

DIVISION 02 – EXISTING CONDITIONS

Section 02 90 00 – Fugitive and Silica Dust Control Procedures

PART 1 – GENERAL

1.01. RELATED WORK DESCRIBED ELSEWHERE

The provisions and intent of the Contract, including the General Conditions, Supplementary Conditions, and General Requirements, apply to this work as if specified in this section. Work related to this section is described in the following.

- A. Section 00 31 26 – Existing Hazardous Material Information
- B. Section 01 35 29 – Health, Safety, and Emergency Response Procedures
- C. Section 01 42 00 – References
- D. Section 01 50 00 – Temporary Facilities and Controls
- E. Section 02 41 00 – Demolition

1.02. DESCRIPTION

- A. The Contractor shall supply all labor, materials, facilities, equipment, services, employee training and testing, handling, transport, disposal, and agreements necessary to perform the work required for fugitive dust control activities and potential silica-containing dust control activities in accordance with these specifications and applicable regulations from the State of Washington Department of Labor and Industries (WISHA), Puget Sound Clean Air Agency (PSCAA), and any other applicable federal, state, and local government regulations. Whenever there is a conflict or overlap of the above references, the most stringent provisions are applicable.
- B. In all cases where potential silica dust exposures may occur, the Contractor shall use any and all feasible engineering and work practice controls to reduce and maintain employee exposure levels at or below the Washington State Permissible Exposure Limits (PELs) for silica compounds, as specified in WAC 296-62-07515. It shall be assumed that the workers generating the silica dust are exposed above the Permissible Exposure Limit (PEL) until the Contractor air monitoring demonstrates levels below the PEL.
- C. The work specified herein shall be performed by competent persons. Competent persons are those who are trained, knowledgeable, and qualified in both fugitive and silica dust evaluation and control methods.
- D. If fugitive dust emissions are visible beyond the perimeter of the work area, or if respirable crystalline silica dust concentrations exceed 0.05 mg/m³ beyond the perimeter of the work area, the Engineer is authorized

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to stop work. The Contractor shall perform all necessary corrective actions to eliminate visible dust and reduce respirable crystalline silica concentrations to less than 0.05 mg/m³ before resuming work. The Port may visually monitor for fugitive dust and collect air samples for silica at any time.

1.03. SCOPE OF WORK

- A. Construction work will potentially generate fugitive dust. It is the responsibility of the Contractor to control fugitive dust generation and emissions.
- B. Construction site work that requires control of silica-containing dust includes chipping, sanding, sawing, milling, jack-hammering, and other aggressive methods on concrete materials associated with this project.
- C. Work activities shall include the following, as applicable:
 - 1. Provide site security to assure that no member of the public is able to gain access to the construction work area at any time. The Contractor shall maintain access and egress routes at all times.
 - 2. Provide worker training, respiratory protection, and medical examinations, as necessary, to meet applicable silica regulations and regulatory guidance regarding silica exposures where work involves the generation of concrete or demolition-related dust.
 - 3. Adopt work practices that prevent the release of fugitive and silica dust outside of the work area, as described in Part 3 of this section.
 - 4. Use wet methods and HEPA vacuuming equipment within the work area to clean the work area and control fugitive dust during demolition and construction activities, and at the completion of demolition and construction activities.
 - 5. Use barriers to prevent the release of dust from the work area to other areas of the project.
 - 6. Provide for worker and equipment decontamination. Worker decontamination and equipment areas shall be cleaned daily or more frequently, as required, to prevent dust emissions.
 - 7. Protect personal security, life safety, and energy management systems, including associated wiring, which shall remain operational throughout the work activities.

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1.04. PERSONAL PROTECTION

A. Respiratory Protection

1. Where exposures to respirable crystalline silica may exceed the PEL of 0.05 mg/m³ based on an 8-hour time-weighted average (8-hr TWA) per WAC 296-62-07515, workers shall be provided, as a minimum, with personally issued and marked respirators equipped with high efficiency particulate air (HEPA) filters approved by the National Institute for Occupational Safety and Health (NIOSH), 99.97% efficient, that shall be worn in the designated work area. Sufficient filters shall be provided for replacement as required by the workers or applicable regulations. Disposable respirators shall not be used. Respirators and respirator supplies shall be provided to the workers at the expense of the Contractor.
2. The Contractor shall comply with OSHA 29 CFR Part 1926.134, WAC 296-62-071 (Respiratory Protection), and ANSI Standard Z88.2-1990 "Practices for Respiratory Protection."
3. No worker shall be exposed to levels greater than 0.05 mg/m³ respirable crystalline silica as determined by the protection factor of the respirator worn and the work airborne area respirable crystalline silica levels.
4. A sufficient supply of replacement parts and HEPA filter cartridges shall be provided to the workers.
5. The Contractor shall maintain daily inspection(s) of all respirators to verify cleanliness and to replace damaged, worn or missing parts.

B. Protective Clothing

1. Workers shall be provided with sufficient sets of protective full-body clothing to be worn in the designated work area whenever a potential exposure to respirable crystalline silica concentrations exists above the PEL. Such clothing shall include, but not be limited to, coveralls and eye protection.
2. Protective clothing shall not be worn outside the work area. Non-disposable-type protective clothing and footwear shall be left in the work area.

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3. Eye protection shall be provided and worn as required by applicable safety regulations. Equipment shall conform to ANSI Z87.1-1989.
4. Head Protection: Hard hats or other head protection shall be provided as required by applicable safety regulations. Hard hats shall conform to ANSI Z89.1-1991, Class A or B.
5. Foot Protection: Nonskid footwear shall be provided to all workers. Footwear shall conform to ANSI Z41.1-1993, Class 75.
6. Workers shall not eat, drink, smoke, or chew gum or tobacco in or near the work areas.

1.05. FUGITIVE DUST AND SILICA CONTROL SUBMITTALS

- A. Contractors shall provide complete submittals as per Section 01 33 00 – Submittal Procedures for review by the Engineer. Following receipt of review comments from the Engineer, submit additional complete sets of revised submittals. No hazardous material abatement work or demolition work will be permitted prior to submittals being approved by the Engineer.
- B. Pre-Work Submittals: The Contractor shall submit to the Engineer for review and acceptance the Contractor's Work Plan as a prerequisite to issuance of the Notice to Proceed in accordance with Section 01 33 00 – Submittal Procedures. The work plan must be reviewed and signed by a Certified Industrial Hygienist chosen by the Contractor. The plan must be suitably titled and indexed, providing detailed information concerning the following items as a minimum in the order listed below:
 7. Safety and health hazards;
 8. Personal protective measures and decontamination system requirements;
 9. Respiratory protection program, fit testing and training records for all employees potentially exposed above the PEL;
 10. Specific work practices and procedures;
 11. Description of engineering controls designed to keep fugitive dust and silica exposures below the levels specified herein, for outside and inside each work area;
 12. Silica Air Monitoring Plan;
 13. Dust disposal plan;

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14. Emergency procedures; and
15. Internal administrative and inspection procedures.

1.06. SILICA AIR SAMPLING EVALUATION BY CONTRACTOR

- A. The Contractor shall conduct air sampling of workers and subcontractors for respirable crystalline silica in accordance with NIOSH Method 7500, and according to the Contractor's Work Plan. This sampling is performed to evaluate workers' exposure levels.
- B. The Contractor shall conduct perimeter area air sampling in areas of the building occupied by the Public and Port Employees for respirable crystalline silica in accordance with the NIOSH Method 7500, and according to the Contractor's Work Plan. This sampling is performed to evaluate potential exposures to building occupants.
- C. The Contractor shall conduct air sampling in accordance with the NIOSH Method to collect a sufficient volume of air to determine if the airborne silica dust levels are below the PELs. If the sampling detection levels are above the PELs, the Contractor is required to re-sample at no expense to the Port.
- D. Results of area air samples collected by the Contractor shall be submitted to the Port within 48 hours after sample collection.

PART 2 - PRODUCTS

2.01. TOOLS AND EQUIPMENT

- A. Provide a list and description of equipment and supplies necessary to support the work as described in the work plan, as required. Equipment and supplies may include but are not limited to:
 1. Chemicals to be used on site including solvents, dust suppressants, wetting agents, cleaning products, degreasing agents, welding/cutting supplies, and encapsulants;
 2. Enclosure equipment (for dust control);
 3. Demolition equipment;
 4. Materials and debris hauling/moving equipment;
 5. Material storage containers and supplies;
 6. Decontamination equipment and supplies;

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7. Protective clothing and respirators;
8. Suitable tools for dust collection and water-jet dust suppression systems; and
9. Sufficient number of HEPA-filtered vacuum cleaners to cleanup visible dust residues.

PART 3 - EXECUTION

Options for the control of fugitive and silica dust concentrations are given in the following paragraphs.

3.01 WET METHODS

Use “wet” systems that eliminate or reduce dust generated by demolition activities including cutting off concrete piles. Cleanup sludge and /or waste immediately following its generation.

3.02 ENCLOSURE METHOD

Use enclosures in conjunction with air filtration devices. Air shall be moved through the filtration unit with a minimum of 1500 CFM. Provide HEPA filter-based shop vacuum units to control dust generated at the work face and use tools that include dust control features where possible.

3.03 OVERSIGHT

- A. An environmental consultant (Consultant) may be retained to advise the Port in all matters pertaining to the work performed in accordance with these specifications and requirements. Where an outside consultant is not hired, Port personnel will serve as this consultant. References to the consultant herein shall include the outside Consultant or Port personnel.
- B. The Consultant will act as the Port's liaison in technical matters involving the fugitive dust and silica-related work.
- C. The Consultant is authorized by the Port to have free access to all fugitive dust silica work areas, to assist in interpretation of procedures, and to advise on all provisions of the contract documents pertaining to the control of dust.
- D. The Consultant will advise the Port to stop work if in the course of performing their monitoring duties they observe an instance of substantial non-conformance with the contract documents and/or a situation presenting a health hazard to workers, Port employees, or the public. Work shall not resume until corrective measures have been enforced. Instances of substantial non-conformance shall include but not be limited to the following:

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1. Visible dust emissions outside of the work area barriers;
 2. Loss of negative pressurization (if required);
 3. Activities or misconduct affecting worker's or building occupant's safety; and
 4. Breaches of containment that could substantially damage building life safety systems.
- E. If poor work practices are observed, the Port shall direct the Contractor to make the necessary corrections. If appropriate corrections are not made, or if there is an immediate threat exists that silica dust could be released outside the work area, work shall be stopped. The decision to stop work shall be made by the Port. The decision to stop work can also be made by the Contractor as part of the Contractor's management and control of the site and site activities.
- F. The Consultant may perform air sampling inside and outside the work area during the project. The Contractor shall cooperate fully with the Consultant and ensure the cooperation of his workers during collection of air samples and work area inspections.
- G. The Consultant's role in advising the Port on environmental health matters does not relieve the Contractor's obligation to comply with all applicable health and safety regulations promulgated by the federal, state, or local governments. Air monitoring results generated by the Consultant shall not be used by the Contractor to represent compliance with regulatory agency requirements for monitoring of worker's exposure to airborne silica, nor shall any other activity on the part of the Consultant represent the Contractor's compliance with applicable health and safety regulations.

3.04 WORK AREA ISOLATION, CLEANUP, AND DISPOSAL

- A. The Contractor shall characterize any waste that is generated and provide the disposal facility with a waste profile sheet for advance notice of acceptance. The Port will use the waste profile sheet to obtain a Generator EPA Identification Number for wastes that are regulated as dangerous waste.
1. Dangerous Waste: the Transporter and Disposal Facility must each have an EPA Identification Number. The Contractor shall submit the name, address, emergency contact phone numbers, and EPA Identification Number of the Transporter and Disposal Site to the Port prior to the disposal of hazardous/dangerous waste.
 2. The Contractor shall notify the Port three (3) days in advance of the

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time when wastes are to be removed from the site. A copy of the completed hazardous/dangerous waste manifest/bill of lading (for non-hazardous waste), and/or other documents required by the state or local agencies, shall be signed by the Port, with the final copy submitted to the Port within two weeks of pickup. These shall be signed by the generator, licensed transporter, and approved disposal or treatment facility representative.

3. Completed certificates of destruction signed by the disposal facility shall be provided to the Port within ten (10) days of the time at which the hazardous materials are destroyed.
4. The Contractor shall be responsible for the safe handling and transportation of all demolition wastes generated by the work from the point of generation to the designated disposal or treatment facility.
5. It is a condition of Final Completion by the Port and a condition for final payment of this project that the Port has received all of the required waste disposal documentation that demonstrate proper handling, transportation, and disposal/recycling of demolition wastes and materials.
6. Payment for disposal of waste will not be made until a signed copy of the disposal documentation from the treatment or disposal facility certifying the amount of dangerous waste delivered is provided to the Port.

3.05 RECORDKEEPING

- A. The Contractor shall maintain for at least thirty (30) years, employee health and safety records for the project, as specified in WAC 296-62-052. Furnish one copy to the Engineer. The record shall include the following information:
 1. The starting and completion dates of the project;
 2. A copy of all analytical results;
 3. Copies of negative pressure documentation records (as required);
 4. The name and address of the analytical laboratory used for silica analyses; and
 5. The name, address, and social security number of all persons who were engaged in the concrete demolition activities.

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END OF SECTION