

Authored By: Jacob Nowicki	<b>Blanchard Refining Company LLC Galveston Bay Refinery</b>	Doc No.: RSW-000017-GB Rev No: 1
Doc Custodian: Safety Supervisor		<b>SM-7 Respirable Crystalline Silica Exposure Control</b>
Approved By: Betty Lawson		
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### Table of Contents

<b>1.0</b>	Purpose .....	2
<b>2.0</b>	Scope .....	2
<b>3.0</b>	Procedure .....	2
3.1	Initial Determination .....	2
3.2	Exposure Determination.....	2
3.3	Control Measures .....	3
3.4	Respiratory Protection.....	4
3.5	Regulated Areas .....	4
3.6	Housekeeping .....	4
3.7	Medical Surveillance .....	5
<b>4.0</b>	Exposure Control Plan .....	5
<b>5.0</b>	Responsibilities .....	5
5.1	Site Industrial Hygienist.....	5
5.2	Contractor Competent Person .....	5
<b>6.0</b>	Training .....	6
<b>7.0</b>	Definitions.....	6
<b>8.0</b>	References .....	7
<b>9.0</b>	Attachments .....	7
<b>10.0</b>	Revision History .....	8
	Attachment A – Summary of OSHA (1926.1153) Table 1 .....	9
	Attachment B – Danger Sign.....	18
	Attachment C – Exposure Control Plan Template .....	19
	Attachment D – Respirable Crystalline Silica Standard Flow Chart .....	20

Blanchard Refining Company LLC	Galveston Bay Refinery	
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB	Rev No: 1

## 1.0 Purpose

- 1.1 The purpose of this procedure is to minimize employee exposure to Respirable Crystalline Silica and to establish effective Industrial Hygiene (IH) controls for workers who are potentially exposed at or above the Occupational Safety & Health Administration (OSHA) Action Levels (ALs). This standard applies to normal operations, shutdown/turnaround operations, and major project work at the Galveston Bay Refinery (GBR).

## 2.0 Scope

- 2.1 This document applies to all contractors, subcontractors and employees working on GBR owned, controlled or permitted locations, where work is performed under a contract to GBR.
- 2.2 The General Industry and the Construction Industry standards have applications at the refinery. Both standards have been incorporated into the requirements outlined in this plan.
- 2.3 The requirements of this Handling Plan have been summarized in [Attachment D – Respirable Crystalline Silica Standard Flow Chart](#)

## 3.0 Procedure

### 3.1 Initial Determination

- 3.1.1 Determine if the material contains silica (in any form).
- 3.1.1.1 Refer to the material's Safety Data Sheet (SDS) for the silica content.
  - 3.1.1.2 Common construction materials that contain silica include, but are not limited to; asphalt, brick, cement, concrete, drywall, grout, mortar, stone, sand (including sand blasting materials), and tile.
  - 3.1.1.3 Other materials that have been found to contain silica in the refining industry include some forms of the following: refractory, catalysts, ceramic coatings, and insulation materials.
- 3.1.2 Determine if the activities create a potential exposure to Respirable Crystalline Silica. Activities known to have potential exposure include but are not limited to the following: (Refer to [Attachment A](#) for a complete list).
- 3.1.2.1 Sawing, cutting, drilling stone and concrete,
  - 3.1.2.2 Abrasive blasting,
  - 3.1.2.3 Refractory loading, chipping, dumping, gunning,
  - 3.1.2.4 Demolition activities, or
  - 3.1.2.5 Maintenance operations associated with construction activities.

### 3.2 Exposure Determination

- 3.2.1 If the task is listed in [OSHA Part 690 \(1926.1153\) Table 1](#), utilize the table for specific control measures and respiratory protection requirements. See [Attachment A](#) for a modified version of Table 1 (This table was modified for formatting only).
- 3.2.2 Additional monitoring is required for tasks not listed in [OSHA Part 690 \(1926.1153\) Table 1](#) or where the control measures cannot be fully implemented.
- 3.2.2.1 Contractors performing specialty services (refractory work, catalyst handling, etc.) will be expected to provide GBR with exposure assessment information following one of the required methods below:

3.2.2.1.1 **Performance Option:** The employer must assess the 8-hour TWA exposure for EACH employee based on any combination of air monitoring data or objective data to characterize employee exposures to respirable crystalline silica accurately.

3.2.2.1.2 **Scheduled Monitoring Option:** The employer may sample a representative fraction of employees if they conduct similar tasks, on the same shift, or in the same work area as long as the sampling includes the employee(s) expected to have the highest exposure to respirable crystalline silica. If this option is selected, reassessment shall be conducted with the following table.

If initial monitoring indicates that employee exposures are...	Then...
≤ 25 µg/m <sup>3</sup>	Discontinue monitoring for that representative task.
25 µg/m <sup>3</sup> – 50 µg/m <sup>3</sup>	Repeat such monitoring within six months of the most recent monitoring.
≥ 50 µg/m <sup>3</sup>	Repeat such monitoring within three months of the most recent monitoring.

3.2.2.1.3 The employer must reassess exposures whenever there is a change in the production, process, control equipment, personnel, or work practices which may reasonably be expected to result in a change in exposure to respirable crystalline silica.

3.2.2.2 Exposure monitoring conducted by GBR will follow the Marathon IH Exposure Assessment Methodology (EXAM) process including utilizing an accredited laboratory, notifying employees or contract companies of sampling results and retaining documentation of all monitoring data.

3.2.2.2.1 Written notification of exposure assessment results will be communicated to affected employees or contract companies within five working days and will include any corrective actions necessary to reduce employee exposure.

### 3.3 Control Measures

3.3.1 The use of alternatives to silica containing materials must be investigated to minimize the potential for employee exposure to respirable crystalline silica, without compromising the quality or integrity of the operations (i.e., abrasive blasting agents that DO NOT contain silica, etc.).

3.3.2 The primary methods to reduce employee exposure to respirable crystalline silica are engineering controls, principally ventilation and wet methods. Where engineering controls are inadequate in reducing exposures to less than the PEL, they must still be used to reduce exposures to the lowest feasible level. Where engineering controls are inadequate, or while they are being installed, respiratory protection must be used.

3.3.2.1 Refer to [Attachment A](#) to determine the control measures and respiratory protection required.

Blanchard Refining Company LLC	Galveston Bay Refinery	
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB	Rev No: 1

3.3.3 Employee rotation cannot be used to reduce exposures to less than the PEL or to deviate from the control measures required by Attachment A based on the length of the job task. When contractors will be working for more than 4 hours on silica containing material, they shall wear a respirator for the full shift, not only after the first 4 hours of the job task.

3.3.4 Tasks that involve the mixing of refractory, concrete, etc., must be contained inside of a negative pressure enclosure with a negative air machine that has a HEPA filter and/or sock or a local exhaust system set up directly over the mixer to collect the airborne dust.

### 3.4 Respiratory Protection

3.4.1 All employees covered by this standard must be included in the Respiratory Protection Plan for GBR. The employer must provide appropriate respiratory protection and other personal protective equipment for employees exposed to respirable crystalline silica.

3.4.2 All contractors expected to wear respiratory protection must be included in their company's respiratory protection program.

### 3.5 Regulated Areas

3.5.1 Regulated areas must be established wherever respirable crystalline silica airborne concentrations are or can reasonably be expected to be more than the PEL.

3.5.2 For all regulated areas, the area must be barricaded and warning signs ([Attachment B: Danger Sign](#)) must be clearly visible from all access to the work area stating the following:

**DANGER**  
**Respirable Crystalline Silica**  
**May Cause Cancer**  
**Causes Damage to Lungs**  
**Wear Respiratory Protection in this Area**  
**Authorized Personnel Only**

3.5.3 Access must be limited to individuals that are:

- required to be in the area,
- familiar with the requirements,
- following the control measures determined, and
- wearing respiratory protection (if applicable) to enter.

3.5.4 The sign is not required to be posted in areas where the construction task does not require wearing a respirator (example: outdoor use of a walk-behind saw equipped with an integrated water delivery system). In these cases, barricade tape should still be placed to restrict access to the work area but posting a sign with the language above may create confusion.

### 3.6 Housekeeping

3.6.1 Housekeeping is an additional control measure to lower potential exposure to respirable crystalline silica. Utilize wet sweeping and/or HEPA-filtered vacuuming to minimize the likelihood of additional exposure.

3.6.2 DO NOT dry sweep or dry brush accumulated dust where it could disturb silica containing materials and add to the potential exposure.

3.6.3 DO NOT use compressed air to clean clothing or surfaces.

Blanchard Refining Company LLC	Galveston Bay Refinery	
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB	Rev No: 1

### 3.7 Medical Surveillance

- 3.7.1 Any employee(s) required to wear respiratory protection for respirable crystalline silica exposure control for more than 30 days per year will be included in the GBR Silica Medical Surveillance Plan per the [Corporate Employee Health Monitoring Examination Protocols Standard, HLT-2025](#).
- 3.7.2 Contractors must be included in their company's medical surveillance programs if applicable.

## 4.0 **Exposure Control Plan**

- 4.1 Contractors may use the linked Silica Exposure Control Plan (SECP) Template ([Attachment C](#)) as a start to developing their SECP.
- 4.2 A written Silica Exposure Control Plan must be established by each site contractor that continuously works at GBR and for each standalone project that could have respirable crystalline exposure, and must contain at least the following elements:
  - 4.2.1 Description of the tasks covered,
  - 4.2.2 Air monitoring results (if applicable),
  - 4.2.3 Description of all control measures, including: engineering controls, work practices, PPE, and respiratory protection used,
  - 4.2.4 Description of the housekeeping measures used,
  - 4.2.5 A description of the procedures used to restrict access to work areas, when necessary, including minimizing cross-contamination and migration,
  - 4.2.6 Methods to inform MPC employees and contractors working on site.
- 4.3 The SECP must be re-evaluated at least annually and updated as necessary.
- 4.4 A competent person must be designated for each project to regularly inspect job sites, materials, and equipment necessary to implement the written exposure control plan.
- 4.5 The SECP must be submitted to the GBR Industrial Hygiene Department for all tasks that could generate respirable crystalline silica exposures before work begins and can be submitted along with your job/site specific safety plan.
- 4.6 The SECP must be readily available to covered employees, the GBR project coordinator, and GBR Safety Department upon request.

## 5.0 **Responsibilities**

### 5.1 Site Industrial Hygienist

- 5.1.1 Review and evaluate the effectiveness of this Silica Exposure Control Plan periodically and update it as necessary.

### 5.2 Contractor Competent Person

- 5.2.1 Develop a site specific / company specific Silica Exposure Control Plan as outlined in Section 4.0 and review and evaluate the effectiveness of this at least annually and update as necessary.
- 5.2.2 Determine tasks that have the potential exposure to Respirable Crystalline Silica.
- 5.2.3 Conduct and/or coordinate exposure monitoring for any tasks not listed in [Attachment A](#) or controls that cannot be fully implemented.

Blanchard Refining Company LLC	Galveston Bay Refinery	
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB	Rev No: 1

5.2.4 Takes prompt corrective measures in the event the SECP is not being followed.

5.2.5 Makes frequent and regular inspections of tasks covered by SECP.

## 6.0 Training

6.1 Training for all covered MPC employees will be consistent with the requirements of the OSHA Silica standard and the OSHA Hazard Communication standard.

6.2 Contractors must provide training to their affected employees.

6.3 Training must include, at a minimum:

6.3.1 The health hazards associated with exposure to respirable crystalline silica,

6.3.2 Specific tasks that could result in exposure to respirable crystalline silica,

6.3.3 Specific control measures that are required to protect employees from potential exposure, include:

6.3.3.1 Engineering controls.

6.3.3.2 Work practices including housekeeping and regulated areas.

6.3.3.3 Respiratory Protection.

6.3.4 The purpose of the medical surveillance program and who qualifies.

## 7.0 Definitions

7.1 **Action Level (AL)**: A concentration of 25 micrograms per cubic meter of air (25 ug/m3) of respirable crystalline silica is calculated as an eight-hour time weighted average.

7.2 **Competent person (construction)**: An individual capable of identifying existing and foreseeable respirable crystalline silica hazards in the workplace and who is authorized to take prompt corrective measures to eliminate or minimize them.

7.3 **Covered Employee**: An employee included in a written Exposure Control Plan because exposure monitoring confirms results above the OSHA Action Level of 25 ug/m3.

7.4 **Employee Exposure**: Exposure to airborne respirable crystalline silica that occurs if the employee does not use an appropriate respirator.

7.5 **High-efficiency particulate air [HEPA] filter**: A filter that is at least 99.97 percent efficient in removing mono-dispersed (a uniform collection of size) particles of 0.3 micrometers in diameter.

7.6 **MPC Exposure Assessment Methodology (EXAM)**: A comprehensive strategy for the qualitative and quantitative assessment, statistical analysis, addition of controls, and reassessment of occupational exposure risks.

7.7 **Objective Data**: Air monitoring data from industry wide surveys/calculations based on the composition of a substance, demonstrating employee exposure to respirable crystalline silica associated with a particular product/material/task/activity. Data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes, types of material, control methods, work practices, and environmental conditions in the employer's current operations.

7.8 **Regulated Area**: An area demarcated by the employer where an employee's exposure to airborne concentrations of respirable crystalline silica exceeds, or can reasonably be expected to exceed, the PEL.

Blanchard Refining Company LLC	Galveston Bay Refinery	
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB	Rev No: 1

7.9 **Respirable Crystalline Silica:** Quartz, cristobalite, and/or tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle-size-selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality – Particle Size Fraction Definitions for Health-Related Sampling.

7.10 **Respiratory Protection Factors (APFs):**

- APF 10 = Half Mask Respirator
- APF 25 = Loose Fitting Powered Air Purifying Respirator (PAPR)
- APF 50 = Full Face Respirator
- APF 1,000 = Full-Face PAPR, Full-Face Abrasive Blasting Hood, Full Face Supplied Air Respirator
- APF 10,000 = Full Face Self Contained Breathing Apparatus (SCBA)

7.11 **Permissible Exposure Limit (PEL):** A concentration of 50 micrograms per cubic meter of air (50 ug/m<sup>3</sup>) of respirable crystalline silica calculated as an eight-hour time weighted average.

**8.0 References**

- 8.1 [\(OSHA\) Silica in General Industry 29 CFR 1910.1053](#)
- 8.2 [\(OSHA\) Silica in Construction 29 CFR 1926.1153](#)
- 8.3 Comprehensive IH Plan
- 8.4 [Corporate Employee Health Monitoring Examination Protocols Standard, HLT-2025](#)
- 8.5 [Corporate HES&S Standard, Respirable Crystalline Silica Exposure Control Program, HLT-2038](#)
- 8.6 [MPC OEH Procedure on Reporting Total RCS Versus Individual Polymorphs](#)
- 8.7 Respiratory Protection Plan

**9.0 Attachments**

- 9.1 [Attachment A: Summary of OSHA \(1926.1153\) Table 1](#)
- 9.2 [Attachment B: Danger Sign](#)
- 9.3 [Attachment C: Exposure Control Plan Template](#)
- 9.4 [Attachment D: Respirable Crystalline Silica Standard Flow Chart](#)

Blanchard Refining Company LLC	Galveston Bay Refinery	
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB	Rev No: 1

## 10.0 Revision History

Revision Number	Description of Change	Written by	Approved by	Revision Date	Effective Date
0	Original Issue. Created under MOC 49913.	B. M. McPherson	J. G. Montminy	5/25/2018	7/30/2018
1	<p>Added further details to deviating from Attachment A in section 3.3.3</p> <p>Added mixing must be completed inside a negative pressure enclosure with HEPA filter in section 3.3.4</p> <p>Added silica sign is not required when respiratory protection is not required in section 3.5.4</p>	Jamie Soape	Betty Lawson	7/119/2023	9/5/2023



**Attachment A – Summary of OSHA (1926.1153) Table 1** *(Modified for format only)*  
**Specified Exposure Control Methods When Working With Materials Containing Crystalline Silica**

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤ 4 hours/shift	>4 hours/shift
(i) Stationary masonry saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade	None	None
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions		
(ii) Handheld power saws (any blade diameter)	Use saw equipped with integrated water delivery system that continuously feeds water to the blade		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions:		
	-When used outdoors	None	APF 10
	-When used indoors or in an enclosed area	APF 10	APF 10
(iii) Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	For tasks performed outdoors only:		
	Use saw equipped with commercially available dust collection system		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions	None	None
	Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency		
(iv) Walk-behind saws	Use saw equipped with integrated water delivery system that continuously feeds water to the blade		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions:		
	-When used outdoors	None	None
	-When used indoors or in an enclosed area	APF 10	APF 10

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤ 4 hours/shift	>4 hours/shift
(v) Drivable saws	<p>For tasks performed outdoors only:</p> <p>Use saw equipped with integrated water delivery system that continuously feeds water to the blade</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions</p>	None	None
(vi) Rig-mounted core saws or drills	<p>Use tool equipped with integrated water delivery system that supplies water to cutting surface</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions</p>	None	None
(vii) Handheld and stand-mounted drills (including impact and rotary hammer drills)	<p>Use drill equipped with commercially available shroud or cowling with dust collection system</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions</p> <p>Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism</p> <p>Use a HEPA-filtered vacuum when cleaning holes</p>	None	None
(viii) Dowel drilling rigs for concrete	<p>For tasks performed outdoors only:</p> <p>Use shroud around drill bit with a dust collection system. Dust collector must have a filter with 99% or greater efficiency and a filter-cleaning mechanism</p>	APF 10	APF 10

Blanchard Refining Company LLC	Galveston Bay Refinery	
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB	Rev No: 1

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤ 4 hours/shift	>4 hours/shift
(ix) Vehicle-mounted drilling rigs for rock and concrete	Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector	None	None
	OR Operate from within an enclosed cab and use water for dust suppression on drill bit	None	None
(x) Jackhammers and handheld powered chipping tools	Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact:		
	-When used outdoors	None	APF 10
	-When used indoors or in an enclosed area	APF 10	APF 10
	OR		
	Use tool equipped with commercially available shroud and dust collection system		
	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions		
(x) Jackhammers and handheld powered chipping tools	Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism:		
	-When used outdoors	None	APF 10
	-When used indoors or in an enclosed area	APF 10	APF 10

Blanchard Refining Company LLC	Galveston Bay Refinery	
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB	Rev No: 1

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤ 4 hours/shift	>4 hours/shift
(xi) Handheld grinders for mortar removal (i.e., tuckpointing)	<p>Use grinder equipped with commercially available shroud and dust collection system</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions</p> <p>Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism</p>	APF 10	APF 25
(xii) Handheld grinders for uses other than mortar removal	<p>For tasks performed outdoors only:</p> <p>Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions</p> <p>OR</p> <p>Use grinder equipped with commercially available shroud and dust collection system</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions</p> <p>Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism:</p> <p>-When used outdoors</p> <p>-When used indoors or in an enclosed area</p>	<p>None</p> <p>None</p> <p>None</p> <p>None</p>	<p>None</p> <p>None</p> <p>None</p> <p>APF 10</p>

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤ 4 hours/shift	>4 hours/shift
(xiii) Walk-behind milling machines and floor grinders	Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface	None	None
	<p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions</p> <p>OR</p> <p>Use machine equipped with dust collection system recommended by the manufacturer</p> <p>Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions</p> <p>Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism</p> <p>When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes</p>	None	None
(xiv) Small drivable milling machines (less than half-lane)	<p>Use a machine equipped with supplemental water sprays designed to suppress dust. Water must be combined with a surfactant</p> <p>Operate and maintain machine to minimize dust emissions</p>	None	None

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤ 4 hours/shift	>4 hours/shift
(xv) Large drivable milling machines (half-lane and larger)	For cuts of any depth on asphalt only:  Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust Operate and maintain machine to minimize dust emissions	None	None
	For cuts of four inches in depth or less on any substrate:  Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust Operate and maintain machine to minimize dust emissions	None	None
	OR  Use a machine equipped with supplemental water spray designed to suppress dust. Water must be combined with a surfactant Operate and maintain machine to minimize dust emissions	None	None
(xvi) Crushing machines	Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points)  Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions  Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station	None	None

Blanchard Refining Company LLC	Galveston Bay Refinery	
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB	Rev No: 1

Equipment/task	Engineering and work practice control methods	Required respiratory protection and minimum assigned protection factor (APF)	
		≤ 4 hours/shift	>4 hours/shift
(xvii) Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	Operate equipment from within an enclosed cab	None	None
	When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions	None	None
(xviii) Heavy equipment and utility vehicles for tasks such as grading and excavating but not including: Demolishing, abrading, or fracturing silica-containing materials	Apply water and/or dust suppressants as necessary to minimize dust emissions	None	None
	OR When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab	None	None

Blanchard Refining Company LLC	Galveston Bay Refinery	
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB	Rev No: 1

ATTACHMENT A - NOTES:

- 1.) **Any deviation from Table 1** Tasks require air monitoring to determine control measures and respiratory protection requirements.
- 2.) Where an employee performs **more than one task on Table 1** during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.
- 3.) Engineering and Work Practice Controls are required to be **used at all times** unless the employer can demonstrate that such controls are not feasible.
- 4.) If engineering and work practice controls are inadequate to reduce exposures to below the PEL, they still need to be used to reduce employee exposure to the **lowest feasible level** and must be supplemented with the appropriate respiratory protection.
- 5.) When implementing the control measures specified in Table 1, each employer shall:
  - (i) For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to **minimize the accumulation of visible airborne dust**;
  - (ii) For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;
  - (iii) For measures implemented that include an **enclosed cab or booth**, ensure that the enclosed cab or booth:
    - (A) Is maintained as free as practicable from settled dust;
    - (B) Has door seals and closing mechanisms that work properly;
    - (C) Has gaskets and seals that are in good condition and working properly;
    - (D) Is under positive pressure maintained through continuous delivery of fresh air;
    - (E) Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0µm range (e.g., MERV-16 or better); and
    - (F) Has heating and cooling capabilities.
- 6.) Respiratory Protection **APF Levels**:  
 APF 10 = Half Mask



Blanchard Refining Company LLC	Galveston Bay Refinery	
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB	Rev No: 1

APF 25 = Loose Fitting PAPR, Hood PAPR

APF 50 = Full Face

APF 1,000 = Full Face PAPR, Full Face Abrasive Blasting Hood, Full Face Supplied Air

APF 10,000 = Full Face SCBA

6.) Housekeeping **may NOT include dry sweeping or dry brushing** where it could contribute to the employee exposure unless wet sweeping, HEPA-filtered vacuuming or other methods are not feasible.

7.) **Compressed air may NEVER** be used to clean clothing or surfaces.

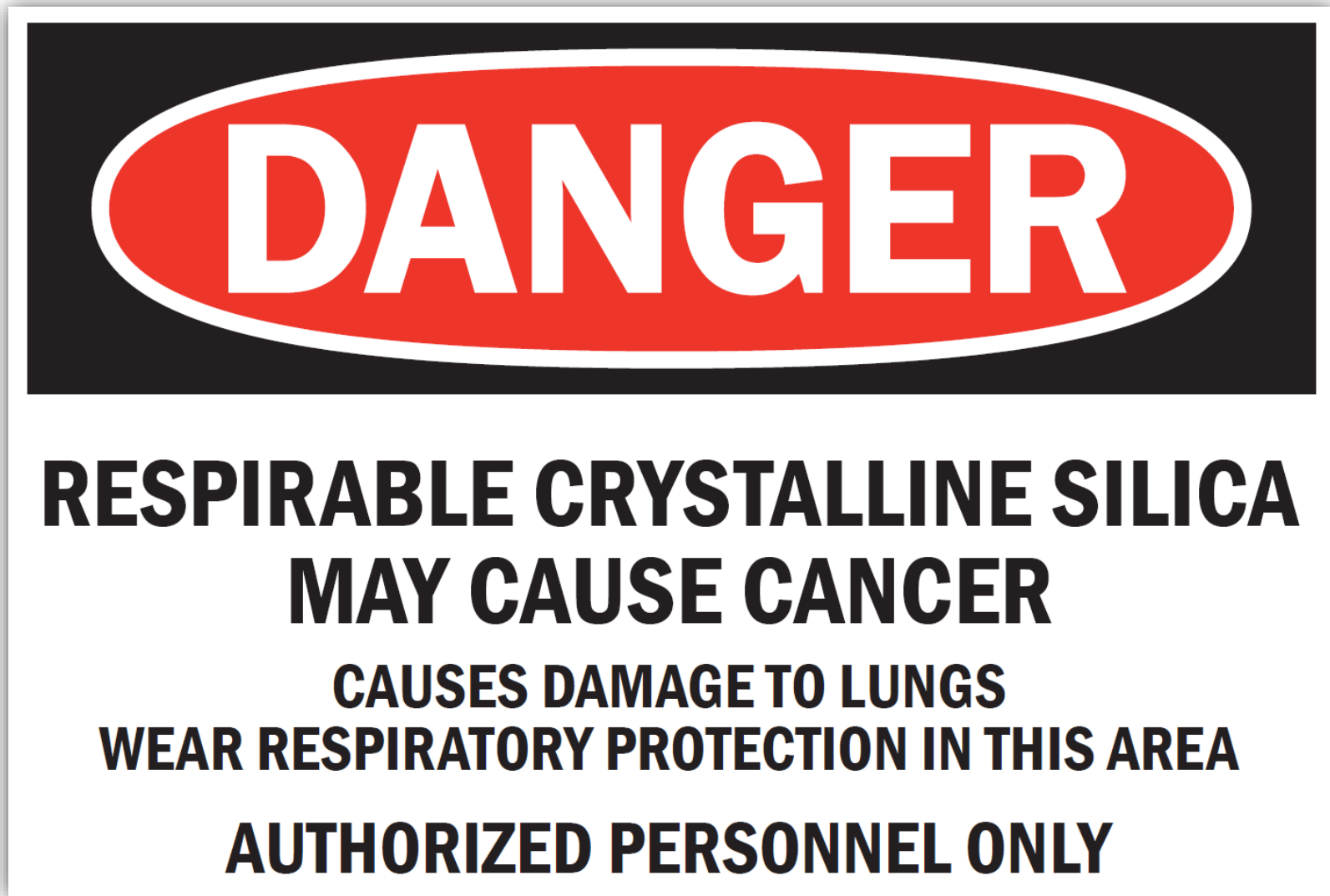
8.) Regulated areas will be established wherever airborne concentrations of respirable crystalline silica are, or can reasonably be expected to be, in excess of the PEL and **must be barricaded and warning signs** must be clearly visible from all accesses to the work area stating the following:



9.) Access must be limited to employees and/or contractors that are **required by work duties** to be present in the area, and are familiar with the requirements of this Exposure Control Plan.

Blanchard Refining Company LLC	Galveston Bay Refinery
Title: SM-7 Respirable Crystalline Silica Exposure Control	Doc Number: RSW-000017-GB Rev No: 1

**Attachment B – Danger Sign**



### Attachment C – Exposure Control Plan Template

Refer to [Silica Exposure Control Plan Template](#) for electronic version to modify

Company Name: \_\_\_\_\_  
 Person Completing the Plan, Title: \_\_\_\_\_  
 Designated Competent Person: \_\_\_\_\_ Competent Person Phone # \_\_\_\_\_  
 Type of Exposure Control Plan:  
 Annual for Nested Contractors  
 Project Specific  
 Date Review Due: \_\_\_\_\_  
 ORD Safety Approval \_\_\_\_\_  
 Date Approved: \_\_\_\_\_  
 Project Name (if applicable): \_\_\_\_\_  
 Description of Task(s): \_\_\_\_\_

Task	Source of Control Measures <sup>1,2</sup>	Air Monitoring Results AL = 25µm/m <sup>3</sup> PEL = 50µm/m <sup>3</sup>	Engineering Controls <sup>3,4,5</sup>	Work Practices Controls	Environment (if specified)	Respiratory Protection <sup>6</sup>		Housekeeping Measures <sup>7,8</sup>	Access Restriction Methods <sup>9</sup>
						< 4 hours	> 4 hours		
Stationary masonry saws	<input checked="" type="checkbox"/> Table 1 <input type="checkbox"/> Air Monitoring	Not Necessary if Table 1 Controls are being followed.	Use saw equipped with integrated water delivery system that continuously feeds water to the blade.	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		<input checked="" type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50	<input checked="" type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50		
Handheld power saws (any blade diameter)	<input checked="" type="checkbox"/> Table 1 <input type="checkbox"/> Air Monitoring	Not Necessary if Table 1 Controls are being followed.	Use saw equipped with integrated water delivery system that continuously feeds water to the blade.	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	Outdoors	<input checked="" type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50	<input checked="" type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50		
					Indoors or in an enclosed area	<input checked="" type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50	<input checked="" type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50		
Outdoor use of handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less)	<input checked="" type="checkbox"/> Table 1 <input type="checkbox"/> Air Monitoring	Not Necessary if Table 1 Controls are being followed.	Use saw equipped with commercially available dust collection system.	Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	Outdoors	<input checked="" type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50	<input checked="" type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50		

To create a company specific ECP:

1. Determine which tasks are routine.
2. Delete all other rows from template of tasks that aren't performed onsite.
3. If it's a Table 1 task, continue to fill out Housekeeping and Access Restriction

4. If task isn't a 'Table 1' task, air monitoring will be required

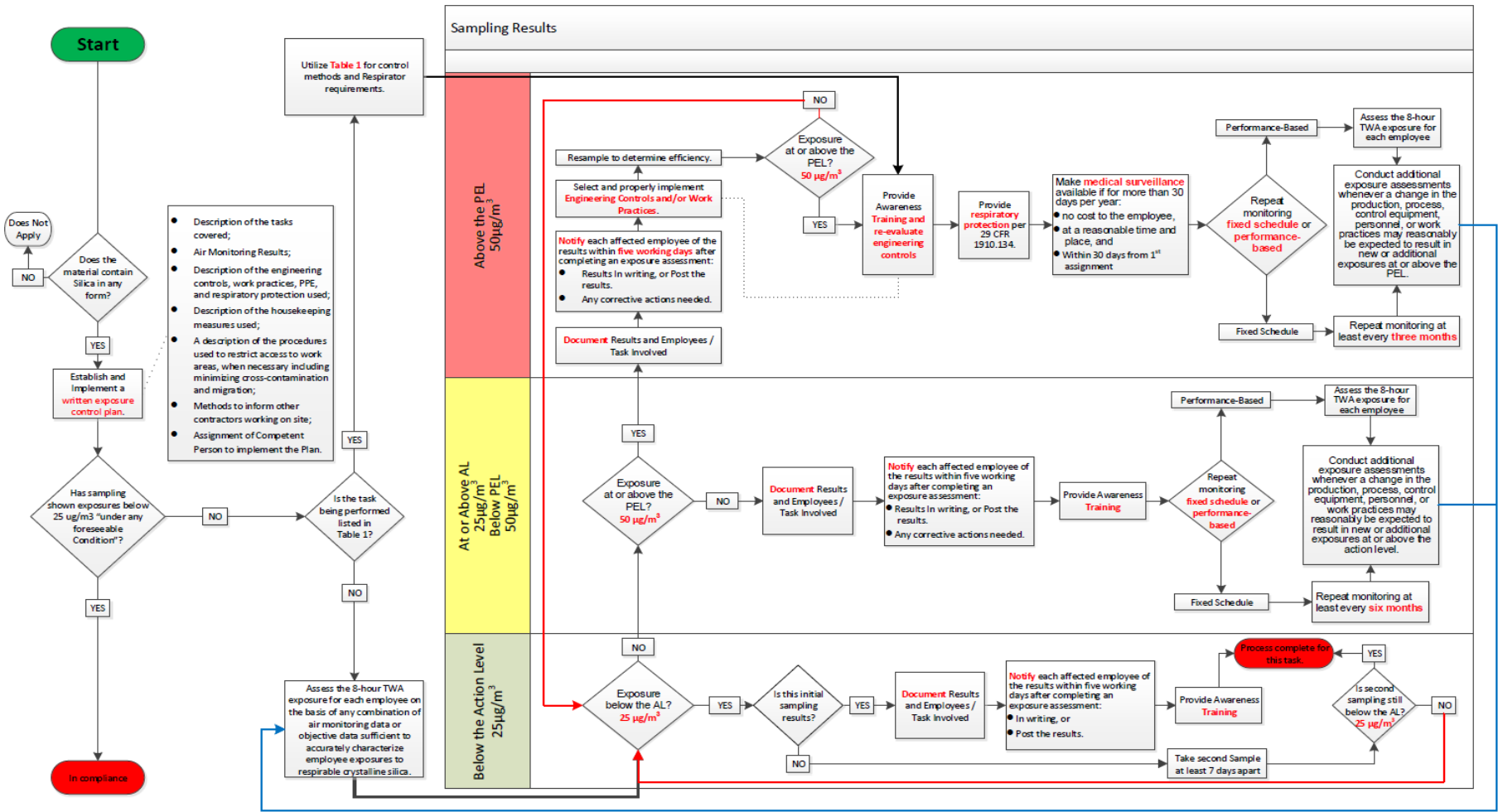
5. Results of monitoring will determine

- a) Engineering Controls
- b) Work Practices

Task	Source of Control Measures <sup>1,2</sup>	Air Monitoring Results AL = 25µm/m <sup>3</sup> PEL = 50µm/m <sup>3</sup>	Engineering Controls <sup>3,4,5</sup>	Work Practices Controls	Environment (if specified)	Respiratory Protection <sup>6</sup>		Housekeeping Measures <sup>7,8</sup>	Access Restriction Methods <sup>9,10</sup>
						< 4 hours	> 4 hours		
Removal / installation of silica containing insulation	<input type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Air Monitoring					<input type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50	<input type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50		
Loading / unloading silica containing catalyst	<input type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Air Monitoring					<input type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50	<input type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50		
Spraying ceramic coatings	<input type="checkbox"/> Table 1 <input checked="" type="checkbox"/> Air Monitoring					<input type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50	<input type="checkbox"/> None <input type="checkbox"/> APF 10 <input type="checkbox"/> APF 25 <input type="checkbox"/> APF 50 <input type="checkbox"/> APF >50		

### Attachment D – Respirable Crystalline Silica Standard Flow Chart

## RESPIRABLE CRYSTALLINE SILICA STANDARD FLOW CHART



**Key Notes to Remember:**

1. If there are any changes in production, process, control equipment, personnel, or work practices that may reasonably be expected to result in new or additional exposures, reassessment is required.
2. Awareness training requirements – Employee should be able to demonstrate knowledge of Health hazards, Tasks cover at this location, Control Methods, This standard, Identity of the site Competent Person, Purpose and description of the medical surveillance program.
3. Do not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to respirable crystalline silica unless wet sweeping, HEPA-filtered vacuuming or other methods that minimize the likelihood of exposure are not feasible.
4. Do not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to respirable crystalline silica unless the compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air or No alternative method is feasible.