REQUEST FOR PROPOSALS TO PROVIDE

AIR MONITORING STATION
OPERATION AND MAINTENANCE SUPPORT


INTRODUCTION

Air quality is a high priority concern for the communities in the Port of Long Beach (Port) area. In 2006, the Port installed two ambient air quality monitoring stations in the Port’s Harbor District that collect real-time ambient air quality and meteorological data. The goals of the Port’s air monitoring program are to collect data that is representative of air quality in the area of the Port and nearby surrounding communities, compare Port area air quality data with the federal and state ambient air quality standards, and to communicate that information to the public. The data collected at the stations is accessible via the internet (http://caap.airsis.com) and allows the public to view, in real-time, air quality and weather conditions in the Port.

The air monitoring stations collect the following parameters:

- Real-time measurement of ambient air quality concentrations for NO₂, O₃, CO, SO₂, PM₁₀, PM₂.₅, and BC;
- Integrated 24-hour ambient measurement of 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 Port’s current consultant contract for air monitoring station operation and maintenance (O&M) support will expire at the end of December 2012. Accordingly, the Port is soliciting proposals and cost information from qualified firms to provide the scope of services identified in this RFP. The Port plans to retain one consulting firm under a 3-year-long, task-order professional services contract to oversee the day-to-day operations, maintenance, and project management of the Port’s existing air monitoring stations. Please keep in mind that the selected consultant will be responsible for providing all of the services listed in the scope of services stated in this RFP. The contract is expected to begin January 1, 2013.

The Port has established a Small Business Enterprises (SBE)/Very Small Business Enterprises (VSBE) Program to encourage small business participation; therefore, a completed SBE/VSBE Commitment Plan will be required from those firms interested in being considered for this professional services contract.
SCOPE OF SERVICES

This contract is for a period of three (3) years. 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 Port’s existing air monitoring stations, in accordance with the Port’s Air Quality Monitoring Plan and Air Monitoring Quality Assurance Plan (included as Attachments F and G). All references in the plans to specific personnel with the current prime consulting firm or their subcontractors will need to be updated as necessary, following award of this contract. Under this contract, the selected consultant will be required to provide the following services:

Operations and Maintenance

- Perform on-site maintenance and routine calibration of the monitoring equipment in accordance with the Port’s Air Quality Monitoring Plan and Air Monitoring Quality Assurance Plan. Please note that the Air Quality Monitoring Plan and Air Monitoring Quality Assurance Plan will need to be updated as necessary to reference the prime contractor that receives the contract for this project and any of the prime’s subcontractors. Although discussed in the Air Quality Monitoring Plan, it is not anticipated that the Port will perform a PM$_{2.5}$ speciation study during this contract period. All equipment is owned by the Port.

- The Port is in the process of purchasing and installing two (2) aethalometers (Teledyne-API Model 633) for real-time measurement of black carbon (BC) concentrations. The selected consultant will need to perform on-site maintenance and routine calibration of the BC monitors.
  - 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 USEPA schedules for PM$_{2.5}$ and PM$_{10}$, respectively.

- Collect particulate (PM$_{2.5}$ and PM$_{10}$) filter samples and deliver the samples to a certified laboratory for gravimetric analysis.

- Provide routine hosting and maintenance of the real-time air monitoring website (http://caap.airsis.com). Website will need to be hosted jointly with the Port of Los Angeles.

Data Review and Quality Assurance/Quality Control (QA/QC)

- Conduct monthly QA/QC reviews of data collected at the Port 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.

Reporting

Monthly Reporting

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

Annual Report

• Prepare the annual summary and analysis report of the air monitoring station data (calendar years 2012, 2013, and 2014). For the 2012 calendar year summary report, EC/OC data from a special study currently being conducted during 2012 will need to be incorporated into the report.

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. SCAQMD and 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.

CONTENT OF STATEMENTS

Submittals shall follow the below outline and contain all of the following information:

1. Corporate Experience

   • A brief overview of the firm, including its size, the location of the main office and any branch offices, the size of the staff of each office, and a summary of the corporate
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organization. This overview should clearly indicate the designated project office for the Port of Long Beach contract.

- A brief summary of the firm’s overall experience with ambient air quality monitoring and the tasks described in the scope of services.

2. Staff Qualifications (including subcontractors)

- Professional profiles of staff members of the firm’s project team who would be assigned to perform operation, maintenance, and project management of the air monitoring stations, including type and years of relevant project experience; length of service with the firm; and an indication of the office location of each assigned staff member.

- Descriptive information about proposed subcontractors (i.e. laboratory, equipment vendors, website host, etc.) and their respective relevant experience in sufficient detail to permit the Port to assess their capabilities for this program. Indicate the extent of your firm’s experience with each proposed subcontractor.

- A summary of the ambient air monitoring experience of the project team, emphasizing the types of tasks described in the scope of services.

3. 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 (included as attachments) and provide an overview of any modifications to the plans based on the firm’s proposed technical approach and project team.

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

4. 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).
5. Cost-Effectiveness

- A detailed budget necessary to provide the specific services as described in the scope of services of this RFP, for each of the 3 years of the contract, is required to be submitted (broken down by year in terms of labor, laboratory analysis costs, website hosting, materials, equipment, etc.).

- In addition, 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 3 years. The attached Summary Rate Sheet must be used to identify labor rates and administrative charges. Please see Attachment A. 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 SOQ and must be used throughout the term of the contract.

6. Other Requested Documents

- **Contractor Certification Form** – Submitted proposals must include a signed Contractor Certification Form (also included in Attachment B) 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 15 page limit.

- **Evidence of License to Conduct Business in California** – Proposer shall submit evidence with their proposal that they are licensed to conduct business in California. This evidence will not count towards the 15 page limit.

- **POLB Form SBE-2P (SBE/VSBE Commitment Plan for Professional Services Contracts)** – Proposer shall identify the level of SBE/VSBE participation in your proposal and include POLB Form SBE-2P in the proposal submittal. This form is provided in Attachment C. The selected consultant will need to monitor SBE/VSBE participation and report the level of participation with each invoice. Refer to the SBE/VSBE Program sub-section for additional information. This form will not count towards the 15 page limit.

Proposals must be succinct and in no case exceeding 15 pages, **inclusive** of rate sheets and figures. Cover pages, table of contents, and SBE/VSBE Commitment Plan will not be included in the 15-page limit. **ANY SUBMITTAL EXCEEDING 15 PAGES WILL BE DISQUALIFIED FROM CONSIDERATION UNDER THIS SOLICITATION.** Boilerplate and glossy promotional materials are discouraged; any such material deemed absolutely necessary should be included as an appendix and will be considered part of the 15-page-long submittal.
SUSTAINABLE BUSINESS PRACTICES

One of the five guiding principles of the Green Port Policy is the commitment to promote sustainability. This commitment is extended through the Port’s contractors and consulting firms that demonstrate their own commitment to sustainable business practices, particularly as these practices relate to work conducted under contract to the Port. Sustainable business practices can include: resource conservation; environmentally-preferable purchasing; community service and outreach; recycling; hazardous waste reduction; fair recruitment, hiring, and benefit policies for employees; technology advancement and/or investment; and greenhouse gas reduction or compensation. Demonstration of sustainable business practices can include submittal of your firm’s annual report of sustainable practices or related policies, procedures, or implementation plan. A brief description of how these practices will be implemented during your firm’s execution of work under contract to the Port can address, but is not limited to, the following:

- Resource conservation and cost savings via materials-use reduction or materials reuse;
- Emissions reductions via travel miles avoided or compensation;
- Use of low- or non-toxic supplies and/or equipment;
- Professional development benefits for employees, particularly those working on the Port contract;
- Corporate investment in related sustainable technologies;
- Use of company profits to benefit the local community or volunteerism;
- Any other practices that reduce costs to the Port by enhancing efficiency and productivity.

Companies with documented goals and reported progress toward sustainable business practices will be given a higher score than those companies that have not documented goals and implementation progress. Electronic copies (PDF format on CD-ROM attached to proposal submittal) or website addresses (referenced in the RFP submittal) for this information are preferred and are not counted toward the 15-page submission limit.

SMALL BUSINESS ENTERPRISES (SBE)/VERY SMALL BUSINESS ENTERPRISES (VSBE) PROGRAM

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 ten percent (10%), of which a minimum of zero percent (0%) must be allocated to VSBEs.

SBE and VSBE Eligibility

1. SBE eligibility is determined utilizing federal U.S. Small Business Administration (SBA) size standards, based on North American Industrial Classification System (NAICS) codes. To access the current table of small business size standards, log on to the NAICS website at www.naics.com and click the “Small Business Size Standards” link at the top of the page. Examples of maximum gross annual revenue averaged over the past 3 years to qualify as
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an SBE: architects/landscape architects $7.0 million; engineers $14.0 million; environmental consultants $14.0 million; computer programming/design consultants $25.0 million.

2. VSBE eligibility is determined utilizing criteria with the State of California’s Department of General Services’ “micro-business” designation: contractors, consultants, and vendors with gross annual receipts, averaged over the past 3 tax years, of $3.5 million or less, or small business manufacturers with 25 or fewer employees.

Vendor Registration and SBE Certification

1. All participating SBEs and VSBEs are required to register with the Port’s online vendor database and e-procurement system, The Network. Vendor registration is relatively simple and quick, and is at no cost to the vendor. Vendors can access the link to The Network registration site from the Port’s website at www.polb.com/sbe, or log on directly to www.thenetworkbidsystem.com.

2. All small businesses are required to apply for SBE certification through the online database. 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.

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

1. Consultants responding to this Request for Proposals (RFP) are required to submit an SBE/VSBE Commitment Plan for Professional Services Contracts (using POLB Form SBE-2P) with their Proposal. The Commitment Plan shall identify the proposed SBE/VSBE firms (prime consultant, subconsultants, vendors, and suppliers), their contact information, SBE/VSBE status, a description of services to be provided, and their proposed level of participation. The completed Commitment Plan shall demonstrate the consultant’s ability and intent to meet the combined SBE/VSBE participation goal.

2. Firms listed on the Commitment Plan must be SBE certified on The Network by the required submittal due date. VSBE eligibility will be determined at the time of submittal of the Commitment Plan.

3. 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.

The contract specific SBE/VSBE participation goal for the awarded contract may be revised during contract negotiations. The negotiated consultant contract will specify the type and amount of work to be performed by specific SBE/VSBE firms. If additional SBE/VSBE subconsultants, vendors, or suppliers are added to the selected consultant’s team during negotiations, they must also be certified in the Port’s online database 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.
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Post-Contract Award Compliance with the SBE/VSBE Program Requirements:

The selected consultant shall submit a SBE/VSBE Monthly Utilization Report - MUR (POLB Form SBE-3P) with every invoice and at project close-out. Any SBE/VSBE substitutions will need to be pre-approved by the Port. To access MUR and SBE/VSBE substitution form templates, log on to [www.polb.com/sbe](http://www.polb.com/sbe) and click on “SBE/VSBE Forms” in the Navigation Menu.

Additional information regarding the Port’s SBE/VSBE Program, including an Online Entrepreneurial Resource Guide and Frequently Asked Questions (FAQs), can be found on the Port’s SBE website at [www.polb.com/sbe](http://www.polb.com/sbe).

EVALUATION FACTORS

The evaluation committee will rank the proposal on the basis of six factors, weighted as follows:

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<th>CRITERION</th>
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<tr>
<td>1. CORPORATE EXPERIENCE AND RESOURCES</td>
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<td>2. STAFF QUALIFICATIONS (including subcontractors)</td>
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<td>3. TECHNICAL APPROACH/UNDERSTANDING OF PROGRAM</td>
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<td>4. PROJECT MANAGEMENT SYSTEM</td>
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<td>5. COST-EFFECTIVENESS</td>
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<td>6. SUSTAINABLE BUSINESS PRACTICES</td>
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The highest ranking firms may be interviewed by the evaluation committee. The one firm with the highest score (combined interview and written materials) will be invited to enter into contract negotiations.

PROGRAM ADMINISTRATION

Project costs will be controlled by the Port through a system of incremental funding authorizations. Details regarding the Environmental Planning Division’s project authorization and funding are found in Attachment D. In this system, projects with long durations and substantial budgets will be organized into separate job tasks, each with their 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 Planning prior to initiation of work. The Port is not liable for consultant costs that were incurred prior to receipt of written authorization.

The selected consultants will submit invoices for services rendered on a monthly basis. The Port of Long Beach 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 are attached. 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 for any multiple subtask, long-duration project. 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.

The selected consultant(s) will also be required to hold a current City of Long Beach Business License throughout the duration of the contract.

**INSURANCE REQUIREMENTS**

No materials regarding insurance coverage need accompany the submittal, but firms are advised that the selected consultants will be required to provide and maintain insurance coverage with limits no less than those specified in Attachment E. Within two weeks 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 Board of Harbor Commissioners 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 that copies of audited financial statements may be required.

Please note that failure, for whatever reason, to provide the required documentation of insurance coverage within 2 weeks of selection could result in the contract being voided if it has been executed, and selection of the next highest ranking firm instead.

**CONTRACT TERMS AND CONDITIONS**

The selected firm will be asked to enter into a contract with the Port. A template contract is provided in Attachment B to allow an opportunity to review the Port's contractual requirements. However, this template is intended to serve only as an example. A project-specific contract will be drafted upon selection of the consultant, and that contract may differ substantially from the one offered for review here. Proposals must include in their submittal a signed Contractor Certification Form (also included in Attachment B) 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 15-page limit.
SUBMISSION OF STATEMENTS

Three hard copies and one digital copy of your proposal are due no later than 4 p.m. on August 17, 2012. Submittals will be time-stamped upon receipt; no deadline exceptions will be made. The proposals may be mailed or hand delivered to:

Environmental Planning Division, 3rd Floor
Attention: Richard D. Cameron
The Port of Long Beach
925 Harbor Plaza
Long Beach, CA 90802

Hand-carried submittals must be delivered to the offices of the Environmental Planning Division on the 3rd floor of the Port of Long Beach Administration Building. Please allow ample time for security check-in (precedes access to the 3rd floor) if you will be delivering the proposal by hand. If you have any questions concerning this solicitation, please feel free to contact Janna Watanabe at (562) 283-7100.

Any attempt to lobby members of the Board of Harbor Commissioners, City Council, or 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. Any information submitted as part of this Request for Proposals is subject to public records requests.

Attachments: Attachment A – Summary Rate Sheet
Attachment B – Example Contract and Contractor Certification Form
Attachment C – SBE/VSBE Commitment Plan (POLB Form SBE-2P)
Attachment D – Contract Requirements and Policies
Attachment E – Insurance Requirements
Attachment F – Port Air Quality Monitoring Plan
Attachment G - Port Air Monitoring Quality Assurance Plan
ATTACHMENT A

Port of Long Beach
Summary Rate Sheet
PORT OF LONG BEACH SUMMARY RATE SHEET

PROJECT/PROGRAM TITLE:

Corporation Name _______________________________________________________________________________

Rates Effective Beginning ______________________20 _______ Ending _______________________20 _______

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<th>Hourly Fully-Loaded Rate</th>
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<td>Fee or Profit</td>
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<td>Subcontractor Oversight</td>
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<td>Reproduction—B &amp; W oversized</td>
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<td>Computer Usage</td>
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<td>Reproduction—Color regular</td>
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<td>Reproduction—Color oversized</td>
<td>Other—</td>
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NOTE: Travel charges, such as airfare, lodging, meals, vehicle rentals, communications, etc., must be invoiced as expended. Complete and detailed back-up must be supplied with invoice. Per diem charges are not acceptable.
ATTACHMENT B

Port of Long Beach
Contractor Certification Form
and
Example Contract for Consulting Services
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 Executive Director of the Long Beach Harbor Department ("Executive Director"), 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-1818] [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 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.] The 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 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. 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.

10. 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 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.]

11. 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 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.

12. 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: Executive Director, Long Beach Harbor Department, P.O. Box 570, Long Beach, California 90801, FAX number (562) 283-7047, and the address and FAX number of Consultant as indicated above.

13. 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 key employees [______________ (Project Principal) and
(Project Manager)] and any change in personnel employed on
City projects shall be approved in advance by the Director. Neither this contract nor any
interest therein may be assigned or delegated by Consultant except upon the prior written
consent of the Executive Director. 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. 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.

14. 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 be performed under this contract.

15. (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 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.

16. 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 following types and levels of insurance:

(a) Commercial General Liability Insurance which affords coverage at least as broad as Insurance Services Office “occurrence” form CG 00 01 with minimum limits of at least $1,000,000 per occurrence, and if written with an aggregate, the aggregate shall be double the per occurrence limit. The policy shall contain no provisions or endorsements limiting coverage for (1)
products - completed operations; (2) contractual liability; (3) independent contractors; (4) third party action over claims; (5) explosion, collapse or underground hazard (XCU); and (6) defense costs shall be excess limits.

(b) Automobile Liability Insurance with coverage at least as broad as Insurance Service Office Form CA 0001 covering “Any Auto” (Symbol 1) with minimum limits of $1,000,000 each accident.

[ADD AIRCRAFT LIABILITY IF APPROPRIATE]

[(c) Ocean Marine Liability Insurance, including Protection and Indemnity, with minimum limits of [$5,000,000] per occurrence, Jones Act for employees performing services covered by the Act, and pollution liability. Pollution liability shall include coverage for bodily injury (including death and mental anguish), property damage, defense costs and cleanup costs with minimum limits of [$5,000,000] per loss and [$10,000,000] total losses.]

[(d) Contractor’s Pollution Liability Insurance covering all of Consultant’s operations, including onsite and offsite for bodily injury (including death and mental anguish), property damage, defense costs and cleanup costs with minimum limits of [$5,000,000] per loss and [$10,000,000] total all losses. Non-owned disposal site coverage shall be provided if handling, storing or generating hazardous materials or any material/substance otherwise regulated under environmental laws/regulations.]

(c) Workers’ Compensation Insurance, as required by the State of California and Employer’s Liability Insurance with a limit of not less than $1,000,000 per accident for bodily injury and disease, and any required coverage under the U.S. Longshoremen’s and Harbor Workers’ Act, Federal Employers Liability Act, and Jones Act for employees performing services covered by these Acts.

(d) Professional Liability Insurance with minimum limits of $1,000,000. Covered Professional Services shall include all work to be performed
under the contract and without any exclusions that may potentially affect the work to be performed under the contract.

Insurance policies will not be in compliance if they include any limiting endorsement that has not been approved in writing by City.

The policy or policies of insurance for Commercial General Liability and Automobile Liability [Ocean Marine Liability, Aircraft Liability, Contractor’s Pollution Liability] shall contain the following provisions or be endorsed to provide the following:

(1) The Indemnified Parties shall be additional insureds with regard to liability and defense of suits or claims arising out of the performance of the Contract. Additional insured endorsements shall not:

i. Be limited to ongoing operations;

ii. Exclude contractual liability;

iii. Restrict coverage to the sole liability of Consultant;

iv. Contain any other exclusion contrary to the contract.

(2) This insurance shall be primary and any other insurance, deductible, or self-insurance maintained by the Indemnified Parties shall not contribute with this primary insurance.

(3) The policy shall not be canceled or the coverage reduced until a thirty (30) day written notice of cancellation has been served upon the Executive Director of the Harbor Department except notice of ten (10) days shall be allowed for non-payment of premium.

The policy or policies of insurance for Workers’ Compensation shall be endorsed, as follows:

(1) A waiver of subrogation stating that the insurer waives all rights of subrogation against the Indemnified Parties.

(2) The policy or policies shall not be canceled or the coverage reduced until a thirty (30) day written notice of cancellation has been served upon the Executive Director of the Harbor except notice of ten (10) days
shall be allowed for non-payment of premium.

The policy or policies of insurance required for Professional Liability shall be endorsed as follows:

(1) The policy or policies shall not be canceled or the coverage reduced until a thirty (30) day written notice of cancellation has been served upon the Executive Director of the Harbor except notice of ten (10) days shall be allowed for non-payment of premium.

Any deductible or self-insured retention must be approved in writing by the Executive Director and shall protect the Indemnified Parties 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.

Consultant shall deliver either certified copies of the required policies or endorsements on forms approved by the City ("evidence of insurance") to the Executive Director for approval as to sufficiency and as to form. At least fifteen (15) days prior to the expiration of any such policy, evidence of insurance showing that such insurance coverage has been renewed or extended shall be filed with the Executive Director. If such coverage is canceled or reduced, Consultant shall, within ten (10) days after receipt of written notice of such cancellation or reduction of coverage, file with the Executive Director evidence of insurance showing that the required insurance has been reinstated or has been provided through another insurance company or companies.

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.

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 City. City has the right to withhold all payments due Consultant until Consultant has complied fully with this insurance provision.
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.

If coverage is written on a claims-made basis, the retroactive date on such insurance and all subsequent insurance shall coincide with or precede the effective date of the contract and continuous coverage shall be maintained or Consultant shall obtain and submit an extended reporting period endorsement of at least three (3) years from termination or expiration of this contract. Upon expiration or termination of coverage of required insurance, Consultant shall procure and submit to City evidence of “tail” coverage or an extended reporting period endorsement of at least three (3) years from termination or expiration of this contract.

17. 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.

[18. 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.]

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

20. If there is any legal proceeding between the parties to enforce or interpret this contract or to protect or establish any rights or remedies hereunder, the prevailing party shall be entitled to its costs and expenses, including reasonable attorneys’ fees.

21. 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.
22. 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.

[________________________]  

By: ________________  
Name: ____________________  
Title: ______________________  

[________________________]  

By: ________________  
Name: ____________________  
Title: ______________________  

CONSULTANT

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

[________________________]  

By: J. Christopher Lytle  
Executive Director  
Long Beach Harbor Department

CITY

The foregoing document is hereby approved as to form.

ROBERT E. SHANNON, City Attorney

[________________________]  

By: ________________________  
Principal Deputy/Deputy
Master Agr. - Alternate 1 - Paragraph 2.

2. Consultant shall provide, in accordance with generally accepted professional and technical standards currently in effect, such environmental documentation services as may be requested in writing from time to time during the term of this contract by City's Director. All services shall be provided in a manner consistent with City's Request for Qualifications to Provide Environmental Documentation Services dated [____________________] ("Request") and Consultant's Statement of Qualifications dated [____________________] ("Statement"). The Request and Statement are on file with City's Director and incorporated herein by this reference.
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 and Contract Terms and Conditions. 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.

Explain:

[Blank space for explanation]

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: ________________________________

2/1/2012
## POLB FORM SBE-2P: SBE/VSBE COMMITMENT PLAN FOR PROFESSIONAL SERVICES CONTRACTS

### SECTION 1

<table>
<thead>
<tr>
<th>Project Name:</th>
<th>Date:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prime Consultant:</td>
<td>Prime Contract $ Amount:</td>
</tr>
<tr>
<td>Estimated $ Value of Prime’s Participation:</td>
<td>Estimated % of Prime’s Participation:</td>
</tr>
<tr>
<td>Estimated $ Value of SBE Participation:</td>
<td>Estimated SBE % of Prime Contract $ Amount:</td>
</tr>
<tr>
<td>Estimated $ Value of VSBE Participation:</td>
<td>Estimated VSBE % of Prime Contract $ Amount:</td>
</tr>
</tbody>
</table>

### SECTION 2 (please refer to instructions on page 2)

<table>
<thead>
<tr>
<th>Business Name, City, State, Contact Person, Phone #</th>
<th>Indicate “SBE” or “VSBE”</th>
<th>Indicate if 1st Tier Sub, Lower Tier Sub, Vendor or Supplier</th>
<th>Contract With</th>
<th>Brief Description of Work</th>
<th>$ Value of Subcontract, Materials or Services</th>
<th>% of Total Prime Contract Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>EXAMPLE: ABC Land Surveyors, Long Beach, CA Mr. Joe Smith, (562) 555-1212</td>
<td>SBE</td>
<td>1st tier sub</td>
<td>Prime Consultant</td>
<td>Land surveying</td>
<td>$100,000</td>
<td>20%</td>
</tr>
<tr>
<td>EXAMPLE: Tom’s Survey Supplies, Long Beach, CA Mr. Tom Jones, (562) 555-1313</td>
<td>VSBE</td>
<td>Supplier</td>
<td>ABC Land Surveyors</td>
<td>Surveying supplies</td>
<td>$5,000</td>
<td>1%</td>
</tr>
</tbody>
</table>

Completed by: Prime Consultant Contact (please print or type) Phone #

Signature Date Email

POLB Form SBE-2P
INSTRUCTIONS FOR POLB FORM SBE-2P:
SBE/VSBE COMMITMENT PLAN FOR PROFESSIONAL SERVICES CONTRACTS

INSTRUCTIONS FOR SECTION 2

1. List all SBE/VSBE subconsultants, vendors, suppliers, and other businesses that will render materials or services under this contract. Only list SBEs/VSBEs.

2. If the prime consultant is an SBE/VSBE, list the prime first.

3. For a firm to be counted toward meeting the SBE/VSBE goals, the firm must be SBE certified on the Port’s online vendor database (The Network), accessible from the SBE/VSBE Program page of the Port’s website (www.polb.com/sbe).

4. The Port does NOT issue VSBE certifications; VSBE eligibility will be reviewed and determined upon submittal of the Commitment Plan.

5. The prime consultant must verify the current eligibility status of each SBE/VSBE, prior to listing the firm(s) on the Commitment Plan, by:
   a. locating the SBE/VSBE on The Network (www.thenetworkbidsystem.com) via the small business search function; and/or
   b. contacting the Port’s SBE Program staff to verify SBE/VSBE status.

6. Lower tier SBE/VSBE subconsultants and SBE/VSBE vendors/suppliers rendering materials or services to lower tier subconsultants must also be listed to receive participation credit. See examples listed in the table in Section 2.

7. The Port reserves the right to request proof of payment from the prime consultant/subconsultant to the lower tier sub/vendor/supplier prior to contract close-out.

8. All SBEs/VSBEs, regardless of tier, MUST be SBE certified for the materials/services that they will be rendering for the contract.

9. All SBEs/VSBEs, regardless of tier, MUST provide materials/services directly applicable to the contract.

10. When listing the total dollar value of each SBE’s/VSBE’s subcontract, materials or services provided, the prime consultant shall subtract payments made for any indirect or non-applicable materials/services.

11. Use multiple copies of this form if necessary.
ENVI RONMENTAL 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 (Attachment D-1) 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. 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 15th of each month. The format for this document is shown in Attachment D-2. 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.
ENVIRONMENTAL PLANNING DIVISION CONTRACT REQUIREMENTS AND POLICIES

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PORT OF LONG BEACH INVOICE FORMAT

Date

Director of Environmental Planning
Port of Long Beach
925 Harbor Plaza
Long Beach, CA 90802

Contract No. HD-_____________   Job Task No._____________________   Invoice No.____________________

Job Task/Project Description: ______________________________________________________________________

POLB Project Manager: __________________________________________________________________________

Professional Services from: ________________________________ to ________________________________

LABOR CHARGES
(IT IS NOT NECESSARY TO FURNISH COPIES OF TIME CARDS FOR LABOR CHARGES)

<table>
<thead>
<tr>
<th>Employee Name</th>
<th>(Principal)</th>
</tr>
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<tbody>
<tr>
<td>Employee Name</td>
<td>(Senior)</td>
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<tr>
<td>Employee Name</td>
<td>(Junior, etc.)</td>
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TOTAL LABOR $___

OTHER DIRECT COSTS

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<thead>
<tr>
<th>COST</th>
<th>MARK-UP</th>
<th>TOTAL</th>
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</thead>
<tbody>
<tr>
<td>1. Travel</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1A. Airfare</td>
<td></td>
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</tr>
<tr>
<td>1B. Lodging</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1C. Meals</td>
<td></td>
<td></td>
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<tr>
<td>1D. Auto Rental</td>
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<tr>
<td>1E. Parking</td>
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<tr>
<td>1F. Mileage</td>
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<tr>
<td>2. Supplies</td>
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<td>3. Subcontractors</td>
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<td>4. Rental Equipment</td>
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<tr>
<td>5. Telephone, Faxes</td>
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<td>6. CADD</td>
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<td>7. Delivery, Courier, Postage</td>
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<td>8. Photocopies, Reproduction</td>
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<td></td>
</tr>
<tr>
<td>9. Other</td>
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<td></td>
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</tbody>
</table>

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. Travel charges, such as airfare, lodging, meals, vehicle rentals, communications, etc., must be invoiced as expended (per diem is unacceptable), with complete backup furnished for each charge. CHARGES SUBMITTED WITHOUT BACK-UP WILL NOT BE PAID.

ATTACHMENT D-1
SAMPLE INVOICE

YOUR COMPANY'S NAME
ADDRESS
TELEPHONE & FAX NUMBER
PROJECT MANAGER

Date

Director of Environmental Planning
Port of Long Beach
925 Harbor Plaza
Long Beach, CA 90802

Contact No. HD-______________  Job Task No.______________  Invoice No.______________

Job Task/Project Description: __________________________________________________________

POLB Project Manager: _______________________________________________________________

Professional Services from: __________________________ to ____________________________

<table>
<thead>
<tr>
<th>LABOR CHARGE</th>
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TOTAL LABOR $1,500.00

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<td>1A. Airfare</td>
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<td>1F. Mileage</td>
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<td>1G. Gas</td>
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<td>3. Subcontractors</td>
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<tr>
<td>5. Telephone, FAX</td>
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<td>6. CADD</td>
<td></td>
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<tr>
<td>7. Delivery, Courier, Postage</td>
<td>5.75</td>
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<td>8. Photocopies, Reproduction</td>
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<td>9. Other</td>
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TOTAL ODCs $1,111.45

Fee or profit applied to gross labor at 3% $ 45.00

TOTAL AMOUNT OF THIS INVOICE $2,656.45
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 transferrable
- 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: 13 FEB 98 DTARR: 8372321
ISSUED: 13 FEB 98 DTARR: 8372321

PARTY OF 11

MILEAGE PLUS NO.

BASE 157.80 USD TAX 14.20 USD TAX 0.00 USD TOTAL 180.00 USD

PER PASSENGER -
FARE DETAILS: FARE BASIS: BSHUT LE FL 29 FEB OAK UA LAX 78.90 UA OAK 78.90 USD 157.80
END ZPOAKILA XS 2.092 P 6.00XOAK3LAX3

ITINERARY

SHUTTLE BY UNITED 2149
DEPART: MON 23 FEB 6:20A OAKLAND
ARRIVE: MON 23 FEB 7:35A LOS ANGELES
BAGGAGE ALLOWANCE: 2PC AUDIO

NONSTOP - ECONOMY/CONFIRMED
MP MILES: 337
EQUIP: 737

SHUTTLE BY UNITED 2241
DEPART: MON 23 FEB 5:15P OAKLAND
ARRIVE: MON 23 FEB 6:31P LOS ANGELES
BAGGAGE ALLOWANCE: 2PC AUDIO

NONSTOP - ECONOMY/CONFIRMED
MP MILES: 337
EQUIP: 737

BOSTON LOGAN
INT'L AIRPORT

*** Parking Receipt Thank You ***

Entrance: 06:28 07/01/98 Lane # 66
Exit: 07:42 07/02/98 Lane # 76
License plate: HJ 2111
Cashier: 102
Set # 8534
Length of stay: 0:00 00h 34mn
Amount paid: $ 27.00 Cash

Shuttle by United

Auto Thank you for renting from

Rent a Car
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 16.67

16" PINEAPPLES CANAOTAN-B 13.91

COKE CAN 3.70
SODA-6 PAK

D. COKE CAN 3.70
SODA-6 PAK

*** BRING PLATES - NA PKINS - FORKS ***

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

*

Subtotal 50.61
TAX 3.92
Delivery 1.00
Total 55.53
# TRAVELodge Conv CTR Long Beach

80 Atlantic Avenue
Long Beach, California 90802
(562) 435-2471

---

## Page #1

<table>
<thead>
<tr>
<th>Name</th>
<th>Address</th>
<th>City</th>
<th>State</th>
<th>Zip</th>
<th>Room No.: 234</th>
<th>Rate: 76.41 + tax</th>
<th>Check-in: 08/26/98</th>
<th>Out: 08/28/98</th>
<th>Nights: 2</th>
<th>Guests:</th>
<th>ID</th>
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</table>

## Charges

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<th>Date</th>
<th>Room</th>
<th>Phone</th>
<th>Misc</th>
<th>Tax</th>
<th>Total</th>
<th>Credit</th>
<th>Cash</th>
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<td>0.251</td>
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<td>58.631</td>
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<td>08/28/98</td>
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<td>174.664</td>
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<td>0.001</td>
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<td>174.664</td>
<td></td>
</tr>
</tbody>
</table>

**Total** | 152.621| 3.501 | 0.001| 10.341| 174.664| 0.001  | 0.001| 0.001| 174.664| 0.001 |

**Credit Tendered:** 140.99
**Charge:** 140.99

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

---

## Cozymels

Cozymel's Inn, Beach 002
0725 PPI
CHENG
MARK
UTSA
AUTH: 10.88
CHARGE AMOUNT: 20.00

TIP AMOUNT: 10.88

CHARGE TOTAL: 20.00

Signature: [Signature]

---

Guests: [Guest 1], [Guest 2]
<table>
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<tr>
<th>DESCRIPTION</th>
<th>UNITS</th>
<th>CA/AZ</th>
<th>COSTS</th>
<th>TASK</th>
<th>COMMENTS</th>
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</thead>
<tbody>
<tr>
<td>148 - HAND AUGER</td>
<td></td>
<td></td>
<td>$24/day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>149 - PID</td>
<td></td>
<td></td>
<td>$80/$70/day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>150 - HAND TOOLS</td>
<td></td>
<td></td>
<td>$10/day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>156 - DISPOSABLE BAILERS</td>
<td></td>
<td></td>
<td>$7/each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>172 - BRASS SAMPLE TUBES</td>
<td></td>
<td></td>
<td>$6/each</td>
<td></td>
<td></td>
</tr>
<tr>
<td>176 - DECON KIT</td>
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<td>$10/each</td>
<td></td>
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<tr>
<td>158 - DO METER</td>
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<td></td>
<td>$25/day</td>
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<tr>
<td>172 - DREM HARNESS</td>
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<td></td>
<td>$10/day</td>
<td></td>
<td></td>
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<tr>
<td>189 - SAMPLE KITS</td>
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<td></td>
<td>$10/day</td>
<td></td>
<td></td>
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<tr>
<td>150 - PURGE PUMP</td>
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<td>$75/day</td>
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<tr>
<td>150 - WHALE PUMP</td>
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<tr>
<td>150 - 2&quot; SUBMERGIBLE PUMP</td>
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<tr>
<td>157 - TRUCK RENTAL</td>
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<td>90 - GENERATOR</td>
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<tr>
<td>50 - WATER LEVEL INDICATOR</td>
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<td>50 - PH METER</td>
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<tr>
<td>50 - INTERFACE PROBE</td>
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<td>OTHER</td>
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<tr>
<td>TOTAL COSTS</td>
<td></td>
<td></td>
<td>9.10</td>
<td></td>
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</tr>
</tbody>
</table>

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

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<tr>
<th>Matrix</th>
<th>Test</th>
<th>TAT</th>
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<th>Unit Cost</th>
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<th>Rush Charge</th>
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<th>Discount (10%)</th>
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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:
<table>
<thead>
<tr>
<th>DESCRIPTION</th>
<th>UNITS</th>
<th>CA/AZ</th>
<th>COSTS</th>
<th>TASK</th>
<th>COMMENTS</th>
</tr>
</thead>
<tbody>
<tr>
<td>148 - HAND AUGER</td>
<td></td>
<td></td>
<td>$24/day</td>
<td></td>
<td></td>
</tr>
<tr>
<td>149 - PID</td>
<td></td>
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<td>$80/$70/day</td>
<td></td>
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</tr>
<tr>
<td>150 - HAND TOOLS</td>
<td></td>
<td></td>
<td>$10/day</td>
<td></td>
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<tr>
<td>186 - DISPOSABLE BAILERS</td>
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<td>$7/each</td>
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<td>$7</td>
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<tr>
<td>172 - BRASS SAMPLE TUBES</td>
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<td></td>
<td>$5/each</td>
<td></td>
<td></td>
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<tr>
<td>170 - DECON KIT</td>
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<td>$10/each</td>
<td></td>
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<tr>
<td>150 - DO METER</td>
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<td></td>
<td>$25/day</td>
<td></td>
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<tr>
<td>172 - DRUM HARNESS</td>
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<td>$125/$100/day</td>
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<tr>
<td>152 - SBE TRUCK RENTAL</td>
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<td>$65/day</td>
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<tr>
<td>170 - AIR PURIFYING RESPIRATOR</td>
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<td></td>
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<tr>
<td>150 - pH METER</td>
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<td>$35/day</td>
<td></td>
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<tr>
<td>150 - INTERFACE PROBE</td>
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<td><strong>$7</strong></td>
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* Explanations (show line item, date, and details, if applicable)
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<th>St</th>
<th>City SVC Wgt</th>
<th>Key Chg</th>
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<td>5.75</td>
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**Subtotals for PL801001**

- **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 - 68215509**

**Date**: 02/22/98
**Time**: 01:03 PM
**Copy Central**
10001 A. San Pablo Ave
El Cerrito, CA 94530
438132259536724
**Batch**: 0262
**Term ID**: ----
**Account #**: ----
**Exp Date**: 02/99
**Ref No**: ----
**Auth No**: ----
**Trans Type**: Sale
**Card Type**: VI
**Total**: $212.57

**Name**: ----

**Signature**: ----

I agree to pay above total amount according to card issuer agreement (merchant agreement if credit voucher).

"Thank you"
# PORT OF LONG BEACH MONTHLY COST SUMMARY AND PROGRESS REPORT

Project Title: 

Contract Number: HD- Month Covered: 

## PART A MONTHLY COST SUMMARY

<table>
<thead>
<tr>
<th>Job Task/Subtask and Description</th>
<th>Total Budget</th>
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<th>Next Month $</th>
<th>Expenditures To Date</th>
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<td>Job Task 1103</td>
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<tr>
<td>Etc.</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>Total</td>
<td>$</td>
<td>$</td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>

## 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.
ATTACHMENT E

Port of Long Beach
Insurance Requirements
and
Liability Special Endorsement Forms
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 required insurance and the documents provided as evidence thereof shall be in the name of Consultant. If policies are written with aggregate limits, the aggregate limit shall be at least twice the occurrence limits or as specified below:

**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 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. The policy shall not limit coverage for the additional insured to "ongoing operations" or in any way exclude coverage for completed operations. 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, and defense costs shall be excess of limits. If Consultant is using subcontractors 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 or contain any other exclusion contrary to this contract.

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

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 using ISO Forms CG 20 10 (2004) and CG 20 37 (2004) or their equivalent. Additional Insured endorsements shall not: 1) be limited to “ongoing 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.

Cancellation: The policy shall not be cancelled or the coverage reduced by endorsement until a thirty (30) day written notice of cancellation has been served upon the Executive Director of the Harbor, except ten (10) days shall be allowed for non-payment of premium.
**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.

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.

Cancellation: The policy shall not be cancelled or the coverage reduced by endorsement until a thirty (30) day written notice of cancellation has been served upon the Executive Director of the Harbor, except ten (10) days shall be allowed for non-payment of premium.

**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.

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.

Cancellation: The policy shall not be cancelled or the coverage reduced until a thirty (30) day written notice of cancellation has been served upon the Executive Director of the Harbor, except ten (10) days shall be allowed for non-payment of premium.

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

Cancellation: The policy shall not be cancelled or the coverage reduced until a thirty (30) day written notice of cancellation has been served upon the Executive Director of the Harbor, except ten (10) days shall be allowed for non-payment of premium.

**Deductible/Self-Insured Retention:**
Any deductible or self-insured retention must be approved in writing by the Executive Director 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 either endorsements on forms approved by the City of Long Beach acting by and through the Board of Harbor Commissioners (“Evidence of Insurance”) or certified copies of the required policies containing the terms and conditions required by this contract to the Executive Director for approval as to sufficiency and to the City Attorney or approval as to form. 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 Executive Director. 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 Executive Director evidence of insurance showing that the required insurance has been reinstated or has been provided through another insurance company or companies.

**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.
## GENERAL LIABILITY SPECIAL ENDORSEMENT

FOR THE CITY OF LONG BEACH, HARBOR DEPARTMENT

<table>
<thead>
<tr>
<th>PRODUCER</th>
<th>POLICY INFORMATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone</td>
<td>Insurance Company:</td>
</tr>
<tr>
<td></td>
<td>Policy No.:</td>
</tr>
<tr>
<td></td>
<td>Policy Period: (from) to (to)</td>
</tr>
<tr>
<td></td>
<td>☐ Deductible $ _____ OR ☐ Self-Insured Retention of $ _____</td>
</tr>
</tbody>
</table>

### NAME INSURED & ADDRESS

APPLICABILITY. This insurance pertains to the operations, products and/or activities of the Named Insured under all written agreements and permits in force with the City unless checked here ☐ in which case only the following specific agreements and permits with the City are covered: AGREEMENTS/PERMITS:

### TYPE OF INSURANCE

| ☐ GENERAL LIABILITY |
| ☐ COMMERCIAL GENERAL LIABILITY | ☐ Claims Made Retroactive Date _____ |
| ☐ COMPREHENSIVE GENERAL LIABILITY | ☐ Occurrence |
| ☐ OWNERS & CONTRACTORS PROTECTIVE |

### COVERAGES

| ☐ GENERAL LIABILITY |
| ☐ PRODUCTS/COMPLETED OPERATIONS |
| ☐ PERSONAL & ADVERTISING INJURY |
| ☐ FIRE LEGAL LIABILITY |
| ☐ EXPLOSION, COLLAPSE, UNDERGROUND HAZARDS (XCU) |
| ☐ CONTRACTUAL LIABILITY – RAILROADS |

### LIABILITY LIMITS IN $

<table>
<thead>
<tr>
<th>EACH OCCURRENCE</th>
<th>AGGREGATE</th>
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</thead>
</table>

### OTHER PROVISIONS

CLAIMS: Underwriter's Representative for claims pursuant to this Insurance (must be completed if different than producer)

<table>
<thead>
<tr>
<th>Name:</th>
<th>Address:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Telephone: ( )</td>
<td></td>
</tr>
</tbody>
</table>

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, it is agreed as follows:

1. **ADDITIONAL INSURED.** The City of Long Beach, its Board of Harbor Commissioners, individually and collectively, and their officers and employees ("City") are included as additional insureds with regard to liability and defense of suits or claims arising from the operations, products and/or activities performed by or on behalf of the Named Insured.

2. **CONTRIBUTION NOT REQUIRED.** This insurance shall be primary. Any other insurance, deductible, or self-insurance available to the insureds added by this endorsement shall be in excess of and shall not contribute with this insurance.

3. **CANCELLATION NOTICE.** With respect to the interests of City, this insurance shall not be cancelled, or the scope or limits of coverage reduced by endorsement, except after thirty (30) days prior written notice has been given to City at address indicated below. (Except 10 days shall be allowed for non-payment of premium.)

4. **SCOPE OF COVERAGE.** This endorsement shall afford coverage at least as broad as Insurance Services Office Commercial General Liability Coverage, "occurrence" form CG 0001.

Except as stated above, nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

### ENDORSEMENT HOLDER / ADDITIONAL INSURED

CITY OF LONG BEACH
BOARD OF HARBOR COMMISSIONERS
925 HARBOR PLAZA
LONG BEACH, CA 90802

ATTENTION: Risk Management Division
TELEPHONE: 562-283-7475
FAX: 562-283-7499
E-MAIL: riskmgmt@polb.com

### AUTHORIZED REPRESENTATIVE

I ________________________________(print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement.

Signature
Title
Employer of Signatory
Telephone: ( ) Date Signed

Revised 8-12
# Automobile Liability Special Endorsement

**For the City of Long Beach, Harbor Department**

## Producer

**Telephone**

## Named Insured & Address

## Type of Insurance

- [ ] BUSINESS AUTO POLICY
- [ ] TRUCKERS AND MOTOR CARRIER LIABILITY POLICY
- [ ] GARAGEKEEPERS LIABILITY
- [ ] STUNT ACTIVITY
- [ ] OTHER

## Liability Limit in $

$________ each accident, for bodily injury and property damage liability

## Policy Information

- **Insurance Company:**
- **Policy No.:**
- **Policy Period:** (from) (to)
- [ ] Deductible $________ OR [ ] Self-Insured Retention of $________

## Applicability

This insurance pertains to the operations and activities of the Named Insured under all written permits and agreements in force with the City unless checked here in which case only the following specific permits and agreements with the City are covered:

**Agreements/Permits:**

## Other Provisions

**Claims:** Underwriter's Representative for claims pursuant to this Insurance (must be completed if different than producer)

- **Name:**
- **Address:**
- **Telephone:** ( )

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, it is agreed as follows:

1. **Additional Insured.** The City of Long Beach, its Board of Harbor Commissioners, individually and collectively, and their officers and employees ("City") are included as additional insureds 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.

2. **Contribution Not Required.** This insurance shall be primary. Any other insurance, deductible, or self-insurance available to the insureds added by this endorsement shall be in excess of and shall not contribute with this insurance.

3. **Cancellation Notice.** With respect to the interests of City, this insurance shall not be cancelled, or the scope or limits of coverage reduced by endorsement, except after thirty (30) days prior written notice has been given to City at address indicated below. (Except 10 days shall be allowed for non-payment of premium.)

4. **Scope of Coverage.** This endorsement shall afford coverage at least as broad as Insurance Services Office form number CA0001.

   - [ ] Symbol 1 (any auto)  [ ] Symbol 2 (owned autos)  [ ] Symbol 7 (scheduled autos)  [ ] Symbol 8 (hired autos)  [ ] Symbol 9 (non-owned autos)

Except as stated above, nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

## Endorsement Holder / Additional Insured

**CITY OF LONG BEACH**

**Board of Harbor Commissioners**

**925 Harbor Plaza**

**Long Beach, CA 90802**

**Attention:** Risk Management Division

**Telephone:** 562-283-7475

**Fax:** 562-283-7499

**E-Mail:** riskmgmt@polb.com

## Authorized Representative

I ____________ (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement,

**Signature**

**Title**

**Employer of Signatory**

**Telephone:** ( ) _____________ Date Signed ____________

Revised 5-12
WORKERS’ COMPENSATION AND EMPLOYER’S LIABILITY SPECIAL ENDORSEMENT
FOR THE CITY OF LONG BEACH, HARBOR DEPARTMENT

PRODUCER

POLICY INFORMATION

- Insurance Company:
- Policy No.:
- Policy Period: (from) (to)
- ☐ Deductible $ or
- ☐ Self-Insured Retention of $

APPLICABILITY. This insurance pertains to the operations and activities of the Named Insured under all written agreements and permits in force with the City unless checked here ☐ in which case only the following specific agreements and permits with the City are covered:
- AGREEMENTS/PERMITS:

OTHER PROVISIONS

COVERAGES (check as applicable)

- ☐ Statutory Workers’ Compensation
- ☐ Employers Liability Limits
- ☐ U. S. L. & H.
- ☐ Jones Act
- ☐ Federal Employers Liability Act (FELA)

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, it is agreed as follows:

1. WAIVER OF SUBROGATION. The Insurance Company agrees to waive all rights of subrogation against the City of Long Beach, its Board of Harbor Commissioners, individually and collectively, and their officers and employees ("City") for losses paid under the terms of this policy.

2. CANCELLATION NOTICE. With respect to the interests of City, this insurance shall not be cancelled, or the scope or limits of coverage reduced by endorsement, except after thirty (30) days prior written notice has been given to City at address indicated below. (Except 10 days shall be allowed for non-payment of premium.)

Except as stated above, nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

ENDORSEMENT HOLDER

CITY OF LONG BEACH
BOARD OF HARBOR COMMISSIONERS
925 HARBOR PLAZA
LONG BEACH, CA 90802

ATTENTION: Risk Management Division
TELEPHONE: 562-283-7475
FAX: 562-283-7499
E-MAIL: riskmgmt@polb.com

AUTHORIZED REPRESENTATIVE

I , (print/type name), warrant that I have authority to bind the above-mentioned insurance company and by my signature hereon do so bind this company to this endorsement.

Signature
Title
Employer of Signatory
Telephone: ( ) Date Signed

Print Form
# PROFESSIONAL LIABILITY SPECIAL ENDORSEMENT
FOR THE CITY OF LONG BEACH, HARBOR DEPARTMENT

<table>
<thead>
<tr>
<th>PRODUCER</th>
<th>POLICY INFORMATION</th>
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<tbody>
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<td>Policy No.:</td>
<td>Policy Period: (from) (to)</td>
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<td>[ ] Deductible $______ OR [ ] Self-Insured Retention of $______</td>
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<tbody>
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<td>APPLICABILITY: This insurance pertains to services and activities of the Named Insured under all written agreements and permits in force with the City unless checked here [ ] in which case only the following specific agreements and permits with the City are covered: AGREEMENTS/PERMITS:</td>
</tr>
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<td>[ ] Claims Made Form [ ] Occurrence Form</td>
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<tr>
<td>Name:</td>
<td></td>
</tr>
<tr>
<td>Address:</td>
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<tr>
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<table>
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<th>LIABILITY LIMITS IN $</th>
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<tr>
<td>[ ] ARCHITECTS / ENGINEERS PROFESSIONAL LIABILITY</td>
<td></td>
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<tr>
<td>[ ] ENVIRONMENTAL PROFESSIONAL LIABILITY</td>
<td></td>
</tr>
<tr>
<td>[ ] CONTRACTORS / PROJECT MANAGER'S PROFESSIONAL LIABILITY</td>
<td></td>
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<tr>
<td>[ ] LAWYER'S PROFESSIONAL</td>
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<td>[ ] OTHER</td>
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<tr>
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<th>AGGREGATE</th>
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</thead>
<tbody>
<tr>
<td>[ ] YES [ ] NO</td>
<td></td>
</tr>
</tbody>
</table>

In consideration of the premium charged and notwithstanding any inconsistent statement in the policy to which this endorsement is attached or any endorsement now or hereafter attached thereto, it is agreed as follows:

1. CANCELLATION NOTICE: This insurance shall not be cancelled, or the scope or limits of coverage reduced by endorsement, except after thirty (30) days prior written notice has been given to City at address indicated below. (Except 10 days shall be allowed for non-payment of premium.)

2. SCOPE OF COVERAGE:
   A. Policy covers scope of contracted services: [ ] YES [ ] NO
   B. If NO, what contracted professional services are not covered: [ ]

3. CONTRACTUAL LIABILITY COVERAGE: [ ] IS INCLUDED. [ ] IS NOT INCLUDED.

4. OTHER PROVISIONS: The following exclusions or special provisions apply to this coverage.

Except as stated above, nothing herein shall be held to waive, alter or extend any of the limits, conditions, agreements or exclusions of the policy to which this endorsement is attached.

---

ENDORSEMENT HOLDER

CITY OF LONG BEACH
BOARD OF HARBOR COMMISSIONERS
925 HARBOR PLAZA
LONG BEACH, CA 90802

<table>
<thead>
<tr>
<th>ATTENTION:</th>
<th>AUTHORIZED REPRESENTATIVE</th>
</tr>
</thead>
<tbody>
<tr>
<td>Risk Management Division</td>
<td>I ________________ (print/type name), warrant that I have</td>
</tr>
<tr>
<td>TELEPHONE: 562-283-7475</td>
<td>authority to bind the above-mentioned insurance company and by my</td>
</tr>
<tr>
<td>FAX: 562-283-7499</td>
<td>signature hereon do so bind this company to this endorsement.</td>
</tr>
<tr>
<td>E-MAIL: <a href="mailto:riskmgmt@polb.com">riskmgmt@polb.com</a></td>
<td>Signature</td>
</tr>
<tr>
<td></td>
<td>Title</td>
</tr>
<tr>
<td></td>
<td>Employer of Signatory</td>
</tr>
<tr>
<td></td>
<td>Telephone: ( ) Date Signed</td>
</tr>
</tbody>
</table>

Revised 6-12
ATTACHMENT F

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
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**LIST OF ACRONYMS**

<table>
<thead>
<tr>
<th>Acronym</th>
<th>Description</th>
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<tbody>
<tr>
<td>BAM</td>
<td>Beta Attenuation Monitor</td>
</tr>
<tr>
<td>CARB</td>
<td>California Air Resources Board</td>
</tr>
<tr>
<td>CFR</td>
<td>Code of Federal Regulations</td>
</tr>
<tr>
<td>CI</td>
<td>Chlorine</td>
</tr>
<tr>
<td>CO</td>
<td>Carbon Monoxide</td>
</tr>
<tr>
<td>DAHS</td>
<td>Data Acquisition and Handling System</td>
</tr>
<tr>
<td>DRI</td>
<td>Desert Research Institute</td>
</tr>
<tr>
<td>EC</td>
<td>Elemental Carbon</td>
</tr>
<tr>
<td>FEM</td>
<td>Federal Equivalent Method</td>
</tr>
<tr>
<td>FRM</td>
<td>Federal Reference Method</td>
</tr>
<tr>
<td>GALP</td>
<td>Good Automated Laboratory Practices</td>
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<td>K</td>
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</tr>
<tr>
<td>NO₂</td>
<td>Nitrogen Dioxide</td>
</tr>
<tr>
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<td>Nitric oxide</td>
</tr>
<tr>
<td>O₃</td>
<td>Ozone</td>
</tr>
<tr>
<td>OC</td>
<td>Organic Carbon</td>
</tr>
<tr>
<td>O&amp;M</td>
<td>Operations and Maintenance</td>
</tr>
<tr>
<td>MMC</td>
<td>Master Monitoring Checklist</td>
</tr>
<tr>
<td>PM</td>
<td>Particulate Matter</td>
</tr>
<tr>
<td>PM₅₂⋅₅</td>
<td>Particulate Matter Less than 2.5 microns in aerodynamic diameter</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>Particulate Matter Less than 10 microns in aerodynamic diameter</td>
</tr>
<tr>
<td>POC</td>
<td>Point of Contact</td>
</tr>
<tr>
<td>POLB</td>
<td>Port of Long Beach</td>
</tr>
<tr>
<td>Port</td>
<td>Port of Long Beach</td>
</tr>
<tr>
<td>PPM</td>
<td>Parts per million</td>
</tr>
<tr>
<td>PAH</td>
<td>Polycyclic Aromatic Hydrocarbon</td>
</tr>
<tr>
<td>QA</td>
<td>Quality Assurance</td>
</tr>
<tr>
<td>ROI</td>
<td>Region of Influence</td>
</tr>
<tr>
<td>SCAB</td>
<td>South Coast Air Basin</td>
</tr>
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<td>SCAQMD</td>
<td>South Coast Air Quality Management District</td>
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<tr>
<td>SFS</td>
<td>Sequential Filter Samplers</td>
</tr>
<tr>
<td>SO₂</td>
<td>Sulfur Dioxide</td>
</tr>
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<td>SO₄</td>
<td>Sulfate</td>
</tr>
<tr>
<td>SOP</td>
<td>Standard Operating Procedures</td>
</tr>
<tr>
<td>USEPA</td>
<td>United States Environmental Protection Agency</td>
</tr>
</tbody>
</table>
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 (NO₂), ozone (O₃), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter less than 10 microns in aerodynamic diameter (PM₁₀), and particulate matter less than 2.5 microns in aerodynamic diameter (PM₂.₅).
- Sampling for filter-based analysis of ambient PM₁₀ and PM₂.₅ 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
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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Federal Reference Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM$_{10}$</td>
<td>40 CFR, part 50, Appendix J</td>
</tr>
<tr>
<td>PM$_{2.5}$</td>
<td>40 CFR, part 50, Appendix L</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Federal Equivalent Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM$_{10}$ Beta Attenuation Mass (BAM) Monitors</td>
<td>40 CFR, part 53</td>
</tr>
<tr>
<td>PM$_{2.5}$ BAM Monitors</td>
<td>40 CFR, part 53</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Federal Equivalent Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM$_{2.5}$ Sequential Filter Samplers (SFS)</td>
<td>40 CFR, part 53</td>
</tr>
</tbody>
</table>

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 NO₂, O₃, CO, and SO₂, 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 PM₂.₅ and PM₁₀ 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.

PM₂.₅ speciation laboratory analyses are performed on select PM₂.₅ sample filters for the following constituents:

- Elemental carbon / organic carbon
- X-ray fluorescence for trace metals
- Ion analysis for ammonium (NH₄), chlorine (Cl), nitric oxide (NO₃), sulfate (SO₄), sodium (Na), and potassium (K).
- Polycyclic aromatic hydrocarbon (PAH) analysis

The following table lists the SOPs for analyzing various constituents.

<table>
<thead>
<tr>
<th>SOP – Version Number</th>
<th>Standard Operating Procedure Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>029-2.0</td>
<td>Analyzing the Mass of Dichotomous PM₁₀ Filters</td>
</tr>
<tr>
<td>055-0.0</td>
<td>Determination of PM₂.₅ Mass in Ambient Air by Gravimetric Analysis</td>
</tr>
<tr>
<td>065-0.0</td>
<td>Organic and Elemental Carbon Analysis of Exposed Quartz Microfiber Filters</td>
</tr>
<tr>
<td>034-2.0</td>
<td>Determination of Elemental Concentrations in Ambient Air by Energy-Dispersive X-Ray Fluorescent Spectroscopy</td>
</tr>
<tr>
<td>064-0.0</td>
<td>Analysis of Anions and Cations in PM₂.₅ Speciation Samples by Ion Chromatography</td>
</tr>
<tr>
<td>028-3.2</td>
<td>Determination of Selected Polyaromatic Hydrocarbons (PAH) in Ambient Air</td>
</tr>
</tbody>
</table>
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

<table>
<thead>
<tr>
<th>Equipment Function</th>
<th>Make and Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulsed Fluorescence Ambient SO₂ Analyzer</td>
<td>Thermo Model No. 43i</td>
</tr>
<tr>
<td>Chemiluminescent NO-NO₂-NO₃ Analyzer</td>
<td>Thermo Model No. 42i</td>
</tr>
<tr>
<td>Gas Filter Correlation CO Analyzer</td>
<td>Thermo Model No. 48i</td>
</tr>
<tr>
<td>U.V. Photometric Ozone (O₃) Analyzer</td>
<td>Thermo Model No. 49i</td>
</tr>
<tr>
<td>Multigas Calibrator</td>
<td>Thermo Model No. 146i</td>
</tr>
<tr>
<td>Single Channel FRM Samplers: Model 2000</td>
<td>Thermo Model No. 99-004145-0120</td>
</tr>
<tr>
<td>Partisol-FRM PM-2.5 Sampler 120 VAC</td>
<td>Thermo Model No. 99-005916-0120</td>
</tr>
<tr>
<td>Partisol-FRM PM-10 Sampler 120 VAC</td>
<td>Thermo Model No. 57-008887</td>
</tr>
<tr>
<td>Streamline Pro MultiCal System</td>
<td>Thermo Model No. Data Logger 5000 Series</td>
</tr>
<tr>
<td>EMC Complete Data System</td>
<td>Thermo Model No. SM-7</td>
</tr>
<tr>
<td>Sample Manifold System</td>
<td></td>
</tr>
<tr>
<td>Environmentally Controlled Equipment Shelter</td>
<td>Thermo Model No. Shelter 8810</td>
</tr>
<tr>
<td>(SO₂/NO/CO) Cylinder with Regulator</td>
<td>Thermo Model SO₂/NO/CO</td>
</tr>
<tr>
<td>PM-10 Beta-Attenuation Mass Monitor</td>
<td>Met One Instruments Model No. BAM 1020</td>
</tr>
<tr>
<td>PM-2.5 Beta-Attenuation Mass Monitor</td>
<td>Met One Instruments Model No. 1020</td>
</tr>
<tr>
<td>Wind Speed Sensor</td>
<td>Met One Instruments Model No. 010C-1</td>
</tr>
<tr>
<td>Wind Direction Sensor</td>
<td>Met One Instruments Model No. 020C-1</td>
</tr>
<tr>
<td>Humidity/Temperature Sensor</td>
<td>Met One Instruments Model No. 083D-1-35</td>
</tr>
<tr>
<td>Radiation Shield, Six Plate</td>
<td>Met One Instruments Model No. 5890</td>
</tr>
<tr>
<td>Barometric Pressure Sensor</td>
<td>Met One Instruments Model 092D</td>
</tr>
<tr>
<td>Solar Radiation Sensor</td>
<td>Met One Instruments Model 096-1</td>
</tr>
<tr>
<td>8 Inch Rain Gauge</td>
<td>Met One Model 370</td>
</tr>
</tbody>
</table>
Table 6. Station #2 (Gull Park Site) - Monitoring Equipment

<table>
<thead>
<tr>
<th>Equipment Function</th>
<th>Make and Model</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pulsed Fluorescence Ambient SO(_2) Analyzer</td>
<td>Thermo Model No. 43i</td>
</tr>
<tr>
<td>Chemiluminescent NO-NO(_2)-NO(_x) Analyzer</td>
<td>Thermo Model No. 42i</td>
</tr>
<tr>
<td>Gas Filter Correlation CO Analyzer</td>
<td>Thermo Model No. 48i</td>
</tr>
<tr>
<td>U.V. Photometric Ozone (O(_3)) Analyzer</td>
<td>Thermo Model No. 49i</td>
</tr>
<tr>
<td>Multigas Calibrator</td>
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</tr>
<tr>
<td>Partisol-FRM PM-10 Sampler 120 VAC</td>
<td>Thermo Model No. 99-005916-0120</td>
</tr>
<tr>
<td>Streamline Pro MultiCal System</td>
<td>Thermo Model No. 57-008887</td>
</tr>
<tr>
<td>EMC Complete Data System</td>
<td>Thermo Model No. Data Logger 5000 Series</td>
</tr>
<tr>
<td>Sample Manifold System</td>
<td>Thermo Model No. SM-7</td>
</tr>
<tr>
<td>Environmentally Controlled Equipment Shelter</td>
<td>Thermo Model No. Shelter 8810</td>
</tr>
<tr>
<td>(SO(_2)/NO/CO) Cylinder with Regulator</td>
<td>Thermo Model SO(_2)/NO/CO</td>
</tr>
<tr>
<td>PM-10 Beta-Attenuation Mass Monitor</td>
<td>Met One Instruments Model No. BAM 1020</td>
</tr>
<tr>
<td>PM-2.5 Beta-Attenuation Mass Monitor</td>
<td>Met One Instruments Model No. BAM 1020</td>
</tr>
<tr>
<td>Wind Speed Sensor</td>
<td>Met One Instruments Model No. 010C-1</td>
</tr>
<tr>
<td>Wind Direction Sensor</td>
<td>Met One Instruments Model No. 020C-1</td>
</tr>
<tr>
<td>Humidity/Temperature Sensor</td>
<td>Met One Instruments Model No. 083D-1-35</td>
</tr>
<tr>
<td>Radiation Shield, Six Plate</td>
<td>Met One Instruments Model No. 5890</td>
</tr>
<tr>
<td>Barometric Pressure Sensor</td>
<td>Met One Instruments Model 092D</td>
</tr>
</tbody>
</table>
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 tasks 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
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 that these data are uploaded on a real-time basis, so they have 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


California Air Resources Board, Laboratory Standard Operating Procedures for Ambient Air (http://www.arb.ca.gov/aaqm/sop/summary/summary.htm), 2006.


APPENDIX 1

Field Worksheets and Checklists
**Figure 1. POLB Air Quality Program Master Monitoring Checklist**

<table>
<thead>
<tr>
<th>Field Tech</th>
<th>Date</th>
<th>Checklist Fill Out Time:</th>
</tr>
</thead>
</table>

**Please answer status with either:**
- A) No Unusual Conditions
- B) Sampler Malfunction
- C) Power Loss
- D) Other

<table>
<thead>
<tr>
<th>Daily Status</th>
<th>Comments</th>
</tr>
</thead>
</table>

**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 SO$_2$ Analyzer?  
F. Thermo Electron NO$_x$ Analyzer?  
G. Thermo Electron CO Analyzer?  
H. Thermo Electron O$_3$ 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 SO$_2$ Analyzer?  
F. Thermo Electron NO$_x$ Analyzer?  
G. Thermo Electron CO Analyzer?  
H. Thermo Electron O$_3$ Analyzer?
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>I.</td>
<td>Met Station Operation?</td>
<td></td>
</tr>
<tr>
<td>J.</td>
<td>BAM for PM\textsubscript{10}?</td>
<td></td>
</tr>
<tr>
<td>K.</td>
<td>BAM for PM\textsubscript{2.5}?</td>
<td></td>
</tr>
</tbody>
</table>
Figure 2. Diagram of Routine Maintenance Steps for Samplers During Site Visit

1. **Arrive at Site**
2. **Remove Plenum**
3. **Turn Pump On**
4. **Record Final Flow Rates & Elapsed Times on Field Data Sheets**
5. **Turn Pump Off**
6. **Remove Filter Packs from Sampler**
7. **Store Filter Packs in Tackle Box**
8. **Install Unexposed Filter Packs**
9. **Revise Timer Program for Next Sampling Day**
10. **Turn Pump On**
11. **Record Initial Flow Rates & Initial Elapsed Times on Field Data Sheet**
12. **Secure Plenum**
13. **Leave Site**
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:

<table>
<thead>
<tr>
<th>Port</th>
<th>Initial Reading</th>
<th>Final Reading</th>
<th>Total Elapsed Time</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port 1</td>
<td>____________</td>
<td>____________</td>
<td>__________</td>
</tr>
<tr>
<td>Port 7</td>
<td>____________</td>
<td>____________</td>
<td>__________</td>
</tr>
<tr>
<td>Port 2 (if appropriate)</td>
<td>_________</td>
<td>____________</td>
<td>__________</td>
</tr>
<tr>
<td>Port 8 (if appropriate)</td>
<td>_________</td>
<td>____________</td>
<td>__________</td>
</tr>
</tbody>
</table>

Sampler Flow Rate (CFH):

<table>
<thead>
<tr>
<th>Port</th>
<th>Initial Flow</th>
<th>Final Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td>Port 1</td>
<td>____________</td>
<td>__________</td>
</tr>
<tr>
<td>Port 7</td>
<td>____________</td>
<td>__________</td>
</tr>
<tr>
<td>Port 2 (if appropriate)</td>
<td>_________</td>
<td>__________</td>
</tr>
<tr>
<td>Port 8 (if appropriate)</td>
<td>_________</td>
<td>__________</td>
</tr>
</tbody>
</table>

Verify the Following:

Gaskets are in good condition.
PM$_{10}$ head is secure.

Comments:__________________________________________________________________
SAIC 24-HOUR – FIELD SAMPLE REPORT
PM2.5/PM10 SAMPLER

Bar Code:
LIMS Sample ID:
Cassette I. D. Number:
Scheduled Sampling Date:
Sampler Property #:

Check if data electronically submitted to Laboratory

<table>
<thead>
<tr>
<th>MIN</th>
<th>AVG</th>
<th>MAX</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Ambient Temp(°C):</th>
<th>Filter Temp (°C):</th>
<th>Pressure (mmHg):</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
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</table>

<table>
<thead>
<tr>
<th>Flow</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
</tr>
</tbody>
</table>

Sampler Flag Codes:

A. OK
B. Good
C. T. Filter Temp.
D. F. Flow Rate
E. Flow Cutoff
F. X. Ambient Temp.
G. Y. Inst. Elec. Temp
H. Z. Power Outage
I. Elapsed Sample Time
J. Percent CV

Local Condition Codes:

A. No Unusual Conditions
B. B. Wind/Blown Sand/Dust
C. Construction Nearby
D. Farming Operation Nearby
E. Fire Nearby
F. Sampler Malfunction
G. Rain
H. Other (See Comments)

Operator Comments

Comments
<table>
<thead>
<tr>
<th>Service</th>
<th>Each Run</th>
<th>800-HR Intervals</th>
</tr>
</thead>
<tbody>
<tr>
<td>Check and Record Initial Flow Meter Reading &amp; True Air Flow Rate</td>
<td>☒</td>
<td></td>
</tr>
<tr>
<td>Inspect Faceplate Gasket</td>
<td>☒</td>
<td></td>
</tr>
<tr>
<td>Check Operation of Flow Recorder</td>
<td>☒</td>
<td></td>
</tr>
<tr>
<td>Record Initial and Final Elapsed Time Meter Readings</td>
<td>☒</td>
<td></td>
</tr>
<tr>
<td>Check Flow Recorder Inking</td>
<td>☒</td>
<td></td>
</tr>
<tr>
<td>Replace Motor Brushes</td>
<td></td>
<td>☒</td>
</tr>
<tr>
<td>Calibration</td>
<td></td>
<td>☒</td>
</tr>
<tr>
<td>Inspect Flow Meter Tubing</td>
<td></td>
<td>☒</td>
</tr>
<tr>
<td>Clean Rotometer</td>
<td></td>
<td>As required</td>
</tr>
<tr>
<td>Replace Motor</td>
<td></td>
<td>As required</td>
</tr>
<tr>
<td><strong>Unless a specific question is asked, please answer with a &quot;Yes&quot; or &quot;No.&quot;</strong></td>
<td><strong>Status or Response</strong></td>
<td><strong>Comments</strong></td>
</tr>
<tr>
<td>-------------------------------------------------</td>
<td>------------------------</td>
<td>-------------</td>
</tr>
</tbody>
</table>

### 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 (°)  
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 (°C)  
2. Are radiation shields & signal cables free from damage?
<table>
<thead>
<tr>
<th>Status or Response</th>
<th>Comments</th>
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<tr>
<td><strong>E. Relative Humidity</strong></td>
<td></td>
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<tr>
<td>(1) Output from datalogger (%)</td>
<td></td>
</tr>
<tr>
<td>(2) Does this value seem reasonable?</td>
<td></td>
</tr>
<tr>
<td><strong>F. Solar Radiation</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Output from datalogger (mw/cm²)</td>
<td></td>
</tr>
<tr>
<td>(2) Is signal cable secure and free from damage?</td>
<td></td>
</tr>
<tr>
<td>(3) Is glass hemisphere dirty or damaged? (check weekly)</td>
<td></td>
</tr>
<tr>
<td>(4) Is sensor level? (check weekly)</td>
<td></td>
</tr>
<tr>
<td><strong>4. Thermo Electron Pollutant Analyzers (NO₂, O₃, SO₂, and CO)</strong></td>
<td></td>
</tr>
<tr>
<td><strong>A. NO₂ Analyzer</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Output from datalogger (%)</td>
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</tr>
<tr>
<td>(2) Does this value seem reasonable?</td>
<td></td>
</tr>
<tr>
<td><strong>B. O₃ Analyzer</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Output from datalogger (%)</td>
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</tr>
<tr>
<td>(2) Does this value seem reasonable?</td>
<td></td>
</tr>
<tr>
<td><strong>C. SO₂ Analyzer</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Output from datalogger (%)</td>
<td></td>
</tr>
<tr>
<td>(2) Does this value seem reasonable?</td>
<td></td>
</tr>
<tr>
<td><strong>D. CO Analyzer</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Output from datalogger (%)</td>
<td></td>
</tr>
<tr>
<td>(2) Does this value seem reasonable?</td>
<td></td>
</tr>
<tr>
<td>Status or Response</td>
<td>Comments</td>
</tr>
<tr>
<td>--------------------</td>
<td>----------</td>
</tr>
<tr>
<td><strong>5. Beta Attenuation Monitor (BAM) – PM$_{10}$</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Is flash lamp and pump operating properly?</td>
<td></td>
</tr>
<tr>
<td>(2) Is display indicating reasonable concentrations and is datalogger storing data?</td>
<td></td>
</tr>
<tr>
<td>(3) Enter time, date and PM$_{10}$ concentration from display</td>
<td></td>
</tr>
<tr>
<td><strong>6. Beta Attenuation Monitor (BAM) – PM$_{2.5}$</strong></td>
<td></td>
</tr>
<tr>
<td>(1) Is flash lamp and pump operating properly?</td>
<td></td>
</tr>
<tr>
<td>(2) Is display indicating reasonable concentrations and is datalogger storing data?</td>
<td></td>
</tr>
<tr>
<td>(3) Enter time, date and PM$_{2.5}$ concentration from display</td>
<td></td>
</tr>
</tbody>
</table>
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.
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.
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 located 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 as 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 owned 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.

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site Description</th>
<th>Is Site Viable?</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>I-1</td>
<td>Former Coast Guard Building Parking Lot</td>
<td>No</td>
<td>Conflicts with future development (Gerald Desmond Bridge Replacement Project)</td>
</tr>
<tr>
<td>I-2</td>
<td>“Superblock” Area</td>
<td>Yes</td>
<td>Meets siting criteria</td>
</tr>
<tr>
<td>I-3</td>
<td>End of Carrack Avenue</td>
<td>Yes</td>
<td>Meets siting criteria</td>
</tr>
<tr>
<td>I-4</td>
<td>Vacant Areas near Pico Avenue and Ocean Boulevard</td>
<td>No</td>
<td>Dominated by near-field emission sources (rail and I-710); Lack of infrastructure</td>
</tr>
<tr>
<td>I-5</td>
<td>Building Parking Lot Near Pico Avenue and Ocean Boulevard</td>
<td>No</td>
<td>Dominated by near-field emission sources (rail and I-710)</td>
</tr>
<tr>
<td>I-6</td>
<td>Pier C, Berth C59</td>
<td>No</td>
<td>Insufficient clearance from structures</td>
</tr>
<tr>
<td>I-7</td>
<td>Pier C, Berth C64</td>
<td>No</td>
<td>Site access and H&amp;S concerns</td>
</tr>
<tr>
<td>I-8</td>
<td>Edison Avenue adjacent to Petro Diamond Terminal</td>
<td>No</td>
<td>Dominated by near-field emission sources (unpaved roads, terminals)</td>
</tr>
<tr>
<td>I-9</td>
<td>Edison Avenue adjacent to Toyota</td>
<td>No</td>
<td>Dominated by near-field emission sources (unpaved roads, terminals, refinery)</td>
</tr>
<tr>
<td>I-10</td>
<td>Carrack Avenue east of Valero “Ultramar” Refinery</td>
<td>No</td>
<td>Dominated by near-field emission sources (refinery, rail)</td>
</tr>
<tr>
<td>I-11</td>
<td>Pico Avenue across from Matson Auto Lot</td>
<td>No</td>
<td>Dominated by near-field emission sources (rail and I-710)</td>
</tr>
</tbody>
</table>

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.
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 meet 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.

<table>
<thead>
<tr>
<th>Site ID</th>
<th>Site Description</th>
<th>Is Site Viable?</th>
<th>Rationale</th>
</tr>
</thead>
<tbody>
<tr>
<td>O-1</td>
<td>Navy Mole Helipad/Gull Park</td>
<td>Yes</td>
<td>Meets siting criteria</td>
</tr>
<tr>
<td>O-2</td>
<td>Navy Mole adjacent to Pier 12</td>
<td>Yes</td>
<td>Meets siting criteria</td>
</tr>
<tr>
<td>O-3</td>
<td>Pier F at the end of Pier F Avenue</td>
<td>No</td>
<td>Insufficient property available; security concerns</td>
</tr>
<tr>
<td>O-4</td>
<td>Navy Mole adjacent to Piers 15 and 16</td>
<td>No</td>
<td>Dominated by near-field emission sources (vessels)</td>
</tr>
<tr>
<td>O-5</td>
<td>West end of Navy Mole</td>
<td>No</td>
<td>Dominated by near-field emission sources (rail); geographic concerns; security concerns</td>
</tr>
<tr>
<td>O-6</td>
<td>Jacobson Pilot Station/Pier F</td>
<td>No</td>
<td>Insufficient property available; conflict with potential development</td>
</tr>
<tr>
<td>O-7</td>
<td>End of Pier F</td>
<td>No</td>
<td>Site access and H&amp;S concerns; dominated by near-field emission sources</td>
</tr>
</tbody>
</table>

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 8.1: I-9 Site Location](image1)

Figure 8.2: I-9 Site Location

![Figure 8.2: I-9 Site Location](image2)
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
ATTACHMENT G

Port Air Monitoring Quality Assurance Plan
Port of Long Beach

Quality Assurance Plan for the Air Quality Monitoring Program

November 2010 Update

Prepared by:
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List of Acronyms

BAM  Beta-attenuation mass
CARB  California Air Resources Board
CFR  Code of Federal Regulations
CI  Chlorine
CO  Carbon monoxide
DAHS  Data Acquisition and Handling System
DBS  Database management system
DOP  Diocetyl 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
NO2  Nitrogen dioxide
NO3  Nitric oxide
NPAP  National Performance Audit Program
O&M  Operation & Maintenance
O3  Ozone
PAH  Polycyclic aromatic hydrocarbons
PM10  Particulate matter with an aerodynamic diameter of 10 microns
PM2.5  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
SO2  Sulfur dioxide
SO4  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 (NO₂), ozone (O₃), carbon monoxide (CO), sulfur dioxide (SO₂), particulate matter less than 10 microns in aerodynamic diameter (PM₁₀), and particulate matter less than 2.5 microns in aerodynamic diameter (PM₂.₅).
- Sampling for filter-based analysis of ambient PM₁₀ and PM₂.₅ 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 NO₂, O₃, CO, SO₂, PM₁₀, and PM₂.₅. 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. 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.

---

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. NOx, O3, CO, and SO2) using various gaseous analyzers as well as for PM10 and PM2.5 using beta-attenuation mass (BAM) particulate analyzers.

Particulate matter filter-based samplers
This data type is obtained for PM10 and PM2.5 using different types of filters and specially designed equipment to separate the particles into the appropriate sizes. PM10 is collected using equipment with a single filter. PM2.5 is collected using equipment with a single filter and equipment with multi-port samplers using multiple filters. The reason for using multiple filters for PM2.5 is to allow for PM2.5 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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Federal Reference Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>NO₂</td>
<td>40 CFR, part 50, Appendix F</td>
</tr>
<tr>
<td>O₃</td>
<td>40 CFR, part 50, Appendix D</td>
</tr>
<tr>
<td>CO</td>
<td>40 CFR, part 50, Appendix C</td>
</tr>
<tr>
<td>SO₂</td>
<td>40 CFR, part 50, Appendix A</td>
</tr>
<tr>
<td>PM₁₀</td>
<td>40 CFR, part 50, Appendix J</td>
</tr>
<tr>
<td>PM₂.₅</td>
<td>40 CFR, part 50, Appendix L</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Federal Equivalent Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>PM₁₀ Beta Attenuation Mass (BAM) Monitors</td>
<td>40 CFR, part 53</td>
</tr>
<tr>
<td>PM₂.₅ BAM Monitors</td>
<td>40 CFR, part 53</td>
</tr>
<tr>
<td>PM₂.₅ Sequential Filter Samplers (SFS)</td>
<td>40 CFR, part 53</td>
</tr>
</tbody>
</table>

3.6 Sample Handling and Custody

As mentioned in Section 3.4, samples are not retained for real-time measurements of gaseous NO₂, O₃, CO, and SO₂ 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 PM₁₀ and PM₂.₅ 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 PM₂.₅ 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 PM₂.₅). 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 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 reflect the current conditions at each site.

Station #1 - Superblock
- Thermo Model No. 43i - Pulsed Fluorescence Ambient SO2 Analyzer
- Thermo Model No. 42i - Chemiluminescent NO-NO2-NOx Analyzer
- Thermo Model No. 48i - Gas Filter Correlation CO Analyzer
- Thermo Model No. 49i - U.V. Photometric Ozone (O3) 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 PM10 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 SO2/NO/CO - (SO2/NO/CO) Cylinder with Regulator
- Met One Instruments Model No. BAM 1020 – PM10 Beta-Attenuation Mass Monitor
- Met One Instruments Model No. BAM 1020 – PM2.5 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 SO2 Analyzer
- Thermo Model No. 42i - Chemiluminescent NO-NO2-NOx Analyzer
- Thermo Model No. 48i - Gas Filter Correlation CO Analyzer
- Thermo Model No. 49i - U.V. Photometric Ozone (O3) Analyzer
- Thermo Model No. 146i - Multigas Calibrator
- Thermo Model No. 99-005916-0120 - Partisol-FRM PM10 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 SO2/NO/CO - (SO2/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\textsubscript{2}-NO\textsubscript{x} analyzer requires all moisture be removed from the ambient sample to ensure accurate measurement of NO-NO\textsubscript{2}-NO\textsubscript{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\textsubscript{2}/NO/CO) and a multigas calibrator instrument. The multigas calibrator is designed to perform calibrations on each individual gaseous component (SO\textsubscript{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\textsubscript{2}/CO, and a second containing Puri-fill, which scrubs out oxides of nitrogen (i.e., NO, NO\textsubscript{2}, NO\textsubscript{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

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Federal Reference Method</th>
</tr>
</thead>
<tbody>
<tr>
<td>High Volume/PM$_{10}$(SSI)</td>
<td>% difference ≤ 15% for 1 or more flows</td>
</tr>
<tr>
<td>Dichot (PM$_{10}$)</td>
<td>% difference ≤ 15% for 1 or more flows</td>
</tr>
<tr>
<td>Pb (analytical)</td>
<td>% difference ≤ 15% for 1 or more levels</td>
</tr>
<tr>
<td>SO$_2$, NO$_2$, and CO</td>
<td>Mean absolute % difference ≤ 15%</td>
</tr>
<tr>
<td>O$_3$</td>
<td>Mean absolute % difference ≤ 10%</td>
</tr>
</tbody>
</table>

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

<table>
<thead>
<tr>
<th>Type of QA Report to Management</th>
<th>Contents</th>
<th>Suggested Reporting Frequency</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>As required</td>
</tr>
<tr>
<td>Corrective Action Request</td>
<td>Description of problem</td>
<td>X</td>
</tr>
<tr>
<td>Control chart with summary</td>
<td>Repetitive field or lab activity; control limits</td>
<td>X</td>
</tr>
<tr>
<td>Performance Audit</td>
<td>Summary of audit results</td>
<td>X</td>
</tr>
<tr>
<td>System audits</td>
<td>Summary of system audit results; recommendations</td>
<td>X</td>
</tr>
</tbody>
</table>

| 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 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. 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


Environmental Monitoring Company Inc., EMC Station Manager Data Logger Users Manual, Paso Robles, CA


GPO, Code of Federal Regulations, Title 40, Part 58, 2009, Appendix B.


