



OSHA INSTRUCTION

U.S. DEPARTMENT OF LABOR

Occupational Safety and Health Administration

DIRECTIVE NUMBER: CPL 03-00-023

EFFECTIVE DATE: 02/04/2020

SUBJECT: National Emphasis Program – Respirable Crystalline Silica

****NOTE: Minor changes {in brackets} were made to this directive on June 29, 2020, after the issuance of OSHA Instruction, CPL 02-02-080, *Inspection Procedures for the Respirable Crystalline Silica Standards*, June 25, 2020. These changes do not impact this National Emphasis Program’s scope or policy.**

ABSTRACT

- Purpose:** This Instruction describes policies and procedures for implementing a National Emphasis Program (NEP) to identify and reduce or eliminate worker exposures to respirable crystalline silica (RCS) in general industry, maritime, and construction. The NEP targets specific industries expected to have the highest exposures to RCS.
- Scope:** This Instruction applies OSHA-wide.
- References:** Federal Register, [81 FR 16285-16890](#), §§ 1910, 1915, 1926, *Occupational Exposure to Respirable Crystalline Silica; Final Rule*, March 25, 2016.
- {OSHA Instruction [CPL 02-02-080](#), *Inspection Procedures for the Respirable Crystalline Silica Standards*, June 25, 2020.}
- OSHA Instruction [CPL 02-00-025](#), *Scheduling System for Programmed Inspections*, January 4, 1995.
- OSHA Instruction [CPL 02-00-051](#), *Enforcement Exemptions and Limitations under the Appropriations Act*, May 28, 1998 (including annually updated Appendix A).
- {OSHA Instruction ~~CPL 02-00-163~~ [CPL 02-00-164](#), *Field Operations Manual (FOM)*, ~~September 13, 2019~~ April 14, 2020}.
- (See Section III for additional references.)
- Cancellations:** {OSHA Notice [CPL 03-00-007](#), *Cancellation of CPL 03-00-007, National Emphasis Program - Crystalline Silica*, October 26, 2017 ~~None~~}.
- State Plan Impact:** This Instruction describes a federal program change for which State Plan adoption is required (see Section VI).

Action Offices: OSHA Regional and Area Offices, State Plan and State Consultation Offices

Originating Office: Directorate of Enforcement Programs, Office of Health Enforcement

Contact: Directorate of Enforcement Programs
Office of Health Enforcement
200 Constitution Avenue, NW, Room N3119
Washington, DC 20210

By and Under the Authority of

LOREN SWEATT
Principal Deputy Assistant Secretary

Executive Summary

This Instruction describes policies and procedures for implementing a National Emphasis Program (NEP) to identify and reduce or eliminate worker exposures to respirable crystalline silica (RCS) in general industry, maritime, and construction industries. It targets specific industries expected to have the highest exposures to RCS and focuses on enforcement of the new RCS Standards, 29 CFR § 1910.1053 and 29 CFR § 1926.1153, which were published in the Federal Register, Vol. 81, No. 58, on March 25, 2016, and became effective on June 23, 2016.

Significant Changes

This Instruction follows the cancellation of the 2008 Crystalline Silica NEP in October 2017. The following list highlights the differences between this replacement NEP and the former NEP:

- This replacement NEP addresses enforcement of OSHA's standards for RCS, promulgated in 2016. One standard covers general industry and maritime, and the other covers construction. Both standards set a permissible exposure limit (PEL) for RCS of 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) as an 8-hour time-weighted average (TWA). The former TWA PELs for respirable quartz silica were calculated based on silica content and were approximately equivalent to 100 $\mu\text{g}/\text{m}^3$ for general industry and 250 $\mu\text{g}/\text{m}^3$ for construction and shipyards (81 FR at 16294, March 25, 2016).
- This NEP contains an updated list of target industries, listed by North American Industry Classification System (NAICS) codes.
- For inspection procedures, this NEP refers compliance safety and health officers (CSHOs) to {the new OSHA Instruction, CPL 02-02-080, Inspection Procedures for the Respirable Crystalline Silica Standards, June 25, 2020 ~~current enforcement guidance for the Respirable Crystalline Silica Standards~~}.
- State Plan participation in this NEP has been made mandatory.
- Area and Regional Offices shall comply with this NEP, but they are not required to develop and implement corresponding Local Emphasis Programs (LEPs) or Regional Emphasis Programs (REPs).
- Area Offices will conduct outreach programs three months prior to initiating NEP-related RCS inspections.
- Area Offices are no longer required to send abatement verification to the National Office.

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I. Purpose.

This Instruction establishes a new National Emphasis Program (NEP) for respirable crystalline silica (RCS). It describes policies and procedures for implementing the NEP to identify and reduce or eliminate worker exposures to RCS in general industry, maritime, and construction industries. It targets specific industries expected to have the highest exposures to RCS and focuses on enforcement of the two RCS standards, 29 CFR § 1910.1053 and 29 CFR § 1926.1153, published in the Federal Register, Vol. 81, No. 58, on Friday, March 25, 2016, which became effective on June 23, 2016.

II. Scope.

This Instruction applies OSHA-wide.

III. References.

- A. Federal Register, 81 FR 16285-16890, §§ 1910, 1915, 1926, *Occupational Exposure to Respirable Crystalline Silica; Final Rule*, March 25, 2016. <https://www.gpo.gov/fdsys/pkg/FR-2016-03-25/pdf/2016-04800.pdf>.
- B. OSHA Instruction ADM 04-00-002, *OSHA Safety and Health Management System*, October 5, 2016. <https://www.osha.gov/enforcement/directives/adm-04-00-002>.
- C. {OSHA Instruction CPL 02-02-080, *Inspection Procedures for the Respirable Crystalline Silica Standards*, June 25, 2020. <https://www.osha.gov/enforcement/directives/cpl-02-02-080>.}
- D. OSHA Instruction CPL 02-00-025, *Scheduling System for Programmed Inspections*, January 4, 1995. <https://www.osha.gov/enforcement/directives/cpl-02-00-025>.
- E. OSHA Instruction CPL 02-00-051, *Enforcement Exemptions and Limitations under the Appropriations Act*, May 28, 1998 (including annually updated Appendix A). <https://www.osha.gov/enforcement/directives/cpl-02-00-051>.
- F. OSHA Instruction CPL 02-02-072, *Rules of Agency Practice and Procedure Concerning OSHA Access to Employee Medical Records*, August 22, 2007. <https://www.osha.gov/enforcement/directives/cpl-02-02-072>.
- G. OSHA Instruction CPL 02-00-155, *Inspection Scheduling for Construction*, September 6, 2013. <https://www.osha.gov/enforcement/directives/cpl-02-00-155>.
- H. {OSHA Instruction ~~CPL 02-00-163~~ CPL 02-00-164, *Field Operations Manual (FOM)*, ~~September 13, 2019~~ April 14, 2020. <https://www.osha.gov/enforcement/directives/cpl-02-00-163164>}.
- I. OSHA Instruction CSP 03-02-003, *OSHA Strategic Partnership Program for Worker Safety and Health*, November 6, 2013. <https://www.osha.gov/enforcement/directives/csp-03-02-003>.

- J. OSHA Instruction CPL 04-00-002, *Procedures for the Approval of Local Emphasis Programs (LEPs)*, November 13, 2018.
<https://www.osha.gov/enforcement/directives/cpl-04-00-002>.
 - K. OSHA Memorandum on Establishment-Targeting Lists for Emphasis Programs, November 12, 2014.
https://www.osha.gov/dep/enforcement/establishment_targeting_lists_11122014.html.
 - L. OSHA Memorandum on Procedures for Local and Regional Emphasis Programs, December 3, 2014.
https://www.osha.gov/dep/enforcement/procedures_for_emphasis_12032014.html.
 - M. OSHA/NIOSH Hazard Alert, *Worker Exposure to Silica during Hydraulic Fracturing*, June 2012.
https://www.osha.gov/dts/hazardalerts/hydraulic_frac_hazard_alert.html. [Note, some information in this document does not reflect OSHA's respirable crystalline silica rule published on March 25, 2016.]
 - N. OSHA/NIOSH Hazard Alert, *Worker Exposure to Silica during Countertop Manufacturing, Finishing and Installation*, February 2015.
https://www.osha.gov/dts/hazardalerts/silica_hazard_alert.html. [Note, some information in this document does not reflect OSHA's respirable crystalline silica rule published on March 25, 2016.]
 - ~~Q. OSHA Notice CPL 03-00-007, *Cancellation of CPL 03-00-007, National Emphasis Program - Crystalline Silica*, October 26, 2017.
<https://www.osha.gov/enforcement/directives/cpl-03-00-007-0>;~~
 - O. OSHA Safety and Health Topics: Oil and Gas Extraction (webpage).
<https://www.osha.gov/SLTC/oilgaswelldrilling/>.
 - P. OSHA Safety and Health Topics: Silica, Crystalline (webpage).
<https://www.osha.gov/dsg/topics/silicacrystalline/>.
 - Q. OSHA Notice 18-01 (CPL 02), *Site-Specific Targeting 2016 (SST-16)*, October 16, 2018 (or subsequent version).
<https://www.osha.gov/enforcement/directives/18-01-cpl-02>.
 - R. OSHA Instruction ADM 03-01-005, *OSHA Compliance Records*, August 3, 1998.
<https://www.osha.gov/enforcement/directives/adm-03-01-005>.
 - S. OSHA Instruction CPL 02-02-054, *Respiratory Protection Program Guidelines*, July 14, 2000. <https://www.osha.gov/enforcement/directives/cpl-02-02-054>.
 - T. Centers for Disease Control and Prevention (CDC), "Silicosis Mortality Trends and New Exposures to Respirable Crystalline Silica - United States, 2001-2010." *Morbidity and Mortality Weekly Report: MMWR*, February 13, 2015 / 64(05);117-120. <https://www.cdc.gov/mmwr/preview/mmwrhtml/mm6405a1.htm>.
- IV. Cancellations.

{OSHA Notice [CPL 03-00-007](#), *Cancellation of CPL 03-00-007, National Emphasis Program - Crystalline Silica*, October 26, 2017 ~~None~~}.

V. Action Offices.

A. Responsible Office.

Directorate of Enforcement Programs, Office of Health Enforcement

B. Action Offices.

OSHA Regional and Area Offices, State Plan and State Consultation Offices

C. Information Offices.

OSHA National Office

VI. Federal Program Change.

This Instruction describes a federal program change that establishes an NEP to identify and reduce or eliminate overexposures to RCS. Because of the seriousness of the hazards associated with exposure to RCS and the prevalence of such exposures nationwide, State Plans are required to participate in this NEP.

State Plans are required to notify OSHA within 60 days whether the State Plan's emphasis program will be identical to or different from the federal program. If a State Plan is already implementing an emphasis program in this area, or if it adopts an initiative in response to this federal program change, its implementing policies and procedures are expected to be at least as effective as those in this Instruction.

If a State Plan adopts or maintains an emphasis program on RCS that differs from the federal program, then the State Plan shall identify the differences and shall either post its different procedures on its State Plan website and provide a link to OSHA, or provide an electronic copy to OSHA with information on how the public may obtain a copy. State Plan adoption, either identical or different, shall be accomplished within 6 months. Documentation of State Plan adoption, and the date of adoption, shall be submitted to OSHA within 60 days of adoption. OSHA will provide summary information on the State Plan responses to this Instruction on OSHA's website (www.osha.gov).

OSHA's Office of Statistical Analysis (OSA) will work with the State Plans to provide the data necessary to develop targeting lists in accordance with the instructions in Section XI. OSHA will make the list(s) of establishments available to the State Plans. See coding instructions for the OSHA Information System (OIS) in [Section XI.G](#).

This Instruction describes a change that may affect federal agencies. Federal agencies that are subject to inspection and have employees exposed to hazards covered by this emphasis program are also included in this NEP. See [FOM](#) Chapter 13, *Federal Agency Field Activities*.

VII. Significant Changes.

This Instruction follows the cancellation of the 2008 Crystalline Silica NEP in October 2017. The following list highlights the differences between this replacement NEP and the former NEP:

- A. This replacement NEP addresses enforcement of OSHA’s standards for RCS, promulgated in 2016. One standard covers general industry and maritime, and the other covers construction. Both standards set a permissible exposure limit (PEL) for RCS of 50 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) as an 8-hour time-weighted average (TWA). The former TWA PELs for respirable quartz silica were calculated based on silica content and were approximately equivalent to 100 $\mu\text{g}/\text{m}^3$ for general industry and 250 $\mu\text{g}/\text{m}^3$ for construction and shipyards (81 FR at 16294, March 25, 2016).
- B. This NEP contains an updated list of target industries, listed by North American Industry Classification System (NAICS) codes.
- C. For inspection procedures, this NEP refers compliance safety and health officers (CSHOs) to {the new OSHA Instruction, [CPL 02-02-080](#), Inspection Procedures for the Respirable Crystalline Silica Standards, June 25, 2020 ~~current enforcement guidance for the Respirable Crystalline Silica Standards~~}.
- D. State Plan participation in this NEP has been made mandatory.
- E. Area and Regional Offices shall comply with this NEP, but they are not required to develop and implement corresponding Local Emphasis Programs (LEPs) or Regional Emphasis Programs (REPs).
- F. Area Offices will conduct outreach programs three months prior to initiating NEP-related RCS inspections.
- G. Area Offices are no longer required to send abatement verification to the National Office.

VIII. On-Site Consultation Programs.

On-Site Consultation Programs are encouraged to develop their own strategic approaches for addressing the hazards associated with occupational exposure to crystalline silica. See coding instructions for the OIS in [Section XI.G](#).

IX. Background.

- A. Crystalline silica is a common mineral found in many naturally occurring materials and used in many industrial products and at construction sites. Materials including sand, concrete, stone, and mortar contain crystalline silica.

RCS consists of very small silica particles, typically at least 100 times smaller than ordinary sand found on beaches or playgrounds. RCS is generated by high-energy operations like cutting, sawing, grinding, drilling and crushing stone, rock, concrete, brick, block, and mortar; and when abrasive blasting with sand. Exposure to RCS can also occur during manufacture of products such as glass, pottery, ceramics, bricks, concrete, countertops, and artificial stone. In particular, silica exposure during the fabrication of artificial stone countertops is an emerging hazard that has been associated with several recent outbreaks of severe accelerated silicosis in young workers in the U.S. Additionally, fine industrial sand used in industry can also be a source of RCS exposure, such as in certain

foundry operations and, increasingly in recent years, during hydraulic fracturing (fracking).

Inhalation of elevated levels of RCS particles poses a health hazard and can cause multiple diseases, including silicosis, an incurable lung disease that can lead to disability and death. Exposure to RCS can also cause lung cancer, chronic obstructive pulmonary disease (COPD), and kidney disease. Simply being near sand or other silica-containing materials is not hazardous. The hazard is created when specific activities generate respirable dust that is released into the air. *See* 81 FR at 16386-87, Table VI-1.

- B. Addressing the workplace incidence of silicosis has been a primary goal of the Agency since its inception. OSHA first adopted permissible exposure limits (PELs) for workplace exposure to RCS in 1971: for general industry, see 29 CFR § 1910.1000, Table Z-3; for shipyards, see 29 CFR § 1915.1000, Table Z; and, for construction, see 29 CFR § 1926.55, Appendix A. The initial PELs for respirable quartz silica were approximately equivalent to 100 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$) as an 8-hour time-weighted average (TWA) for general industry and 250 $\mu\text{g}/\text{m}^3$ for construction and shipyards. *See* 81 FR at 16294.

In 1972, OSHA issued guidelines for conducting inspections in workplaces with significant crystalline silica exposure. In the early 1980s, the Agency placed special emphasis on the prevention of silicosis in foundry personnel. In 1996, OSHA implemented a Special Emphasis Program (SEP) to step up enforcement of the crystalline silica PELs. The SEP included extensive outreach designed to educate and train employers and employees about the hazards of silica and how to control them, and called for inspections to enforce the PELs.

In 2003, OSHA examined enforcement data for the years 1997 to 2002 and identified high rates of noncompliance with the RCS PELs, particularly in construction. This period covered the first five years of the SEP. The data indicated that just 66 percent of the silica samples obtained during inspections in general industry were in compliance with the applicable PEL, while only 58 percent of the samples collected in construction were in compliance. *See* 81 FR at 16295-16296.

In an effort to expand the 1996 SEP, on January 24, 2008, OSHA implemented an NEP to identify and reduce or eliminate the health hazards associated with occupational exposure to crystalline silica (CPL 03-00-007). The 2008 Silica NEP targeted construction and general industry worksites with potential overexposures to crystalline silica. The NEP instructed OSHA regions to ensure that at least 2 percent of their total inspections each year (or approximately 600 to 700 federal OSHA inspections annually, nationwide) addressed silica.

An analysis of OSHA enforcement data from January 2003 to December 2009 (covering a period of continued implementation of the SEP and the first two years of the NEP) again showed considerable noncompliance with the PELs. The data indicated that 30 percent of the silica samples obtained during inspections in general industry, and 25 percent of the samples collected in construction, were

above the applicable PEL (i.e., OSHA found just 70 percent compliance in general industry and 75 percent in construction). *See* 81 FR at 16296.

- C. In 2016, OSHA issued two new standards for RCS – one for general industry and maritime (29 CFR § 1910.1053) and one for construction (29 CFR § 1926.1153). The 2016 standards established a new action level of 25 $\mu\text{g}/\text{m}^3$, and a new PEL of 50 $\mu\text{g}/\text{m}^3$, both calculated as 8-hour TWAs. The standards also require employers to take other steps to protect workers from silica hazards. In promulgating the new standards, OSHA estimated the number of U.S. workers currently at risk from silica exposure to be over two million. Approximately 1,249,250 workers (1,097,000 in construction; 152,300 in general industry and maritime) were estimated to have silica exposures at or above the new action level of 25 $\mu\text{g}/\text{m}^3$; and an estimated 948,100 workers (847,700 in construction; and 100,400 in general industry and maritime) had silica exposures above the new PEL of 50 $\mu\text{g}/\text{m}^3$. *See* 81 FR at 16419. It is important to note that compliance with the new PEL is not expected to completely eliminate the risks associated with occupational exposure to RCS. Significant risks of mortality and morbidity still exist for workers exposed to RCS at the new PEL over a 45-year working life. *See* 81 FR at 16386-87.

The 2008 Silica NEP was cancelled in 2017 (OSHA Notice [CPL 03-00-007](#), *Cancellation of CPL 03-00-007, National Emphasis Program - Crystalline Silica*, October 26, 2017). The Agency explained that because it had issued new silica standards, the previous NEP was no longer applicable. OSHA further stated it would determine at a later date if a revised NEP for RCS, under the new standards, was warranted. The 2018-2022 DOL Strategic Plan does not specifically address silica, but it does state that OSHA continues to target high-risk industries for inspection and enforcement activity, and it assigns safety and health priorities through regional and national emphasis programs.

- D. An April 2019 analysis conducted by OSHA reviewed all of the chemical air samples collected by the Agency between 2008 and 2017 (including 13,324 air samples for silica) and found that 14.1 percent of personal air samples for silica exceeded the applicable PEL, whereas only 2.5 percent of all chemical samples overall exceeded the relevant PEL. Furthermore, over the first year after OSHA began enforcing the new PEL for silica (October 27, 2017, through September 30, 2018), the Agency's air sampling data shows that 133 of 754, or 17.6 percent, of silica samples exceeded the new PEL, whereas only 578 of 19,604, or 2.9 percent, of all chemical samples exceeded the relevant PEL. Data reported on by the Centers for Disease Control and Prevention also demonstrate that hazardous silica exposures are continuing to occur in industry, e.g., during hydraulic fracturing of gas and oil wells and among workers who fabricate and install engineered stone countertops ([CDC 2015](#)).

Because occupational exposures to silica continue to pose a significant risk to a large population of workers, and because OSHA's sampling data continue to show a high rate of noncompliance (i.e., employee overexposures), OSHA has

determined that this NEP is warranted. This NEP will aid OSHA's efforts to address workplace exposures to RCS in accordance with the 2016 standards.

X. National Emphasis Program (NEP) Goal.

The goal of this NEP is to significantly reduce or eliminate worker exposures to RCS and, therefore, control the health hazards associated with such exposures. This goal will be accomplished by a combination of inspection targeting, outreach to employers, and compliance assistance. Inspections will be targeted toward industries and worksites expected to perform tasks associated with RCS overexposures.

In each Region, at least 2 percent of inspections every year shall target RCS. Silica-related inspections should be conducted at a range of facilities that reasonably represent the distribution of general industry, maritime, and construction worksites in that region. OSHA anticipates that the majority of the inspections will occur in construction because most exposures to RCS occur on construction worksites.

To ensure abatement and measure the effectiveness of this NEP, follow-up site visits may be necessary, as outlined in [Section XI.F](#), below.

XI. Program Procedures.

A. General.

Area Offices or Regional Offices are not required to develop a Local Emphasis Program (LEP) or Regional Emphasis Program (REP) for RCS; but if they do, they shall follow the procedures within this NEP and shall focus their LEP/REP on the industries identified in Appendix A that are operating within their jurisdiction. They may also modify any existing LEPs/REPs that already cover one or more of the targeted industries so as to address potential RCS overexposures. See [CPL 04-00-002](#), *Procedures for the Approval of Local Emphasis Programs (LEPs)*.

Appendices A and B of this Instruction provide lists of affected industries by their North American Industry Classification System (2017 NAICS) codes. The lists in Appendix A include industries where workers are currently at risk of RCS exposure above 100 $\mu\text{g}/\text{m}^3$ as an 8-hour TWA. See Appendices A and B for more detailed information about the sources OSHA used to identify affected industries.

Establishments with fewer than 10 workers shall be included in this NEP. See [CPL 02-00-051](#), *Enforcement Exemptions and Limitations under the Appropriations Act*.

B. Site Selection.

1. Master List Generation.

For programmed inspections, Appendix A provides lists of NAICS codes in general industry, maritime, and construction that have the largest numbers of workers expected to perform tasks associated with RCS overexposures.

Table 1 in [Appendix A](#) includes the NAICS codes for general industry and maritime that Area Offices are to use in the Establishment Targeting List-Generation System (ListGen) for generating a master list of establishments. Refer to the OSHA Memorandum, [Establishment-Targeting Lists for Emphasis Programs](#), November 12, 2014.

Table 2 in Appendix A lists affected construction industry codes. Area Offices shall develop establishment lists for these industries by using the OSHA Construction Inspection Targeting Application (C-target), compliance safety and health officers' (CSHOs) observations of area construction sites (i.e., knowledge gathered by CSHO "drive-bys"), and local knowledge (e.g., lists of highway, road, and bridge projects from the local department of transportation). Refer to [CPL 02-00-155](#), *Inspection Scheduling for Construction*. Also, accompanying Table 2 in Appendix A is a list of construction operations likely to have RCS exposures, provided as an aid for compliance officers.

[Appendix B](#) contains a supplemental table of NAICS codes from general industry where there are smaller numbers of workers expected to perform tasks associated with RCS overexposures. Appendix B should be used by Area Offices in their master list generation only if their jurisdiction generates an insufficient number of establishments from Appendix A, or where local knowledge and data supports adding the industry to a targeting list.

See Appendices A and B for additional information about how the various lists of NAICS codes are organized.

2. Additions.

Area Offices may add establishments to the generated master list based on information from appropriate sources (e.g., local knowledge of establishments, commercial directories, referrals from the local health department, or previous OSHA inspection history).

3. Deletions.

Area Offices shall delete from their target list for a current inspection cycle any facilities that they know are not likely to have RCS hazards or are no longer conducting business. Area Offices also shall delete any establishment that has had a comprehensive or focused health inspection that addressed RCS hazards within the three (3) previous fiscal years (after this NEP has been in effect for three years) and resulted in one of the following outcomes:

- a. No serious citations were issued for violations of the applicable silica standard.
- b. Serious citation(s) were issued for violations of the applicable silica standard but either:

- A follow-up inspection documented appropriate and effective efforts by the employer to abate the serious silica hazards cited (e.g., air sampling conducted, engineering controls installed); or,
- OSHA received abatement verification from the employer for all cited serious silica violations.

Area Offices shall maintain documentation supporting any deletions made under this paragraph (*see* [Section XI.B.5](#)).

4. Cycle Generation.

Each establishment on the Area Office’s master list will be assigned a sequential number. Acceptable methods for generating and randomizing the inspection targeting list can be found in the memorandum dated November 12, 2014, [Establishment-Targeting Lists for Emphasis Programs](#). Subsequent cycles will be created in the same manner until such time that this NEP is cancelled or until all establishments on the list have been assigned to a cycle. Cycles may be created all at once or as necessary, and need not be of the same size.

NOTE: Any establishment additions shall be added to the bottom of the master list in alphabetical order, assigned a sequential number, and randomized using established procedures.

5. Maintaining Inspection List/Cycles and Documentation.

The Area Director is responsible for maintaining documentation necessary to demonstrate that the Area Office has used the NEP inspection list and cycles in accordance with this Instruction, including documenting all deletions, deferrals, or other modifications. The Area Office shall maintain all such inspection lists, cycles, and documentation for a period of three years after all inspections conducted under this NEP plan are closed. *See* [CPL 02-00-025, Scheduling System for Programmed Inspections](#); [CPL 02-00-155, Inspection Scheduling for Construction](#); and [ADM 03-01-005, OSHA Compliance Records](#).

C. Inspection Scheduling.

Within a specified cycle, inspections may be scheduled in any order that promotes efficient use of resources. An inspection cycle shall be completed before another cycle is started, except that establishments may be carried over in accordance with established procedures.

Some establishments selected for inspection under this NEP may also be selected under other NEPs and/or LEPs. Some of the other NEPs that may apply to worksites targeted by this NEP include the NEPs for Amputations, Combustible Dust, Primary Metal Industries, and Lead. Whenever possible, inspections under this NEP should be carried out concurrently with other programmed inspections.

1. Complaints and Referrals.

Complaint(s) or referral(s) for any general industry, maritime, or construction operation alleging potential exposures to RCS, whether or not they fall within a targeted industry of this NEP, shall be handled in accordance with the general procedures in [FOM](#) Chapter 9, *Complaint and Referral Processing*, and in accordance with the specific procedures listed below:

- a. Complaints and referrals alleging potential worker exposures to RCS or involving workers with symptoms of exposure to RCS (e.g., dry chronic cough, sputum production, shortness of breath, and reduced pulmonary function) shall be treated as having priority and a health inspection shall be conducted.
- b. Document the status and condition of the work operation as far as they are known, noting any potentially serious hazard(s). Where possible, this should include process information (such as the type of process or conditions of exposure) that is indicative of the likelihood of exposure to RCS. Documentation of the events leading up to the observation shall be maintained in the file.
- c. Note the location of the workplace and the name and address of the employer(s) performing the operation.
- d. Whistleblower Protections. Workers requesting inspections, complaining of silica exposure, or reporting injuries or illnesses may be covered under one or more whistleblower statutes. Inform them of their protections from retaliation and refer them to <https://www.whistleblowers.gov/> for more information.

2. Cooperative Programs.

Employers participating in cooperative programs may be exempt from programmed inspections. After inspection lists are generated, the Area Office should contact the Cooperative and State Programs Unit in their Regional Office to determine if any company on the list should be exempted. The CSHO should follow the procedures outlined in [FOM](#) Chapter 2, Program Planning, for further guidance if an on-site consultation visit is in progress, or if the establishment is a participant in OSHA's Voluntary Protection Programs (VPP) or the Safety and Health Achievement Recognition Program (SHARP) or Pre-SHARP. Even if an employer is exempt from a programmed inspection, the Area Office should notify the employer in writing that they are required to comply with the RCS standard. In such cases, the Regional Consultation Project Officer shall follow-up with the responsible Consultation Program Manager.

3. Strategic Partnerships.

Inspections initiated at establishments currently engaged in strategic partnerships with OSHA shall be conducted in accordance with the terms

outlined in the partnership agreement. See [CSP 03-02-003](#), *OSHA Strategic Partnership Program for Worker Safety and Health*.

Establishments engaged in construction industry partnerships may qualify for a focused (or limited scope) inspection. Establishments engaged in a national partnership at non-construction worksites may also qualify for a focused (or limited scope) inspection with the approval of OSHA's Assistant Secretary (see [CSP 03-02-003](#), Section XIV.C, *Programmed Inspection with a Limited Scope. Non-Construction*, and Section XIV.D, *Programmed Inspection with a Limited Scope. Construction*).

4. Site-Specific Targeting (SST).

If an establishment selected for inspection under this NEP is also selected under the current SST plan, then, whenever possible, NEP and SST plan inspections should be conducted concurrently. Refer to OSHA Notice [18-01 \(CPL 02\)](#), *Site-Specific Targeting 2016 (SST-16)* (or subsequent version).

5. Interim Period.

The new silica standards provided delayed compliance dates to allow employers to become familiar with the standards, to plan their course of action for compliance, and to implement, design, and install applicable engineering controls and work practices. As of the effective date of this NEP:

- a. Construction employers shall comply with all requirements of the standard;
- b. General industry and maritime employers:
 - Shall comply with all requirements of the standard, except as outlined below.
 - The requirement to make medical surveillance available to each employee who is exposed at or above the action level for 30 or more days per year does not begin until June 23, 2020 (until then, medical surveillance shall be made available to employees exposed above the PEL for 30 or more days per year).
 - For hydraulic fracturing operations in the oil and gas industry, the obligations for engineering controls in paragraph (f)(1) of the general industry standard commence on June 23, 2021.

D. Inspection Procedures.

Inspections shall not be initiated under this NEP until the required outreach is conducted, per [Section XI.H](#). However, during the outreach period, OSHA shall continue to respond to complaints, referrals, hospitalizations, and fatalities related to silica, and shall code such activities in accordance with [Section XI.G](#). All inspections shall be conducted in accordance with the general provisions of the [FOM](#) and the {specific inspection procedures in the Silica Compliance Directive,

[CPL 02-02-080](#), Section IX, *Inspection Procedures* ~~current inspection guidance for the silica standards~~. Other general procedures related to preparing for inspections include:

1. Once an inspection has been scheduled for an identified establishment, and prior to opening the inspection, the employer's citation and fatality/accident history will be searched at the OSHA [Establishment Search Page](#). Inspections under this NEP are to be conducted by a CSHO who has received appropriate training. This training shall be accomplished at the local level and cover the hazards of RCS, the contents of this Instruction, and {requirements outlined in the [Silica Compliance Directive](#) ~~current enforcement guidance~~}, including other appropriate silica-related training (e.g., OTI training). [FOM](#) Chapter 3, *Inspection Procedures*, provides details on inspection planning for CSHOs.
2. The CSHO shall also determine whether the identified establishment is scheduled for any other programmed inspection (e.g., NEP, LEP).
3. At the opening conference, the CSHO will verify the correct NAICS code for the establishment with the employer. The CSHO shall also verify with the employer whether processes that may produce worker exposures to RCS are conducted at the facility or worksite. If it is determined that no such processes are present, then the CSHO shall exit the premises without conducting an inspection. However, if the establishment is targeted under another NEP or LEP, then the CSHO shall proceed with an inspection under the other program.

If any processes are present that may result in worker exposures to RCS, then the CSHO shall proceed with the inspection following the procedures in this NEP and {the [Silica Compliance Directive](#) ~~current enforcement guidance for the silica standards~~}.

4. Inspections conducted under this NEP for RCS might include personal exposure monitoring. CSHOs should conduct air sampling, in accordance with the OSHA Technical Manual (OTM), Section II, [Chapter 1](#), and OSHA sampling method [ID-142](#). Conduct sampling, as necessary, even if it is for less than an 8-hour period, per {~~current~~ inspection guidelines in the Silica Compliance Directive, [CPL 02-02-080](#), Section IX.D, *Exposure Assessment*}. CSHOs assigned to inspections under this NEP shall take with them appropriate calibrated instruments, pre-weighed filters, and other equipment in case such monitoring is necessary. CSHOs should refer to {"Appendix B: Instructions for Air Samples" in the [Silica Compliance Directive](#) ~~current inspection guidance for the silica standards~~}, if exposure monitoring is conducted.
5. All potential hazards observed in the course of any inspection conducted under this NEP shall be appropriately addressed. Other health hazards that may be observed include: exposure to elevated noise levels from cutting,

drilling, or blasting operations; heat stress; and exposure to beryllium dust during abrasive blasting.

If the compliance officer observes serious safety violations that cannot be immediately mitigated by the employer, then an appropriate referral may be made, subject to any current exemptions or limitations on such activity. Several targeted industries for the RCS NEP listed in Appendices A and B were on the annual appropriations exemption list issued January 2020 for [Appendix A](#) of CPL 02-00-051, such as, NAICS 213112 - Support Activities for Oil and Gas Operations, NAICS 2211 - Electric Power Generation, Transmission and Distribution, NAICS 2362 - Nonresidential Building Construction, NAICS 2379 - Other Heavy and Civil Engineering Construction, and many others. See [CPL 02-00-051](#), *Enforcement Exemptions and Limitations under the Appropriations Act*, Section XI.B.4.b, which provides: “Apparent safety violations noted during a health inspection of an establishment [with 10 or fewer employees] exempted from programmed safety inspections shall not be cited or referred for later inspection unless such violations create an imminent danger.”

6. The CSHO will inform workers of their right to file a whistleblower complaint if they experience retaliation for providing assistance to OSHA during an inspection, filing a safety and health complaint with OSHA, reporting a work-related injury or illness, or complaining about silica exposure or other workplace hazards to management.

E. CSHO Protection.

1. CSHOs shall protect themselves against all hazards during an inspection. See [FOM](#) Chapter 3, Section II.C, *Safety and Health Issues Relating to CSHOs*. See also [ADM 04-00-002](#), *OSHA Safety and Health Management System*.
2. CSHOs shall wear appropriate respiratory protection inside an RCS-regulated area or other area where exposures are likely to exceed the PEL, such as may be the case during a task listed on Table 1 of the construction standard where required controls have not been fully and properly implemented.
3. Respirators shall be selected in accordance with the respirator selection procedures in [CPL 02-02-054](#), *Respiratory Protection Program Guidelines*.

F. Follow-up Inspections.

If an employer covered by the general industry/maritime standard has not reduced RCS exposures to or below the PEL, or if an employer covered by the construction standard has not either fully and properly implemented required engineering controls, work practices, and respiratory protection for a task listed on Table 1 of that standard or reduced RCS exposures to or below the PEL, within

the time period specified on the citation, then a follow-up inspection shall be conducted in accordance with [FOM](#), Chapter 3, Section IX.A, *Follow-up and Monitoring Inspections*, based on available resources. Follow-up inspections should also be conducted if there are any unabated violations of other provisions of the standard. {Also, refer to the Silica Compliance Directive, [CPL 02-02-080](#).}

For situations where follow-ups cannot be performed (e.g., some construction sites, fracking operations, or temporary abrasive blasting operations), the Area Office should, when possible, require the employer to provide written updates documenting the progress of abatement efforts, per 29 CFR § 1903.19. Note that the Area Office does not need to send abatement verification to the Directorate of Enforcement Programs (DEP) in the National Office, but the documentation needs to be available to DEP on request.

A follow-up inspection is not required when the Area Office has specific knowledge and documentation indicating that there are no workers exposed to RCS.

G. OSHA Information System (OIS) Coding Instructions.

All enforcement activities (inspections, complaints, and referrals) and compliance assistance interventions conducted under this NEP shall be coded as “RCS-NEP” under the National Emphasis Program field in the OIS. Area Offices with their own LEP/REP shall also use the NEP code “RCS-NEP” in addition to their regional code.

On the OIS Inspection Type tab/page, for all programmed inspections under this NEP, code “RCS-NEP” as the Primary Emphasis Program that initiated the inspection. Additionally, the majority of inspections conducted under this NEP are to be coded under Inspection Category as a “Health” inspection.

Whenever a consultation request/visit is made related to this NEP, the NEP code “RCS-NEP” shall be recorded in the appropriate field on the Consultation request/visit forms.

NOTE: As of the effective date of this Instruction, silica inspections shall no longer be coded under the OIS field by using the Additional Code “N-02 SILICA.”

H. Outreach.

1. Offices.

At least three months prior to initiating inspections from the generated NEP list, each Area Office shall conduct outreach programs concerning this RCS NEP, in accordance with OSHA Memorandum on [Procedures for Local and Regional Emphasis Programs](#), December 3, 2014.

2. Suggested Outreach.

Products and activities may include the following:

- a. Letters and news releases announcing implementation of the updated Silica NEP. Include information about no-cost On-Site Consultation services available to small businesses.
 - b. Seminars on silica-related topics, tailored for specific audiences, such as employers, employee groups, local trade unions, apprentice programs (e.g., masons, bricklayers, railroad employees), and equipment manufacturers. Local occupational medical staff can be invited to participate.
 - c. Working with existing partnerships and alliances, including disseminating information on the NEP and silica standard, and sharing successes and technical information on effective means to control and reduce or eliminate worker exposure to crystalline silica.
 - d. Forming new working relationships, including partnerships and alliances, and more informal working relationships with organizations that can help disseminate information to small businesses and other employers.
 - e. Working with On-Site Consultation programs, local Small Business Development Centers (SBDC), and other organizations to reach small businesses.
 - f. For more outreach ideas, see the *Menu of Possible Silica Outreach Activities for the Silica Standards* in the Silica Outreach Toolbox on the Compliance Assistance webpage on the OSHA intranet.
3. Targeted Audiences for Outreach.
- a. Local employers engaged in silica-related work, especially small employers (e.g., chimney repairers, stone countertop suppliers and installers). *See also* targeted industries in [Appendix A](#).
 - b. Local employer associations (e.g., a local chamber of commerce).
 - c. Insurance companies.
 - d. Equipment manufacturers.
 - e. A regional Service, Transmission, Exploration & Production Safety (STEPS) network (*see also* <https://www.nationalstepsnetwork.com/regional-chapters>).
 - f. Local trade unions and apprenticeship programs (e.g., masons, bricklayers, railroad workers) and other worker groups.
 - g. Independent contractors and the self-employed.
 - h. Local hospitals, occupational health clinics, and other health organizations (e.g., state lung associations).
 - i. Local professional associations (e.g., local safety councils).

- j. Temporary employment agencies providing employees to targeted employers (e.g., construction day laborers).
- k. Local building permitting authorities.
- l. Local newspapers, TV stations, trade magazines (these can help inform the public and hard-to-reach employers).
- m. Local government (e.g., health departments and departments of transportation).
- n. Local suppliers of materials or services, tool rental companies.

4. Online Materials.

OSHA resources may be of assistance in this outreach effort. A variety of online resources can be accessed through OSHA's public webpage, including the OSHA Crystalline Silica Safety and Health Topics Page (<https://www.osha.gov/dsg/topics/silicacrystalline/>). Internal resources for silica are also available on the Compliance Assistance webpage on the OSHA intranet.

I. Coordination.

1. National Office.

This NEP will be coordinated by the Directorate of Enforcement Programs (DEP), Office of Health Enforcement (OHE). All questions and comments regarding this NEP should be directed to OHE. For inspection support, Area and Regional Offices may also coordinate, as needed, with the Directorate of Technical Support and Emergency Management (DTSEM), the Office of Occupational Medicine and Nursing (OOMN), the Health Response Team (HRT), and other offices. For questions about outreach support and resources, contact the Office of Outreach Services and Alliances (OOSA) in the Directorate of Cooperative and State Programs (DCSP).

2. Regional Office.

Each Regional Administrator is required to identify a coordinator for this NEP who will work with the Office of Health Enforcement.

J. Program Review.

To assess the effectiveness of this NEP, OHE will review the NEP on a periodic basis, as should each Regional Office. Regions that implement related LEPs and REPs should forward any periodic reports to OHE. The program review reports shall, at a minimum, address the NEP goal (*see Section X*) in accordance with established Agency procedures. Data on effectiveness may include:

- 1. The number of employees covered.
- 2. The number of workers removed from hazards.
- 3. Reductions in worker exposures.

4. Abatement measures implemented.
5. Number of violations related to specific targeted hazards.
6. Any indices that relate directly to measures that may be included in the DOL Strategic Plan and/or the OSHA Operating Plan.
7. Total number of prosecutable violations of the silica standards (including final citations resulting from the settlement or litigation of contested cases).

APPENDIX A: Target Industries for the RCS NEP

Table 1 in this Appendix comprises the general industry/maritime NAICS codes from Table VII-5 in OSHA's RCS final rule that have the highest numbers of workers with exposures above 100 $\mu\text{g}/\text{m}^3$ as a TWA (*see* 81 FR at 16427-32).¹ These codes represent approximately the top third (33 out of 105) of all affected general industry/maritime industries in Table VII-5. Those 33 general and maritime industries listed in Table 1 employ over 98 percent of the at-risk workers reflected in Table VII-5. Field offices will prepare their master lists of establishments from Table 1 using the Establishment Targeting List-Generation System (ListGen).

Table 2 in this Appendix contains a list of all affected construction NAICS codes, also from Table VII-5 in the RCS final rule (*see* 81 FR at 16427). Accompanying Table 2 is a list of construction operations likely to have RCS exposures, provided as an aid for compliance officers. Field offices will develop establishment lists from the industries listed on Table 2 using OSHA's Construction Inspection Targeting Application (C-Target) database, local knowledge, and CSHO drive-bys.

Note that employee overexposures to RCS may occur in industries not listed in this appendix. Similarly, it should not be assumed that employee overexposure to RCS occurs in all establishments within the industries listed in the tables below.

¹ Table VII-5: Numbers of Workers Exposed to Silica (by Affected Industry and Exposure Level ($\mu\text{g}/\text{m}^3$)), contains NAICS codes for each affected industry in construction and general industry/maritime (*see* 81 FR at 16427-32). It presents the estimated number of workers in these industries that are currently at risk from RCS exposure above 25 $\mu\text{g}/\text{m}^3$, 50 $\mu\text{g}/\text{m}^3$, 100 $\mu\text{g}/\text{m}^3$, and 250 $\mu\text{g}/\text{m}^3$, as 8-hour TWAs. Table VII-5 used 2012 NAICS codes (*see* 81 FR at 16427-32). These industries have identical codes in the 2017 NAICS, so this Appendix A uses the 2017 NAICS codes.

Table 1. Targeted Industries in General Industry/Maritime by 2017 NAICS

NAICS Code	Industry
213112	Support Activities for Oil and Gas Operations ¹
221100	Electric Power Generation, Transmission and Distribution ¹ <i>221111 Hydroelectric Power Generation</i> <i>221112 Fossil Fuel Electric Power Generation</i> <i>221113 Nuclear Electric Power Generation</i> <i>221114 Solar Electric Power Generation</i> <i>221115 Wind Electric Power Generation</i> <i>221116 Geothermal Electric Power Generation</i> <i>221117 Biomass Electric Power Generation</i> <i>221118 Other Electric Power Generation</i> <i>221121 Electric Bulk Power Transmission and Control</i> <i>221122 Electric Power Distribution</i>
324122	Asphalt Shingle and Coating Materials Manufacturing
325510	Paint and Coating Manufacturing
327110	Pottery, Ceramics, and Plumbing Fixture Manufacturing
327120	Clay Building Material and Refractories Manufacturing
327212	Other Pressed and Blown Glass and Glassware Manufacturing
327213	Glass Container Manufacturing
327320	Ready-Mix Concrete Manufacturing
327331	Concrete Block and Brick Manufacturing
327332	Concrete Pipe Manufacturing
327390	Other Concrete Product Manufacturing
327991	Cut Stone and Stone Product Manufacturing
327992	Ground or Treated Mineral and Earth Manufacturing
327993	Mineral Wool Manufacturing
327999	All Other Miscellaneous Nonmetallic Mineral Product Manufacturing
331511	Iron Foundries
331512	Steel Investment Foundries
331513	Steel Foundries (except Investment)
331524	Aluminum Foundries (except Die-Casting)
331529	Other Nonferrous Metal Foundries (except Die-Casting)
332710	Machine Shops
332812	Metal Coating, Engraving (except Jewelry and Silverware), and Allied Services to Manufacturers
336611	Ship Building and Repairing ¹
336612	Boat Building ¹
339114	Dental Equipment and Supplies Manufacturing
339910	Jewelry and Silverware Manufacturing
339950	Sign Manufacturing
423840	Industrial Supplies Merchant Wholesalers

NAICS Code	Industry
482110	Rail transportation <i>482111 Line-Haul Railroads</i> <i>482112 Short Line Railroads</i>
561730	Landscaping Services ¹
999200	State governments ^{1,2}
999300	Local governments ^{1,2}

¹ Industry may perform construction-like activities in-house and/or at off-site locations.

² For State Plan targeting only; not for federal targeting.

Table 2. Targeted Industries in Construction by 2017 NAICS

NAICS Code	Industry
236100	Residential Building Construction <i>236115 New Single-Family Housing Construction (except For-Sale Builders)</i> <i>236116 New Multifamily Housing Construction (except For-Sale Builders)</i> <i>236117 New Housing For-Sale Builders</i> <i>236118 Residential Remodelers</i>
236200	Nonresidential Building Construction <i>236210 Industrial Building Construction</i> <i>236220 Commercial and Institutional Building Construction</i>
237100	Utility System Construction <i>237110 Water and Sewer Line and Related Structures Construction</i> <i>237120 Oil and Gas Pipeline and Related Structures Construction</i> <i>237130 Power and Communication Line and Related Structures Construction</i>
237200	Land Subdivision <i>237210 Land Subdivision</i>
237300	Highway, Street, and Bridge Construction <i>237310 Highway, Street, and Bridge Construction</i>
237900	Other Heavy and Civil Engineering Construction <i>237990 Other Heavy and Civil Engineering Construction</i>
238100	Foundation, Structure, and Building Exterior Contractors <i>238110 Poured Concrete Foundation and Structure Contractors</i> <i>238120 Structural Steel and Precast Concrete Contractors</i> <i>238130 Framing Contractors</i> <i>238140 Masonry Contractors</i> <i>238150 Glass and Glazing Contractors</i> <i>238160 Roofing Contractors</i> <i>238170 Siding Contractors</i> <i>238190 Other Foundation, Structure, and Building Exterior Contractors</i>
238200	Building Equipment Contractors <i>238210 Electrical Contractors and Other Wiring Installation Contractors</i> <i>238220 Plumbing, Heating, and Air-Conditioning Contractors</i> <i>238290 Other Building Equipment Contractors</i>
238300	Building Finishing Contractors <i>238310 Drywall and Insulation Contractors</i> <i>238320 Painting and Wall Covering Contractors</i> <i>238330 Flooring Contractors</i> <i>238340 Tile and Terrazzo Contractors</i> <i>238350 Finish Carpentry Contractors</i> <i>238390 Other Building Finishing Contractors</i>
238900	Other Specialty Trade Contractors <i>238910 Site Preparation Contractors</i> <i>238990 All Other Specialty Trade Contractors</i>

Construction Activities that May Involve RCS Exposure

The following list is provided to help Area Offices with targeting of construction work sites by listing operations likely to have exposures to RCS, as described in the preamble, pages 16406 and 16459:

- Abrasive blasting
- Drywall finishing
- Earth drilling
- Heavy equipment operations (excavating, grading, abrading, or fracturing silica-containing materials, or demolishing concrete or masonry structures)
- Concrete and masonry hole drilling using handheld or stand-mounted drills
- Jackhammering and powered, handheld, chipping of concrete and masonry
- Masonry, concrete, or fiber-cement board cutting using portable saws, walk-behind saws, drivable or ride-on saws, rig-mounts core saws and drills, or stationary saws
- Milling of asphalt using portable or mobile machines, such as walk-behind milling machines, floor grinders, or drivable milling machines
- Rock and concrete drilling using vehicle-mounted drilling rigs and dowel drilling rigs
- Mobile concrete crushing machines
- Tuckpointing and grinding using handheld grinders for mortar removal and other than mortar removal

(Reference: 81 FR at 16406, 16459)

See also the specific equipment and tasks in the left-hand column of 29 CFR § 1926.1153(c)(1), Table 1, and the OSHA *Small Entity Compliance Guide for the Respirable Crystalline Silica Standard for Construction*, available at <https://www.osha.gov/Publications/OSHA3902.pdf>. For videos of several of these tasks, see the following:

- Stationary Masonry Saws, <https://www.youtube.com/watch?v=Eu0s4-ZLw9I&feature=youtu.be>
- Handheld Power Saws, <https://www.youtube.com/watch?v=pfYI31pF4Ng&feature=youtu.be>
- Handheld and Stand-Mounted Drills, https://www.youtube.com/watch?v=Yzo-sZ_Psic&feature=youtu.be
- Jackhammers or Handheld Powered Chipping Tools, <https://www.youtube.com/watch?v=e2uRD2dJ8vs&feature=youtu.be>
- Handheld Grinders for Mortar Removal (Tuckpointing), <https://www.youtube.com/watch?v=D8Khz9vTdAk&feature=youtu.be>
- Handheld Grinders for Uses Other than Mortar Removal, <https://www.youtube.com/watch?v=X520VC-M3BI&feature=youtu.be>

APPENDIX B: Supplemental Industries for the RCS NEP

Industries in Table 1 below are not to be used for RCS NEP targeting, unless an insufficient number of establishments or inspections are generated using the industries listed in Appendix A, or where local knowledge or data is available to support adding the industry to a particular Area Office's targeting list.

Table 1 in this Appendix contains the 72 general industry/maritime NAICS codes for affected industries from Table VII-5 of the Final Rule that are not included in Appendix A, Table 1 (*see* 81 FR at 16427-32). These industries employ less than two percent of all workers exposed to silica.

Table 1 in this Appendix also lists 15 additional industries identified from OSHA inspection history (between October 2014 and April 2017) that had silica overexposures, but are not among the industries included in Table VII-5.

Table 1. Supplemental Industries in General Industry by 2017 NAICS

NAICS Code	Industry
213111	Drilling Oil and Gas Wells ¹
324121	Asphalt Paving Mixture and Block Manufacturing ^{1,2}
325194	Cyclic Crude, Intermediate, and Gum and Wood Chemical Manufacturing ¹
326291	Rubber Product for Manufacturing Mechanical Use ¹
327211	Flat Glass Manufacturing ²
327420	Gypsum Product Manufacturing ¹
331110	Iron and Steel Mills and Ferroalloy Manufacturing ²
331210	Iron and Steel Pipe and Tube Manufacturing from Purchased Steel ²
331221	Rolled Steel Shape Manufacturing ²
331222	Steel Wire Drawing ²
331314	Secondary Smelting and Alloying of Aluminum ²
331420	Copper Rolling, Drawing, Extruding, and Alloying ²
331492	Secondary Smelting, Refining, and Alloying of Nonferrous Metal (except Copper and Aluminum) ²
331523	Nonferrous Metal Die-Casting Foundries ¹
332111	Iron and Steel Forging ²
332112	Nonferrous Forging ²
332117	Powder Metallurgy Part Manufacturing ²
332119	Metal Crown, Closure, and Other Metal Stamping (except Automotive) ²
332215	Metal Kitchen Cookware, Utensil, Cutlery, and Flatware (except Precious) Manufacturing ²
332216	Saw Blade and Hand tool Manufacturing ²
332323	Ornamental and Architectural Metal Work Manufacturing ²
332439	Other Metal Container Manufacturing ²
332312	Fabricated Structural Metal Manufacturing ¹
332510	Hardware Manufacturing ²

NAICS Code	Industry
332613	Spring Manufacturing ²
332618	Other Fabricated Wire Product Manufacturing ²
332813	Electroplating, Plating, Polishing, Anodizing, and Coloring ¹
332911	Industrial Valve Manufacturing ²
332912	Fluid Power Valve and Hose Fitting Manufacturing ²
332913	Plumbing Fixture Fitting and Trim Manufacturing ²
332919	Other Metal Valve and Pipe Fitting Manufacturing ²
332991	Ball and Roller Bearing Manufacturing ²
332996	Fabricated Pipe and Pipe Fitting Manufacturing ²
332999	All Other Miscellaneous Fabricated Metal Product Manufacturing ^{1,2}
333318	Other Commercial and Service Industry Machinery Manufacturing ²
333413	Industrial and Commercial Fan and Blower and Air Purification Equipment Manufacturing ²
333414	Heating Equipment (except Warm Air Furnaces) Manufacturing ²
333511	Industrial Mold Manufacturing ²
333514	Special Die and Tool, Die Set, Jig, and Fixture Manufacturing ²
333515	Cutting Tool and Machine Tool Accessory Manufacturing ²
333517	Machine Tool Manufacturing ²
333519	Rolling Mill and Other Metalworking Machinery Manufacturing ²
333612	Speed Changer, Industrial High-Speed Drive, and Gear Manufacturing ²
333613	Mechanical Power Transmission Equipment Manufacturing ²
333911	Pump and Pumping Equipment Manufacturing ²
333912	Air and Gas Compressor Manufacturing ²
333991	Power-Driven Hand Tool Manufacturing ²
333992	Welding and Soldering Equipment Manufacturing ²
333993	Packaging Machinery Manufacturing ²
333994	Industrial Process Furnace and Oven Manufacturing ^{1,2}
333995	Fluid Power Cylinder and Actuator Manufacturing ²
333996	Fluid Power Pump and Motor Manufacturing ²
333997	Scale and Balance Manufacturing ²
333999	All Other Miscellaneous General Purpose Machinery Manufacturing ^{1,2}
334519	Other Measuring and Controlling Device Manufacturing ²
335210	Small Electrical Appliance Manufacturing ²
335221	Household Cooking Appliance Manufacturing ²
335222	Household Refrigerator and Home Freezer Manufacturing ²
335224	Household Laundry Equipment Manufacturing ²
335228	Other Major Household Appliance Manufacturing ²
336111	Automobile Manufacturing ²
336112	Light Truck and Utility Vehicle Manufacturing ²
336120	Heavy Duty Truck Manufacturing ²
336211	Motor Vehicle Body Manufacturing ²

NAICS Code	Industry
336212	Truck Trailer Manufacturing ^{1,2}
336213	Motor Home Manufacturing ²
336310	Motor Vehicle Gasoline Engine and Engine Parts Manufacturing ²
336320	Motor Vehicle Electrical and Electronic Equipment Manufacturing ²
336330	Motor Vehicle Steering and Suspension Components (except Spring) Manufacturing ²
336340	Motor Vehicle Brake System Manufacturing ^{1,2}
336350	Motor Vehicle Transmission and Power Train Parts Manufacturing ²
336370	Motor Vehicle Metal Stamping ²
336390	Other Motor Vehicle Parts Manufacturing ²
336992	Military Armored Vehicle, Tank, and Tank Component Manufacturing ²
337110	Wood Kitchen Cabinet and Countertop Manufacturing ^{1,2}
337127	Institutional Furniture Manufacturing ¹
337215	Showcase, Partition, Shelving, and Locker Manufacturing ²
339116	Dental Laboratories ^{1,2}
423320	Brick, Stone, and Related Construction Material Merchant Wholesalers ¹
424950	Paint, Varnish, and Supplies Merchant Wholesalers ¹
444110	Home Centers ^{1,2}
541310	Architectural Services ¹
541410	Interior Design Services ¹
561320	Temporary Help Services ¹
621210	Offices of Dentists ²
811121	Automotive Body, Paint, and Interior Repair and Maintenance ¹
811310	Commercial and Industrial Machinery and Equipment (except Automotive and Electronic) Repair and Maintenance ¹

¹ In OSHA inspection history (overexposures to silica at former PELs).

² Industry from Table VII-5 of the Final Rule that is not included in Appendix A, Table 1.