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Issued by:	Corporate Safety Office	Effective Date: 06/23/17

Executive Summary

It is the policy of The Branscome Companies to take precautions to eliminate potential hazards in the workplace. The purpose of this Silica Exposure Control Plan is to identify the hazards associated with silica dust and outline the steps to take to ensure employees who work with, or around silica are not exposed to hazardous levels of silica dust. Crystalline silica is a basic component of soil, sand, granite and many other minerals. Quartz is the most common form of crystalline silica. All materials containing silica can result in the presence of respirable silica particles when chipping, cutting, drilling or grinding takes place. Silica exposure occurs through inhalation of silica containing particles and occurs through many construction and general industry methods. The most severe exposures generally occur during abrasive blasting with sand to remove paint and rust from bridges, tanks, concrete structures and other surfaces. Other activities that may result in sever silica exposure include jack hammering, rock/well drilling, concrete mixing, concrete drilling, brick and concrete cutting/sawing, tuck pointing and tunneling operations. Exposure to excessive silica dust over long periods of time can result in silicosis. This Silica Exposure Control Plan applies to Branscome employees who are expected to be exposed to silica dust through the methods outlined above; or through other means, which are determined by the Safety Department or their supervisor.

1.0 Purpose

Silica exposure is ranked as an Extreme risk in industry work sites requiring special controls, including seeking the advice of experts. Studies such as those conducted by National Institute for Occupational Safety and Health (NIOSH) show that a variety of activities generate airborne contaminants in excess of occupational exposure limits. Effective controls are available to protect workers from harmful exposure.

The purpose of this program is to provide technical information on crystalline silica exposure, general engineering controls to eliminate or minimize crystalline silica dust, required safe work practices, employee medical surveillance criteria, and the minimum safety and health requirements for Branscome supervisory personnel to implement. Branscome commits to being diligent in our efforts to select the most effective control methods (or combination of controls) available, and to ensure that the best practices, as described in this exposure control plan (ECP), are followed at our work sites.

2.0 Scope

This Written Exposure Control Plan (Plan) applies Branscome personnel who are potentially exposed to airborne concentrations of respirable crystalline silica (silica) because of their work activities or proximity to the work locations where airborne silica is being emitted. This Plan also applies to project managers, superintendents, foremen, or safety personnel who may be responsible for overseeing a subcontractor's operations that have the potential to expose personnel to airborne concentrations of silica at or above regulatory and industry action levels and exposure limits.

This program sets the minimum required guidelines for employees working in areas where exposure to Respirable Crystalline Silica occurs. Procedures established will not only protect our workers, but also any other workers onsite who are not involved in these operations. Employees who work in proximity to silica-related operations must be aware of safe work practices and take all necessary precautions associated with avoiding and minimizing airborne silica exposure.

The following are examples of silica dust generating activities, recognizing that this list is not inclusive of every possible activity that may generate silica dust. Examples are: jack hammering concrete, drilling into concrete or silica containing aggregate, saw cutting concrete, mixing cement, sandblasting, power brooming concrete dust, grinding concrete, milling asphalt, and concrete demolition work.

3.0 Responsibilities

3.1 The Leadership is responsible for the following:

- Ensure that, at a minimum, the ECP meets or exceeds regulatory requirements.
- Ensure that the materials (for example, tools, equipment, and personal protective equipment [PPE]) and other resources (for example, worker training) required fully implementing and maintaining this ECP are readily available.
- Provide required materials and documentation to comply with applicable health and safety legislation (e.g. safety data sheets).
- Ensure supervisors and workers are educated and trained in the hazards of silica exposure and work procedures and controls to work safely with silica.
- Maintain written records of training (e.g. proper use of respirators), respirator fit-test results, exposure monitoring results, and inspections (of equipment, PPE, and work methods and practices).
- Conduct exposure monitoring as required and ensure that workers are informed of exposure measurements.
- Ensure that health assessments are performed in accordance with applicable health and safety legislation requirements.
- Conduct an annual review (or more often if conditions change) of the ECP's effectiveness. This includes a review of controls to ensure they are selected and used when required.
- Coordinate work with other employers to ensure a healthy and safe work environment
- Once the medical surveillance examinations are completed, ensure that the PLHCP explains to the employee the results of the medical examination and provides the employee with a written medical report within 30 days of the examination.
- Must ensure that the PLHCP provides the employer with a written medical opinion within 30 days of the employee examination, and that the employee also gets a copy of the written medical opinion for the employer within 30 days.

3.2 Supervisors are responsible for the following:

- Provide adequate training and instruction to workers on the hazards of silica exposure associated with their respective activities and the work procedures and controls to protect them.

- Select and implement the appropriate control measures.
- Ensure that workers using respirators have been properly trained and fit-tested, and that the results are recorded.
- Ensure that control equipment, including respirators and other PPE, is maintained in accordance with manufacturer specifications.
- Make sure that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring workers use the available engineering controls and administrative controls. PPE should only be worn as the last line of defense.
- Making sure that workers have been educated and trained in this exposure control plan. They must ensure that workers understand the plan's expectations and enforce it on the work site.

3.3 Workers are responsible for the following:

- Read, understand, and comply with the controls and procedures set out in this exposure control plan.
- Complete the training provided by the employer.
- Ensure their safety and the safety of other workers at the work site.
- Use the assigned protective equipment in an effective and safe manner in accordance with work site procedures developed by their employer. For example, if workers are required to use a respirator that's effectiveness depends on a tight facial seal, the workers must be clean-shaven where a respirator seals with the worker's face.
- Follow established work procedures and use controls as directed by the supervisor.
- Report any unsafe conditions or equipment to the supervisor.
- Report any exposure incidents.
- Confirm that they understand the ECP's requirements prior to commencing their work activities.

3.4 Regional Safety Specialist

- Conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an employee’s exposure will be above 25 µg/m^3 as an 8-hour TWA under any foreseeable conditions

- Select and implement into the project’s ECP the appropriate control measures in accordance with the Construction Tasks identified in OSHA’s Construction

Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

NOTE: OSHA's Construction Standard Table 1 is a list of 18 common construction tasks along with acceptable exposure control methods and work practices that limit exposure for those tasks.

- Ensure that the materials, tools, equipment, personal protective equipment (PPE), and other resources (such as worker training) required to fully implement and maintain this Respirable Crystalline Silica Program are in place and readily available if needed.

- Ensure that Project Managers, Site Managers, Competent Persons, and employees are educated in the hazards of Silica exposure and trained to work safely with Silica in accordance with OSHA's Respirable Crystalline Silica Construction Standard and OSHA's Hazard Communication Standard. Managers and Competent Persons may receive more advanced training than other employees.

- Maintain written records of training (for example, proper use of respirators), ECPs, inspections (for equipment, PPE, and work methods/practices), medical surveillance (under lock and key), respirator medical clearances (under lock and key) and fit-test results.

- Conduct an annual review (or more often if conditions change) of the effectiveness of this program and any active project ECP's that extend beyond a year. This includes a review of available dust control technologies to ensure these are selected and used when practical.

- Coordinate work with other employers and contractors to ensure a safe work environment relative to Silica exposure.

3.5 Project Managers

- Ensure all applicable elements of this Respirable Crystalline Silica Program are implemented on the project including the selection of a Competent Person.

- Assist the Safety Department in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica

hazard assessments in order to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

- Assist in the selection and implementation of the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

- Ensure that employees using respirators have been properly trained, medically cleared, and fit-tested in accordance with the company's Respiratory Protection Program. This process will be documented.

- Ensure that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring that workers use appropriate engineering controls, work practices, and wear the necessary PPE.

- Where there is risk of exposure to Silica dust, verify employees are properly trained on the applicable contents of this program, the project-specific ECP, and the applicable OSHA Standards (such as Hazard Communication). Ensure employees are provided appropriate PPE when conducting such work.

4.0 Definitions

Project/Job Site Competent Person.

A competent person shall be designated to inspect and oversee all activities with potential airborne silica exposure. Subcontractors working on projects within the scope of this Program shall appoint a competent person capable of executing the duties described herein. The competent person must have training in the inspection of work areas and equipment and in the determination of safe working conditions. This person shall have a working knowledge of the 1926.1153 standards, shall be capable of identifying airborne silica hazards, shall determine the need for initial and additional exposure monitoring, shall recommend and implement engineering and work practice controls, shall establish levels of PPE, and shall have the authority to take action to eliminate hazards and correct incidences of noncompliance.

For Branscome operations, the supervisor in charge is the designated competent person. This person will be capable of identifying existing and predictable hazards in the

surroundings, or work conditions which are unsanitary, hazardous, or dangerous to employees, and has the authority to take prompt corrective action to ensure the work pertaining to silica exposure or potential silica exposure is safe for employees and in accordance with this program. As part of this program employees must be able to identify the competent person.

Engineering Controls. Engineering controls are controls used to minimize, mitigate, or eliminate the crystalline silica dust in the air from the point of operation. The number one way to eliminate silica dust is to introduce water into the point of operation. Another way of eliminating the dust is to use a vacuum extraction system which captures the dust at the point of operation, for example, a hand-held grinder with a vacuum system.

Health Effects. Overexposure to crystalline silica dust can cause scar tissue to form in the lungs, which reduces the lungs' ability to absorb oxygen from the air we breathe. This disease is called silicosis.

Silica. Is the most common mineral in the earth's crust and is a major component of sand, rock, and mineral ores. When breathed above the OSHA Permissible Exposure Levels (PELs) it can create short-term and long-term health effects, primarily with the respiratory system.

Silicosis. Silicosis is a disabling, nonreversible and sometimes fatal lung disease caused by an overexposure to respirable crystalline silica dust. Respirable refers to dust particles that are five microns in size or less (twenty times smaller than the human hair). Respirable dust passes thru the human body's filtration system in the nose and upper respiratory tract, and migrates into the lungs because of its small size.

5.0 References

- OSHA. (2010). Occupational Exposure to Respirable Crystalline Silica - Review of Health Effects Literature and Preliminary Quantitative Risk Assessment, Docket OSHA-2010-0034-0306.
- 29CFRR1926.1153 Respirable crystalline silica
- §1910.1053 Respirable crystalline silica

6.0 Program

6.1 Exposure Control

Pre-project planning

Projects where anticipated activities involve concrete cutting, grinding, sandblasting, drilling, coring, or other abrasive operations are treated as potential sources for airborne silica exposure. Additionally, existing structures and materials such as sheetrock, any painted surfaces with low volatile organic compounds, tile, brick, or some insulation products may contain silica. Likewise, new material installation may involve silica-containing mortar, paints, or insulation. When possible and applicable, Branscome will conduct activities with potential Silica exposure to be consistent with OSHA's Construction Standard Table 1. Supervisors will ensure each employee under their supervision and engaged in a task identified on OSHA's Construction Standard Table 1 have fully and properly implemented the engineering controls, work practices, and respiratory protection specified for the task on Table 1 (unless Branscome has assessed and limited the exposure of the employee to Respirable Crystalline Silica in accordance with the Alternative Exposure Control Methods Section of this program).

Administrative/Engineering Controls

Where silica exposures at or above the action level have been documented, or are expected, the appropriate engineering or administrative controls will be implemented. Follow-up exposure monitoring may be necessary when administrative or engineering exposure controls are utilized.

Typical controls may involve:

- Vacuum methods with HEPA filters
- Distance
- Use of water to keep dust down
- General work practices such as good housekeeping, worker rotation, development of specific SOPs to minimize exposure.

Personal Protective Equipment (PPE)

In addition to administrative/engineering controls, employees may be required to wear specific PPE during the disturbance of silica containing materials and/or when airborne silica is present. The level of protection will depend on the task being conducted and the tools being utilized to complete the task.

Recommended PPE will typically include:

- Respiratory Protection (P100)
- Disposable or reusable work clothing to keep from spreading the dust or bringing the dust home
- Leather gloves
- Safety glasses or goggles
- Face shield
- Boot covers or rubber boots

6.2 Housekeeping & Hygiene Facilities

- In areas where silica containing dust may be present, all surfaces must be maintained free from accumulations of dust to minimize potential silica exposure. Dust and other silica containing debris must be removed from the work area as soon as possible.
- Acceptable method of silica dust removal includes the use of HEPA vacuum or wet methods such as wet mopping.
- **Unacceptable methods of silica dust removal include dry sweeping, vacuum cleaners, shop vacuums, and compressed air**.
- Follow all recommended procedures and utilize recommended PPE during silica containing debris cleanup activities.
- Where silica containing materials are used, impacted, or being removed; the following requirements must be met:
  - PPE should be removed upon work completion and disposed of after each use.
  - Employees must wash hands.
  - Ensure contaminated PPE, including footwear is not worn outside the work areas

6.3 Medical Surveillance

- Employees exposed to silica levels above the action level (25~/m^3) shall be enrolled in the Medical Surveillance Program.
- All medical surveillance will be performed by designated medical provider and results must be provided the affected employee and their supervisor within 15 days of the assessment.
- The medical surveillance program consists of baseline examination and chest X-ray.
- Employees enrolled in the medical surveillance program should be examined annually to track any changes as a result to exposure to silica dust.

7.0 Training

Branscome employees who anticipate working on projects where they could be exposed to airborne silica will be provided training in silica hazards in accordance the Branscome program established to comply with the hazard communication standard (29 CFR 1910.1200). Each employee will have access to labels on containers of crystalline silica and safety data sheets, and be provided information on the health hazards of silica including cancer, lung effects, immune system effects, and kidney effects. In addition, Branscome employees will be provided training and information regarding specific activities identified in this Plan that could result in airborne silica exposure, and the specific engineering controls, work practices and respiratory protection requirements to mitigate the potential airborne silica exposures. This training will provide a discussion of silica hazards, initial exposure determination either by complying with 29 CFR 1926.1153 Table 1 requirements or air monitoring, specific engineering and work practice control measures, personal protective equipment (PPE), and medical surveillance requirements. The training will also identify the Branscome competent person for silica exposure identification and determination of control requirements. All { Branscome employees will be provided with access to a copy of 29 CFR 1910.1153 and be trained on the contents of 29 CFR 1926.1153.

- Hazard Communication training is required by all Branscome employees and should be conducted initially upon hiring.
- Silica Awareness Training must be offered to affected employees prior to working with silica and annually thereafter.
- Silica awareness training should include the following:
    - Information about the potential health effects and symptoms of exposure to respirable silica
    - Safety data sheets for silica, quartz, and applicable products containing silica
    - The use of engineering controls, work practices, good housekeeping and PPE to control exposure to silica
    - Use and care of PPE
    - Expected exposures to silica dust
    - Exposure monitoring process
    - Medical surveillance process
- Respiratory protection training, medical clearance, and quantitative fit testing are required under the Respiratory Protection Program.

8.0 Documentation

8.1 Appendix A – Activities Covered By This Program

9.0 Document History

Number	Effective Date	Purpose	Author
Original Draft	03/15/17	Submitted for review and referral to the Leadership Team as required under the Charter of the Safety Steering Team.	Alvin Trotman
Original	06/23/17	Issued	Alvin Trotman

Appendix A
Activities Covered By This Program

- Handheld Power Saws use in the cutting of concrete pipe.
- Jackhammers and handheld powered chipping tools
- Large Drivable Milling machines (Half lane or larger)
- Heavy equipment and utility vehicles for tasks such as grading and excavating