Washington State Department of Transportation

Industrial Hygiene Consulting Services Request for Qualifications

PACKET A

May 25, 2022 @ 4:00 PM

21905 64th Ave W, Suite 100
Mountlake Terrace, WA 98043
P | (425) 361-0267
Criteria 1: Qualifications/Experience of the Terracon Team

A. Terracon Profile

Terracon Consultants Inc. (Terracon) is submitting our Statement of Qualifications to the Washington State Department of Transportation for Industrial Hygiene Consulting Services as a Prime Consultant. We are capable of providing all the requested services as a sole consultant and believe this will bring a more streamlined, cohesive project approach to the Industrial Hygiene Consulting Services for WSDOT. We have listed our labs, which are sub-contractors, below is Section 1B on page 2.

Terracon is a 100 percent employee-owned consulting engineering firm providing quality environmental services to clients throughout the Pacific Northwest since 1965. Terracon also specializes in providing our municipal clients with Geotechnical, Facilities, and Materials and Special Inspection support services.

Over its history, Terracon has achieved significant expansion through both internal growth and acquisitions. Terracon currently has more than 180 Consultants within Washington and the Greater Portland Metro area and 5,000 employees in more than 175 locations and 42 states nationwide.

For this Industrial Hygiene Consulting Services contract, we have chosen three team members located in our Mountlake Terrace, WA office. Our team over 80 years of combined experience and are more than capable of providing WSDOT with the requested services.

Key Personnel Providing Industrial Hygiene Consulting Services

SCOTT PARKER, M.S.
Project Manager | Main Point of Contact

JOHN MCCASLIN
Senior Field Industrial Hygienist

RUSH BOWERS, CIH, CSP
QA/QC | Authorized Project Reviewer

Our industrial hygiene professionals specialize in all aspects of the requested services listed in the RFQ including exposure assessments, noise monitoring, indoor air quality evaluations, and response to mold and moisture events. We combine our technical expertise with a long history of supporting public agencies to support the health and safety needs of their personnel.

Our proposed key team members will also provide clear, concise communication with WSDOT, making sure you are informed at each crucial juncture. This team understands that negotiating the complexities of industrial hygiene issues can be challenging and time consuming. Terracon’s experience and knowledge of local conditions and regulations enables us to deliver timely and practical solutions that make good business sense.
Criteria 1: Qualifications/Experience of the Terracon Team

Environmental Expertise Terracon can Provide

<table>
<thead>
<tr>
<th>INDUSTRIAL HYGIENE</th>
<th>INDOOR ENVIRONMENTAL QUALITY</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Hazard Communication</td>
<td>▪ Odor Source Investigations</td>
</tr>
<tr>
<td>▪ Noise Dosimetry</td>
<td>▪ ASHRAE Parameters</td>
</tr>
<tr>
<td>▪ Chemical Exposure and Hygiene</td>
<td>▪ Respirable Dust</td>
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<td>▪ Litigation Support</td>
<td>▪ Forensic Investigations</td>
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<tr>
<td>▪ HASP Development</td>
<td>▪ Risk Communication</td>
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<tr>
<td>▪ Emergency Response</td>
<td>▪ Site Inspections</td>
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<tr>
<td>▪ Diesel Exhaust</td>
<td>▪ Sampling</td>
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<tr>
<td>▪ Biological Hazards</td>
<td>▪ Particulate Analysis</td>
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<td>▪ Bloodborne Pathogens</td>
<td></td>
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<tr>
<td>▪ Radon</td>
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<table>
<thead>
<tr>
<th>MOLD AND MOISTURE</th>
<th>REGULATED MATERIALS MANAGEMENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Water Damage</td>
<td>▪ Surveys for Asbestos, Lead, PCBs, other hazmat</td>
</tr>
<tr>
<td>▪ Grey and Black Water Inspections</td>
<td>▪ Identification of mercury sources (lamps, High Intensity Discharge (HID), thermostats)</td>
</tr>
<tr>
<td>▪ Non-Viable and Viable Mold Sampling</td>
<td>▪ Health and Safety General and Site-Specific Training</td>
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<tr>
<td>▪ Remediation Protocols</td>
<td>▪ Cost Estimating</td>
</tr>
<tr>
<td>▪ Cause of Origin Investigations</td>
<td>▪ Project Design</td>
</tr>
<tr>
<td>▪ Infrared Camera Moisture Investigations</td>
<td>▪ Bid Assistance</td>
</tr>
<tr>
<td>▪ Moisture Meter Readings</td>
<td>▪ Abatement Oversight</td>
</tr>
<tr>
<td>▪ New Construction Services</td>
<td>▪ Close-out Reports</td>
</tr>
<tr>
<td>▪ Remediation</td>
<td></td>
</tr>
<tr>
<td>▪ Exit Evaluations</td>
<td></td>
</tr>
</tbody>
</table>

B. Sub-Consultants (Sub-Contractors)

As mentioned above, Terracon intends on servicing this contract as a Prime Consultant. We can provide all the requested services as a sole consultant and believe this will bring a more streamlined, cohesive project approach to the Industrial Hygiene Consulting Services for WSDOT. Below are our labs which are sub-contractors.

Subconsultant: SGS Galson
Project Name: Exposure Assessment at Manufacturing Facility
Firm’s Role: Free equipment loan, provision of sample media, various sample analysis
Dates of Service: March 2022

Subconsultant: Pine Environmental Equipment Rental
Project Name: Seattle City Light South Service Center Noise Exposure Assessment
Firm’s Role: Rental or noise monitoring equipment
Dates of Service: January 2022

Subconsultant: EMLab P&K Laboratory
Project Name: Aerojet Rocketdyne – Building 01 Indoor Air Quality and Spore Trap Sampling
Firm’s Role: Microscopic analysis for viable and non-viable mold
Dates of Service: March 2022
Criteria 1: Qualifications/Experience of the Terracon Team

Subconsultant: NVL Laboratories
Project Name: Exposure Assessment for Lead During Painted Concrete Drilling Operations
Firm’s Role: Sample analysis
Dates of Service: April 2022

Our Team has worked with each sub-contractor on hundreds of projects for over 20 years and trust them to perform services as an extension of the Terracon team, being held to our same, rigorous standards technical standards and commitment to on-time delivery.

C. Availability of Key Staff and Resources

Terracon’s capacity of 15 local Industrial Hygiene Consultants is more than a number; it translates to the ability to handpick a team of qualified individuals, as shown on the above Org Chart, who have the availability, skill set, and interest in partnering with WSDOT. Our specialists selected for this contract will prioritize your requests and be personally invested in your success.

Terracon’s key project team understands the importance of responsiveness when an issue arises in the form of a spill or release that is potentially harmful to human health and the environment. Terracon’s regional network of environmental contractors allows us to mobilize quickly and effectively.

Our environmental professionals have a wide range of experience in responding to critical deadlines and complex scope requirements on short notice. In the event of a short notice, your primary point of contact, Scott Parker, will set a plan in motion. He will ensure the properly certified staff and sub-contractors are utilized in an efficient and cost-effective manner, while ensuring critical deadlines are met. Our team is well equipped to perform work on short notice, due to our convenient location at 21905 64th Ave W, Suite 200 in Mountlake Terrace, Washington. This will allow us to respond to any limited advance notice request from WSDOT in a quick and efficient manner.

The table below notes the available capacity of our key personnel to respond to critical deadlines and complex scope requirements on short notice. Should WSDOT need more availability, we make the time needed to help each client’s projects succeed.

<table>
<thead>
<tr>
<th>KEY STAFF MEMBER</th>
<th>ROLE</th>
<th>AVAILABILITY IN HOURS PER MONTH</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scott Parker, M.S.</td>
<td>Project Manager</td>
<td>16 Hours</td>
</tr>
<tr>
<td>John McCaslin</td>
<td>Senior Field Industrial Hygienist</td>
<td>24 Hours</td>
</tr>
<tr>
<td>Rush Bowers, CIH, CSP</td>
<td>QA/QC</td>
<td>8 Hours</td>
</tr>
</tbody>
</table>
Criteria 1: Qualifications/Experience of the Terracon Team

D. Our Team’s Prior Project Experience

**Terracon**

On all of the below projects, Terracon was the Prime Consultant with each sub-contractor working as an extension of our team.

**SGS Galson**

**Project 1**

**Team Member:** SGS Galson and Pine Environmental Equipment Rental  
**Services Provided:** Free equipment loan, provision of sample media, consultation on most applicable sample and analytical methods, various sample analysis.  
**Project Name:** Oversight of Removal of Mercury-Containing Gymnasium Floor  
**Dates:** October 2020 to May 2021  
**Approximate Amount Received:** $51,974

In the 1950s and 1960s a rubber-like polymer floor covering containing mercury was sometimes used as a substitute for and improvement over wood flooring in gymnasiums (3M Tartan Brand floor). Terracon had a client with a 7,000 square foot gymnasium with this material that the client decided to remove following flood damage. The industrial hygiene challenges were two-fold: selection of a mercury vapor analyzer with sufficient sensitivity to reliably identify airborne mercury inside and outside of the contained work area and identify a sampling and analytical method best suited to identifying low concentrations of airborne mercury in other adjacent occupied areas of the building.

The Terracon project manager worked closely with Pine Environmental Equipment Rental (Pine) and decided on the Lumex 915 mercury meter over the more common Jerome instrument. In addition, SGS Galson assisted with the selection of NIOSH Method 6009 using solid sorbent tubes (CVAA) for vapor sampling and 37-millimeter MCE 3-piece cassettes for particulate sampling.

**Project 2**

**Team Member:** SGS Galson Pine Environmental Equipment Rental  
**Project Name:** Exposure Assessment for Welding Fumes, MEK, and PNOR  
**Services Provided:** Free equipment loan, provision of sample media, consultation on most applicable sample and analytical methods, various sample analysis.  
**Dates:** October 2020 to January 2021  
**Approximate Amount Received:** $7,583

**Project 3**

**Team Member:** SGS Galson  
**Project Name:** Janitorial Services Exposure Assessment  
**Services Provided:** Free equipment loan, provision of sample media, analysis for 2-butoxyethanol, ethanolamine, and benzyl alcohol.  
**Dates:** December 2021 to February 2022  
**Approximate Amount Received:** $4,905
Criteria 1: Qualifications/Experience of the Terracon Team

**Pine Environmental Equipment Rental**

**Project 1**
Team Member: Pine Environmental Equipment Rental and EMLab P&K  
Project Name: Seattle Public Utilities – Ballard Operations Building, Indoor Air Quality and Spore Trap Sampling  
Services Provided: Equipment rental  
Dates: April 2022  
Approximate Amount Received: $4,250

Terracon project managers have been using Pine because of their outstanding service and equipment availability. For this project, Pine was willing to deliver the TSI IAQ-Calc Model 7575 and TSI DustTrak DRX directly to our office for no additional fees. Their instruments are dependable and in the rare event when there is an equipment issue, Pine personnel are true team members in solving the issue.

**Project 2**
Team Member: Pine Environmental Equipment Rental  
Project Name: Puget Sound Energy Indoor Air Quality Assessment  
Services Provided: Equipment rental  
Dates: May 2021 to October 2021  
Approximate Amount Received: $4,950

**Project 3**
Team Member: Pine Environmental Equipment Rental  
Project Name: Kaiser Permanente Capitol Hill Main Building Iso Room Validation Assessment  
Services Provided: Equipment rental  
Dates: June 2021 to August 2021  
Approximate Amount Received: $4,000

**EMLab P&K Laboratory**

**Project 1**
Team Member: Pine Environmental Equipment Rental and EMLab P&K  
Project Name: Aerojet Rocketdyne – Building 01 Indoor Air Quality and Spore Trap Sampling  
Services Provided: Microscopic fungal analysis  
Dates: March 2022 to April 2022  
Approximate Amount Received: $4,900

In addition to standard IAQ parameters, this project included collection of non-viable fungal spore trap samples. EMLab P&K was the selected lab because they use the enormous amount of data they have collected over many years to provide analytical results that they can compare to average concentrations in this region and during this time of year. In addition, they provide an easy-to-understand metric called a MoldSCORE™ that the Terracon project manager can use to provide a semi-quantitative determination of whether the identified mold spores more likely originated from an outdoor or indoor source.
Criteria 1: Qualifications/Experience of the Terracon Team

**Project 2**  
**Team Member:** EMLab P&K Laboratory  
**Project Name:** Seattle City Light South Service Center Mold and Moisture Assessment  
**Services Provided:** Microscopic fungal analysis  
**Dates:** January 2021 to March 2021  
**Approximate Amount Received:** $1,497

**Project 3**  
**Team Member:** EMLab P&K Laboratory and Pine Environmental Equipment Rental  
**Project Name:** Fire Station 42 IAQ and Spore Trap Sampling  
**Services Provided:** Microscopic fungal analysis  
**Dates:** December 2021 to March 2022  
**Approximate Amount Received:** $3,879

**NVL Laboratories**  

**Project 1**  
**Team Member:** NVL Laboratories  
**Project Name:** Lead Solder Exposure Assess and Wipe Sampling  
**Services Provided:** Sample analysis and consultation on sample media (wipe sampling)  
**Dates:** October 2021 to February 2022  
**Approximate Amount Received:** $4,420

This client had an immediate concern about lead exposure to employees during full shift soldering operations and use of potentially contaminated eating areas. The Terracon project manager selected NVL Laboratories for this project because they were local to the project site so samples could be dropped off on the same day they were collected, they have the analytical equipment on-site, and offer offering a two-hour turnaround time. Due to our quick response and collaboration with our lab partner, we were able to provide the client with results the day after sampling.

**Project 2**  
**Team Member:** NVL Laboratories  
**Project Name:** Exposure Assess Noise, Hex chromium, and Particulate  
**Services Provided:** Sample analysis  
**Dates:** September 2021 to December 2021  
**Approximate Amount Received:** $3,950

**Project 3**  
**Team Member:** NVL Laboratories  
**Project Name:** Exposure Assessment for Lead During Painted Concrete Drilling Operations  
**Services Provided:** Sample analysis  
**Dates:** October 2021 to April 2022  
**Approximate Amount Received:** $2,500
Criteria 2: Qualifications of Terracon’s Project Manager

A. Prior Project Experience of Terracon’s Project Manager and His Experience as a Project Manager on Projects Similar to those WSDOT is Requesting

Mr. Scott Parker, M.S.
Terracon’s proposed Project Manager is Mr. Scott Parker, M.S. He brings with him 32 years of experience and is the best person to lead WSDOT to a successful project end as evidenced below.

Project 1: Indoor Air Quality and Exposure Assessment of Port of SeaTac Airport Bagwell
Client: Brian Nichols, Port of Seattle, Port Construction Services
Dates of project: January 2022 to March 2022

Mr. Parker was the Project Manager for this multi-faceted project. His responsibilities included developing the proposed scope of work (sampling plan) and budget, coordinating with the client to conduct the assessment, reviewing preliminary data, troubleshooting equipment or technical issues, keeping the client up to date, managing the budget and schedule, and reviewing the final deliverable.

The project was a multi-shift exposure assessment and indoor air quality (IAQ) evaluation at the Port of Seattle’s bagwell. The bagwell is where luggage is transported to other flights and baggage claim and operates 24 hours a day, seven days a week. It is one of the oldest areas of SeaTac International Airport and has outdated ventilation systems so employee exposure to Port of Seattle personnel is a concern. To collect representative data for all personnel working in the area, the assessment was conducted during three separate shifts: swing, night, and day.

Much of the baggage transport is accomplished by use of gasoline, diesel, and propane powered vehicles (referred to as tugs). Based on these known sources, the project involved collection of standard IAQ parameters such as carbon dioxide (CO2), carbon monoxide (CO), particulate matter, and total volatile organic compounds (TVOCs). Personal exposure samples included passive dosimetry and active sampling for vehicle exhaust contaminants, specifically polynuclear aromatic hydrocarbons (PNAHs), diesel particulate matter (DPM), diesel fuel, and unleaded gasoline.

In the report, the data was compared to various occupational exposure limits including those published by the Washington State Department of Labor and Industries (L&I), Division of Occupational Safety and Health (DOSH) permissible exposure limits (PEL), Occupational Safety and Health Administration (OSHA) PEL and American Conference of Governmental Industrial Hygienists (ACGIH) Threshold Limit Values (TLVs) as applicable.

Project Schedule: The schedule for this project was inherently challenging due to the need for representative data from three separate shifts (swing, night, and day). Mr. Parker worked with the client and his team to select representative but non-contiguous shifts throughout the span of a week to avoid an excessive burden on any one individual (two separate industrial hygienists conducted the sampling). He also built time into the schedule for the field personnel to transfer important knowledge to each other as the project was handed off to the next person to maintain project continuity.

Scope of Work/Scope Creep: This project had the potential for scope creep when some of the personnel working in the bagwell area were requesting sampling that was not within our scope of work.
Criteria 2: Qualifications of Terracon’s Project Manager

As soon as he heard about it, Mr. Parker contacted the Port of Seattle representative and explained the situation. The request was denied and, as result, the report was delivered on time and within the parameters of the original procurement.

**Budget Issues:** The original project budget ($20,721) was developed using our Port of Seattle negotiated rates and a careful assessment of the project scope of work. This included equipment rental, sample analysis fees, labor, and other miscellaneous expenses. Once the project was underway, the on-site industrial hygienist realized that by moving some of the sampling equipment during the shift, we would require less equipment that was originally anticipated. Due to these changes and some efficiencies in how we downloaded and managed the data, the final billed amount was $15,177.

**Changes that Arose Throughout the Life of the Project:** No significant changes arose during this project.

**Project 2:** Seattle City Light South Service Center Noise Exposure Assessment

**Client:** Faye Lichtsinn, City of Seattle, Seattle City Light

**Dates of Project:** December 2021 to January 2022

Mr. Parker was the project manager for this noise assessment project. His responsibilities included working directly with the client to diagnose the noise issues and the personnel effected, preparing a sampling plan and fee proposal, ordering the correct instrumentation and associated software, keeping the client up to date by providing preliminary data as it was collected, troubleshooting equipment or technical issues, managing the budget and schedule, and reviewing the final deliverable.

Seattle City Light’s South Service Center is directly adjacent to commercial railroad tracks along the west side. Trains that operate in high traffic urban areas are required to have air horns (also referred to as chimes) that generate sounds of 110 decibels of at a distance 100 feet in front of the train for 15 to 20 seconds. The vehicle maintenance shop, HVAC shop, and salvage shop face the west-side railroad tracks are within 100 feet of the tracks and are staffed with employees throughout the day. The City personnel have expressed concerns about the excessive noise from the passing trains, particularly when they use their horns.

Our approach was to attach a sound-level meter (SLM) directly to the west-side fence to capture continuous sound readings and place personal noise dosimeters on workers performing their typical work at the vehicle maintenance shop, HVAC shop, and salvage shop. In addition, our field personnel kept detailed notes of when the training passed and how often and for what duration the train horn was used. This allowed us to differentiate sound generated by the horn from sound generated by worker activities, particularly the salvage shop where workers routinely use hammers on steel.
Criteria 2: Qualifications of Terracon’s Project Manager

The noise levels measured by the SLM and dosimeters were compared to the Washington State Department of Labor and Industries Division of Occupational Safety and Health (L&I DOSH) Occupational Noise Permissible Exposure Limit (PEL) of an equivalent eight-hour time-weighted average sound level (TWA8) of 90 decibels, A-weighted frequency (dBA), or a noise dose of 100%, and Action Level (AL) of an equivalent TWA8 of 85 dBA, or a noise dose of 50%. Measured maximum sound level (Lasmx) and peak level (Lzpk) noise exposures were also compared to the Ceiling Limit (ceiling), and Impulse/Impact Limits (impulse), respectively, for occupational noise found in WAC 296-817.

Project Schedule: The project was completed on schedule, however, despite our best efforts to predict when the train would be present, at the end of the day the Seattle City Light workers informed us that the passing of the train was less frequent than usual. As a result, the City has requested that we repeat the noise assessment on another day with more train activity. Mr. Parker quickly prepared and submitted a second proposal for the work, but it has not yet been scheduled.

Scope of Work/Scope Creep: The scenario above is a good illustration of scope creep; a project that should have taken one day will now require a second day. Mr. Parker worked closely with the City project managers to select a day that was representative of a day with typical train frequency, however the predictions were incorrect. To avoid this during the next assessment, he has recommended that the City project managers contact the train company and see if a schedule can be acquired. In addition, he recommended that the City project managers talk to the personnel who work on the site to determine a day that routinely has more train traffic.

Budget Issues: This project went over budget for Terracon by $1,300 because we had a second person on site at the beginning of the project for on-the-job training in the use of noise monitoring instrumentation. In addition, there were some issues with downloading the data off some of the dosimeters, however these additional costs were not passed on to the client because they were internal issues with no causal relationship to the client.

Changes that Arose Throughout the Life of the Project: Working from experience, Mr Parker often anticipates and plans for problems before they occur. As an example, the sampling plan required four personal dosimeters but Mr. Parker one extra for a total of five; at $39/unit it was inexpensive insurance. Once on site, our industrial hygienist realized the SLM was non-responsive despite have been checked the night before the work was to begin. Mr. Parker directed him to deploy the extra dosimeter on the west-side fence to collect the noise data near the actual tracks as originally planned. Having the extra piece of equipment allowed us to collect a critical data set without having to reschedule and it kept the project on schedule.

Project 3: Exposure Assessment at Manufacturing Facility
Client: Scott Kerns, Rectorseal/Shoemaker Manufacturing
Dates of Project: March 2022 to April 2022

Mr. Parker was the project manager for this exposure assessment at a manufacturing facility in Eastern Washington. His responsibilities included facilitating meetings with the client and one of Terracon’s Senior Certified Industrial Hygienists (CIH) to develop a clear understanding of the client’s needs,
Criteria 2: Qualifications of Terracon’s Project Manager

review safety data sheets for various compounds used in the manufacturing process, identifying and ordering the correct sampling media, developing a suitable sampling plan, managing the budget and schedule, and reviewing the final deliverable.

This was a logistically complicated project because the activities were conducted by various personnel, for varying durations of the day or week, at (in some cases) varied locations. In addition, the client requested a noise exposure assessment for the personnel operating the secondary extrusion saw and a facility noise survey. The table below provides a summary of the many variables to be considered for successful execution of the project.

Table 1: Exposure Assessment Matrix

<table>
<thead>
<tr>
<th>EQUIPMENT/ACTIVITY</th>
<th>NUMBER OF WORKERS</th>
<th>NUMBER OF AREAS</th>
<th>HOURS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Main Aluminum Extrusion Saw</td>
<td>1</td>
<td>1</td>
<td>8/day</td>
</tr>
<tr>
<td>Secondary Extrusion Saws</td>
<td>2</td>
<td>2</td>
<td>6/day</td>
</tr>
<tr>
<td>Powder Coating Operations, Painting, Washing, Drying</td>
<td>2</td>
<td>1</td>
<td>28/week</td>
</tr>
<tr>
<td>Powder Coating/Paint Application</td>
<td>1</td>
<td>1</td>
<td>8/day</td>
</tr>
<tr>
<td>Spot Welding of Cold Rolled Electro-Galvanized Steel</td>
<td>4</td>
<td>6 Stations</td>
<td>10 – 20/day</td>
</tr>
<tr>
<td>Noise Dosimetry at Secondary Extrusion Saws</td>
<td>2</td>
<td>2</td>
<td>6/day</td>
</tr>
<tr>
<td>Facility Noise Survey</td>
<td>NA</td>
<td>Throughout Facility</td>
<td>NA</td>
</tr>
</tbody>
</table>

The varied exposures included the need for particulates not otherwise regulated (PNOR) for total particulates and respirable fraction using NIOSH methods 0500 and 0600, sampling for Carbon Black using NIOSH method 5000, welding exposure assessment with a 13-metal profile using modified NIOSH 7303, silica sampling (crystalline quartz, cristobalite, & tridymite with respirable dust) for respirable fraction using NIOSH 0600/7500/OSHA 142, and an area sample for a VOCs profile during the use of primer.

In addition to the many OSHA and NIOSH methods deployed, a general facility noise assessment was conducted along with personal noise dosimetry for workers operating the secondary extrusion saws.

In the report, the results of the sampling were compared to the applicable L&I-DOSH PELs for Airborne Contaminants (WAC 296-841-20025) including comparison to DOSH 8-hour Time Weighted Average (TWA₈) and Short-Term Exposure Limit (STEL) criteria, and to OSHA PELs as applicable.

Project Schedule: Terracon project managers use an internally created project management system that establishes key dates and milestones at the beginning of the project. These include due dates for proposals, project kickoff meetings, project updates to the client, draft report, report review, and final report delivery to the client. Each project manager has a real-time dashboard that tracks their projects on several key performance indicators, one of the most important being on-time delivery. This system is used for all projects and the
Criteria 2: Qualifications of Terracon’s Project Manager

Scope of Work/Scope Creep: As described, this project had scope-variation more than scope creep. The conditions we expected and planned for were different than what we encountered; this is the nature of practicing industrial hygiene in dynamic workplaces. These conditions were, and are, accommodated for with thorough logistical planning, communication amongst all parties involved, keeping the client well informed, and having the experience to be flexible while staying within the boundaries of standard industrial hygiene practices.

Budget Issues: This project was 100 miles away at an active and dynamic manufacturing facility. It involved a complicated sampling plan with varied sampling equipment and media. We had one shot at getting all of it and getting it right. Our proposed fee was $7,100 and our final invoiced amount was $6,538. It was a professionally planned and executed project and therefore the budget target was hit.

Changes that Arose Throughout the Life of the Project: As is often the case with complicated industrial hygiene projects, the best designed sampling plan does not always survive contact with the site conditions. However, if flexibility is built into the plan, most unanticipated changes can be accommodated without impact to the budget, scope, or schedule. During this project, certain sampling and analytical methods required minimal sample collection times to achieve an acceptable limit of quantitation (LOQ). On site, we were informed that the spot welding would not be occurring with its usual duration which could have impacted the LOQ for those samples. To accommodate, we increased the sample flow rates and collected an additional sample from an employee who volunteered to conduct the spot welding using the same work practices and engineering controls so that we could collect an acceptable number of samples with adequate volume to meet the analytical sensitivity. This is just one example of the kinds of changes that need to be adjusted to on most industrial hygiene projects.

B. Terracon’s Project Manager’s Familiarity with Relevant State and Federal Regulations and/or Procedures

Mr. Parker’s knowledge of worker protection and environmental regulations comes from both academic and practical experience. He has been teaching regulatory compliance classes in the pacific northwest since 1991. His classes are often attended by compliance personnel from the Washington State Department of Labor and Industries (L&I) and Local Clean Air Agencies from across the state. He has also served as a consulting expert working with legal teams to defend clients’ L&I citations and other regulated materials civil disputes. He has assisted in the defense of school districts, contractors, and property owners.

C. Terracon’s Project Manager’s Ability to Manage Specific Project Aspects

For ease of reading, we have included the requested Project Manager’s ability to manage project schedule, scope of work/scope creep, budget issues, and changes that arise throughout the life of the project within each project example above in Section A: Prior Project Experience of Terracon’s Project Manager and His Experience as a Project Manager on Projects Similar to those WSDOT is Requesting.
Criteria 2: Qualifications of Terracon’s Project Manager

D. Professional Licenses/Accreditations for Terracon’s Project Manager

Due to the nature of the services being requested, there are no Washington standard licenses and accreditations in the Industrial Hygiene field. However, Mr. Parker has 32 years of experience and is an expert in his field. Additionally, Rush Bowers, CIH, CSP, brings over 35 years of experience to our team and is considered an expert in the field of Industrial Hygiene.

Criteria 3: Key Team Members Qualifications

A. Key Team Member’s Role/Responsibilities on Our Team

The Terracon Team

John McCaslin will serve as our Senior Field Industrial Hygienist for the WSDOT Industrial Hygiene Consulting Services Contract.

Project Name: Burlington Fire Department – Diesel Exhaust IAQ Evaluation
Project Role: Senior Field Industrial Hygienist
Project Dates: June 2017 to July 2017

Roles and Responsibilities: Mr. McCaslin provided assessment services including visual assessment, monitoring of IAQ parameters and diesel particulate sampling in the Burlington Fire Department fire station for the City of Burlington. The assessment was performed in response to concerns regarding potential exposure to diesel particulate by employee occupants of the fire station building. Mr. McCaslin evaluated exposure levels were in the apparatus bays and in adjacent office areas to determine whether exhaust was being entrained into the office area HVAC systems, as well as whether carbon monoxide levels in the apparatus bay were within acceptable parameters, including DOSH PELs.

Understanding of WSDOT and/or Public Agency Regulations/Procedures: This project required Mr. McCaslin to be familiar with public agency procurement requirements, working with public employees in their workplace, and the design and implementation of a sampling plan that was minimally disruptive to the occupants.

Project Name: Aerojet Rocketdyne – Building 01 Indoor Air Quality and Spore Trap Sampling
Project Role: Senior Field Industrial Hygienist
Project Dates: March 2022 to April 2022

Roles and Responsibilities: Mr. McCaslin conducted an indoor air quality and non-viable spore trap assessment of an occupied office space at a facility that manufacturers solid-propellant rocket boosters for spacecraft.

Understanding of WSDOT and/or Public Agency Regulations/Procedures: This client is a vendor for the Federal Government, so Mr. McCaslin was required to meet specific security requirements for this project.
Criteria 3: Key Team Members Qualifications

Project Name: City of Seattle – Industrial Hygiene and Regulated Materials Support Contract
Project Role: Senior Field Industrial Hygienist
Project Dates: April 2015 to August 2017 and February 2021 to April 2023

Roles and Responsibilities: Mr. McCaslin has been the Industrial Hygienist responsible for sampling, field activities, and report writing for multiple industrial hygiene task orders including worker exposure assessments for noise and copper; VOC sampling; conducting OSHA compliance training and an Electric and Magnetic Fields survey to determine if a job classification/duty change may be needed to accommodate a worker’s health needs.

Understanding of WSDOT and/or Public Agency Regulations/Procedures: The City of Seattle is a large public agency with numerous departments, all with different procurement and invoicing requirements, limitations on what can be billed, restrictions on markups, and other requirements. Mr. McCaslin requires an understanding of these various requirements to provide a positive experience to the client from the time of preparing a quote all the way through the invoicing.

Rush Bowers, CIH, CSP, will serve as our QA/QC, Authorized Project Reviewer for the WSDOT Industrial Hygiene Consulting Services Contract.

Project Name: Port of Seattle – Evaluation of Purification Equipment
Project Role: Consulting CIH
Project Dates: September 2020

Roles and responsibilities: At the request of the Port of Seattle, Mr. Bowers researched and developed an opinion paper about the efficacy of specific air-purification equipment for potential use in Port of Seattle’s response to the COVID-19 pandemic. He reviewed the manufacturer’s promotional materials, equipment specification information, manufacturer-sponsored test results, and peer-reviewed literature for similar technologies and provided a summary of findings and recommendations to the Port.

Understanding of WSDOT and/or Public Agency Regulations/Procedures: For this project, to determine the proximity of occupants to the equipment being evaluated, Mr. Bowers needed an understanding of how the public behaves in occupied airports and the security requirements that control what personnel are allowed access to sterile and non-sterile areas. Since Mr. Bowers has provided industrial hygiene services for airports throughout the western United States, he quickly grasped the specifics of SeaTac and their procedures and policies and incorporated this knowledge into his findings.

Project Name: Union Pacific Railroad Industrial Hygiene Consulting Services
Project Role: Consulting CIH
Project Dates: 1991 to Present

Roles and responsibilities: Mr. Bowers has provided a variety of industrial hygiene and occupational safety consulting services for the Union Pacific Railroad (UPRR) since 1991. He performed these services for various UPRR operating locations in Utah, Colorado, California, Wyoming, and Arkansas. He has measured the noise exposure of train operators and other UPRR personnel during interstate
Criteria 3: Key Team Members Qualifications

transportation, including noise dosimetry and specific noise sources. He has performed diesel exhaust exposure evaluations in Salt Lake City, Utah, Way and Tie Gangs working in western Utah. Rush has also conducted comprehensive electromagnetic field (EMF) evaluations in the work areas of employees with implanted cardiac pacemakers and defibrillators to identify potential sources of electronic interference that may adversely impact device performance.

He has also conducted comprehensive asbestos assessments in railroad facilities in Utah and Colorado and participated in an asbestos exposure reconstruction case for railroad track maintenance operations.

Understanding of WSDOT and/or Public Agency Regulations/Procedures: Railroads are heavily regulated by the Federal Railroad Administration within the US Department of Transportation. Mr. Bower’s knowledge of the applicable regulations and procedures has been instrumental in his 30+ year relationship with UPRR.

Sub-Consultants

As mentioned above in Section 1B, Terracon is able to service WSDOT as an Industrial Hygiene “One-stop shop”. We will be utilizing sub-contractors for our labs. We have included their qualifications in Section 1B, starting on page 2, and Section 1D, starting on page 4.

Criteria 4: Cost Factors

Terracon’s Direct (Raw) Labor Costs

May 25, 2022
Washington State Department of Transportation
PO Box 47408
Olympia, WA 98504-7408

Subject: 2022 Industrial Hygiene Consulting Services
Terracon Key Personnel Rates

Terracon Consultants, Inc. is providing the requested information for the Terracon labor categories being proposed on the above-referenced contract:

<table>
<thead>
<tr>
<th>Employee Name</th>
<th>Project Labor Category</th>
<th>Direct Labor Rate per Hour</th>
<th>WSDOT Approved %</th>
<th>Billing Rate w/o Profit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scott Parker</td>
<td>Project Manager</td>
<td>$64.98</td>
<td>155.70%</td>
<td>$155.65</td>
</tr>
<tr>
<td>Rush Bowers</td>
<td>Quality Assurance / Quality Control Specialist</td>
<td>$63.70</td>
<td>155.70%</td>
<td>$151.59</td>
</tr>
<tr>
<td>John McCaslin</td>
<td>Senior Field Industrial Hygienist</td>
<td>$36.98</td>
<td>155.70%</td>
<td>$105.31</td>
</tr>
</tbody>
</table>

I, Monica J. Carls, Manager of Government Compliance, do hereby certify that the above average hourly rates are based on actual salary rates of Terracon employees, and the information provided is correct and current as of May 25, 2022. We have included Washington State Department of Transportation’s approval letter for Terracon’s Indirect Cost Rate dated July 27, 2021.

If you require additional information or documentation, please do not hesitate to let me know.

Kind regards,

Monica J. Carls
Manager of Government Compliance
July 27, 2021

Terracon Consultants, Inc.
10841 S. Ridgeview Road
Olathe, KS 66061

Subject: Acceptance FYE 2020 ICR – CPA Report

Dear Monica Curls:

We have accepted your firm’s FYE 2020 Indirect Cost Rate (ICR) based on the “Independent CPA Report,” prepared by BKD, LLC as follows:

- Home Office: 185.70% of direct labor
  (rate includes 0.53% Facilities Capital Cost of Money)
- Field Office: 151.29% of direct labor
  (rate does not include Facilities Capital Cost of Money)

This rate will be applicable for WSDOT Agreements and Local Agency Contracts in Washington only. This rate may be subject to additional review if considered necessary by WSDOT. Your ICR must be updated on an annual basis.

Costs billed to agreements/contracts will still be subject to audit of actual costs, based on the terms and conditions of the respective agreement/contract.

This was not a cognizant review. Any other entity contracting with the firm is responsible for determining the acceptability of the ICR.

If you have any questions, feel free to contact our office at (360) 705-7019 or via email consultantrates@wsdot.wa.gov.

Regards,

ERIK K. JONSON
Contract Services Manager

EKJ:ah