and data quality objectives of the Monitoring Plan have been fulfilled.

5.3 Data Validation Methods

The methods for validating the data obtained from the monitoring equipment are included in the SOPs. The SOPs define the method, responsibilities, and frequency for ensuring that the data meets the requirements for its intended end-use.

5.4 Data Quality Assessment

It is important to evaluate the data obtained from the monitoring equipment against the data quality objectives discussed in Section 3.1.1. This evaluation is called the Data Quality Assessment (DQA). The DQA process involves five steps:

1. Review the Data Quality Objectives and Sampling Design – The data quality objectives are reviewed to assure that they are still applicable to the overall monitoring program. The data and sampling design and collection protocol are reviewed for consistency with the data quality objectives (i.e. tolerable limits, error handling, etc.).
2. Conduct Preliminary Data Review – This step involves the generation of meta-data. All QA/QC reports are reviewed to identify trends, relationships, or anomalies. Basic statistics about the data sets, including graphs of data, may be used to assist in the data review.
3. Select the Statistical Test – Based on the reviews of the data quality objectives, sampling design, and the preliminary data review, a statistical test is employed to summarize and analyze the date using the most appropriate methodology. Statistical tests for each pollutant can be found in the associated FRMs listed in Table 1.
4. Verify Assumptions of Statistical Test – Evaluate whether the assumptions are valid for each statistical test performed in the previous step. The assumptions may include those associated with the development of the data quality objectives in addition to the bias and precision assumptions. The verification are based on as much data as are available. Refer to Section 18 of the USEPA Quality Assurance Handbook for a sample evaluation.
5. Draw Conclusions from the Data – The performance of the monitoring plan, including the data/sampling design and collection protocol is evaluated. The plan is evaluated against the monitoring and data quality objectives, noting any corrective actions or changes. The results of the statistical tests reinforce any conclusions.

6.0 REFERENCES

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