Testimony/Comments of the AFL-CIO on the Occupational Safety and Health Administration's Proposed Rule on Occupational Exposure to Respirable Crystalline Silica, (78 Fed. Reg. 56274, September 12, 2013), Docket No. OSHA-2010-0034

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The AFL-CIO, a federation of 56 national unions, representing 12.5 million working people in this country, welcomes the opportunity to present its views on OSHA's proposed rule on Occupational Exposure to Respirable Crystalline Silica.

The AFL-CIO strongly supports OSHA's proposed respirable silica standard. This proposed rule is long overdue. The proposal will significantly reduce workers' exposures to deadly silica dust and prevent thousands of deaths and diseases a year. The proposal is based on extensive scientific and medical evidence and incorporates well-established proven measures and practices for protecting workers. Several provisions of the proposal could and should be strengthened to provide workers further protection to reduce the risk of disease and death from workplace exposure to silica. The AFL-CIO urges OSHA to move expeditiously to complete this rulemaking and to issue final silica standards for general industry and construction to protect workers from unnecessary disease and death.

Respirable Silica is a Serious Workplace Hazard

Occupational exposure to silica is a well-recognized serious workplace hazard. The lung damaging harms caused by exposure to this hazard have been recognized for centuries.[1] In recent decades it has been confirmed that in addition to silicosis, exposure to this hazard causes other lung diseases – including lung cancer- kidney disease and other toxic effects.

Millions of workers in a wide range of industries and occupations are exposed to the deadly hazard, including workers in construction, foundry operations, shipyards, glass making, and dental laboratories. Recently workers in hydraulic fracturing operations in

[1] Rosner, D and Markowitz, G (1991). *Deadly dust: Silicosis and the politics of occupational disease in twentieth century America.* (pp. 15-48). Princeton, NJ: Princeton University Press.

the oil and gas industries, in which employment is rapidly expanding, were found to be exposed to extraordinarily high levels of silica dust.[2]

The current OSHA standards to limit workplace exposures to respirable silica dust are woefully out of date. The general industry and construction and maritime silica standards were adopted in the early 1970's immediately following the passage of the Occupational Safety and Health Act. They represent the ACGIH standards that were in place at the time for these industries – standards that allow approximately 100 ug/m3 of exposure in general industry and 250 ug/m3 in construction. The construction standard is so out of date that the measurement technology that the standard is based on no longer even exists. These standards set only a permissible limit. There are no requirements for exposure monitoring, medical exams or job specific training on silica hazards and control measures.

Since those standards were adopted, evidence on the adverse health effects of silica exposure has mounted, and it was determined that existing standards were not sufficient to protect workers. In 1974 NIOSH recommended that permissible exposure to respirable silica be reduced to 50 ug/m3 and that additional measures, including exposure monitoring and medical examinations be incorporated into OSHA's silica standards. In 1986, the International Agency for Research on Cancer (IARC) classified silica as a "probable human carcinogen" and upgraded this classification to "known" human carcinogen in 1997. The National Toxicology Program reinforced silica's cancer hazard in 1991, concluding that silica was "reasonably anticipated to be a human carcinogen." In 2000, the NTP updated this determination finding that silica "was known to cause cancer in humans." In 2000, ACGIH listed respirable crystalline silica as a suspected human carcinogen and lowered the TLV to 0.05 mg/m3 (50 ug/m3) and in 2006 further lowered the level to 0.025 mg/m3 (25 ug/m3).

In response to clear and growing evidence that exposure to crystalline silica poses a serious health risk to workers, authorities in other countries and jurisdictions have strengthened standards and reduced permissible exposures to workers. Japan, Italy and the Canadian provinces of Alberta, Nova Scotia and Saskatchewan have all set standards reducing legal permissible limits to 25 ug/m3.

OSHA's Proposed Silica Standard is Long Overdue. Lengthy Delays in the Rulemaking Have Cost Thousands of Workers Their Lives.[3]

Efforts by OSHA to protect workers from the hazards of silica are by no means new. Silica was one of the first hazards addressed by the agency after the passage of the OSHAct. In 1974 OSHA issued an advance notice of proposed rulemaking in response

[2] OSHA-NIOSH Hazard Alert- *Worker Exposure to Silica During Hydraulic Fracturing*, June 2012.
[3] See Attachment 1 for a chronology on OSHA's silica standard and related activities.

to NIOSH's recommendations. In the late 1970's OSHA developed a draft rule to control silica exposures in abrasive blasting. Neither of those rulemaking efforts led to an updated final rule. Similarly, efforts in the late 1980's and early 1990's to update the existing silica permissible exposure limits, as well as exposure limits for other air contaminants, were also unsuccessful. But reducing occupational exposures to silica remained a priority. In the 1990's OSHA undertook a number of major enforcement and educational initiatives to address the hazard.

Seventeen (17) years ago, in 1997, following enhanced silica enforcement and outreach programs, silica was again placed on OSHA's regulatory agenda, and the present rulemaking began. During the next few years, work on developing a proposed rule began in earnest, with outreach to stakeholders, the development of an initial economic and technological feasibility analysis, and extensive consultation with OSHA's Advisory Committee on Construction Safety and Health (ACCSH) and the Maritime Advisory Committee on Construction Safety and Health (MACOSH).

Unfortunately, the proposed silica rule was not completed by the end of the Clinton administration. Work on the rule continued into the Bush administration. In the Fall 2002 Regulatory Plan and Agenda, OSHA's proposed standard on silica was designated as a top regulatory priority by the Department of Labor http://www.reginfo.gov/public/jsp/eAgenda/StaticContent/200210/Statement_1200.html .

In 2003, the small business review process required under the Small Business Regulatory Enforcement Fairness Act (SBREFA) was conducted on the draft proposed silica rule. But after that, due to strong opposition from the business community, progress on the rule stalled. During the remaining five years of its term in office, the Bush administration failed to issue a proposed rule.

Under the Obama administration in 2009, OSHA's proposed silica rule was again designated a regulatory priority and work on the standard resumed, with the peer review of the risk assessment completed and the economic and technological feasibility analysis updated http://www.reginfo.gov/public/jsp/eAgenda/StaticContent/200910/Statement_1200.html.

On February 14, 2011, the draft proposed standard was submitted to the Office of Information and Regulatory Affairs at the Office of Management and Budget for review as required by Executive Order 12866. By the terms of the EO, the review is supposed to be completed within 90 days, with one possible extension of 30 days. In violation of the E.O., and despite repeated urgings by unions, public health officials, medical experts, including the American Thoracic Society, and Democratic members of Congress, for the release of the proposed rule and the commencement of the public rulemaking, OMB refused to release the proposed silica rule. The rule was held for

more than two and one half years, during which time dozens of industry groups met behind closed doors with OMB urging them to block the proposed rule.[4]

Finally on August 23, 2013, OMB released the draft rule and on the same date OSHA announced the proposed rule and made it publicly available on the agency's website. A comparison of the draft submitted to OMB in 2011 and the proposed rule shows that as a result of the review, the provisions on medical surveillance were changed, changing the trigger for exams from exposure above the action level to exposure above the PEL and reducing the frequency of follow-up exams from annually to once every three years, a departure from the medical surveillance requirements of all other OSHA health standards.[5]

The effect of these changes was to eliminate more than 250,000 workers from the medical surveillance program and to reduce the estimated annual cost of the medical surveillance requirements from $421 million under the 2011 draft (Table 1 of 2011 Draft Proposed Rule) to $76.2 million under the rule as proposed (Table S1-1, FR 56277). The changes between the draft submitted by OSHA and the draft released by OMB increased the net benefits of the rule, a criteria championed by then-Administrator of OIRA Cass Sunstein, but incompatible with OSHA's statutory responsibilities under *ATMI v. Donovan.* No explanation or rationale for these changes has been provided by OMB or OSHA either in the documents on the silica standard and its review released by OMB or by OSHA.

On September 12, 2013, the proposed rule was formally issued in the Federal Register, (78 Fed. Reg.56274) and the rulemaking on this serious workplace hazard finally commenced. Ninety days were given for the submission of public comments and the public hearing set to commence at the beginning of March 2014.

Unfortunately, opponents of the silica rule have continued their efforts to delay this vital protection. In response to requests from business groups, in October, 2013, OSHA extended the period for public comments by more than 45 days to January 27, 2014, and pushed back the public hearings by two weeks. This extension made the period for public comment and input on the proposed silica rule longer than that for other significant health standards issued in recent years including the rulemakings on

[4] Office of Information and Regulatory Affairs, Meeting Records – Occupational Safety and Health Administration http://www.whitehouse.gov/omb/oira_1218_meetings/

[5] Draft Proposed Rule, Occupational Exposure to Respirable Crystalline Silica, Docket No. OSHA-2010-0034, RIN 1218-AB70. As provided for in Executive Order 12866, section 6(a)(3(F), the AFL-CIO requested and received from OMB a copy of the original draft OSHA Proposed Rule on Occupational Exposure to Respirable Silica, and accompanying regulatory analysis as submitted by OSHA to OMB on February 14, 2011.

cadmium, hexavalent chromium and Hazard Communication – Global Harmonization (see Attachment 2).

Despite this fact, and the fact that the OSHA rulemaking process provides a greater opportunity for public input than any other in the government, with lengthy public hearings and the opportunity for cross-examination of the agency and other witnesses, business opponents have continued to press for further delays. In the AFL-CIO's view this is clearly an attempt to "run out the clock" and to prevent OSHA from issuing a final rule from being issued before the Obama administration's second term.[6]

Stronger OSHA standards to protect workers from exposure to silica have been delayed for far too long. These delays have allowed workers to be exposed to high levels of silica that have cost workers their lives and their health. Indeed, in its risk assessment OSHA has estimated that the proposed standard will prevent 688 silica deaths and 1,585 cases of silica related disease annually compared to the current rules (Table S1-1, FR 56277). By these estimates, since 1997, when OSHA began this present rulemaking, an estimated 11,600 workers have died and 27,000 workers have become ill due to silica exposures that could have and should have been prevented. It's time for OSHA to move forward without further delay to complete this rulemaking and issue final silica standards that will protect workers from unnecessary disease and death.

Exposure to Silica Poses a Significant Risk of Harm. It is Technologically and Economically Feasible to Control Worker Exposures.

In order to set a new health standard for a toxic substance, OSHA is required to demonstrate that exposures at the current standard pose a significant risk of harm, and that the new standard will reduce that risk. OSHA is required to reduce significant risk to the extent that is technologically and economically feasible to do so. The AFL-CIO will be presenting separate expert testimony on OSHA's risk assessment and the technological and economic feasibility of the proposed silica standards. These comments/testimony will briefly summarize the AFL-CIO's position on these issues.

There is overwhelming evidence that exposure to respirable crystalline silica poses a significant health risk to workers. As OSHA has documented in the preamble to the standard, exposure to silica causes silicosis, other non-malignant lung diseases, lung cancer, kidney disease and other adverse health effects. The risk of death from silica exposures permitted under the current standards are clearly significant, well in excess

[6] On January 24, 2014 the comment period was further extended until February 11, 2014 in response to a request by Rep. Tim Walberg in a letter to OSHA on January 23, 2014 stating that one posting on the website Regulations.gov still showed that the comment period closed on December 11, 2013, which might cause confusion to stakeholders. Other postings on the website, including the October 31, 2014 notice extending the comment period, showed the revised deadline of January 27, 2014.

of the benchmark of 1/1,000 excess risk over a working lifetime that OSHA has used for other health standards.

According to OSHA's risk assessment, exposures at the current standard for general industry will result in 22-29/1,000 excess lung cancer deaths and 83/1,000 excess deaths from silicosis and other non-malignant respiratory diseases. (Table VII-2, 78 FR 56333). The risks in construction, where much greater levels of exposure are currently permitted, are even higher – 27-38/1,000 excess deaths from lung cancer and 188-321/1,000 excess deaths from non-malignant respiratory diseases (78 FR 56333). Even at the proposed permissible exposure limit (PEL) of 50 ug/m3, workers will still face a significant risk of death from silica exposure – 18-26/1,000 excess deaths from lung cancer, 43/1,000 excess deaths from non-malignant respiratory diseases and 32/1,000 excess deaths from kidney disease.

According to OSHA's risk assessment, a further reduction in the permissible exposure limit to 25 ug/m3 would significantly reduce these risks, but still leave residual risk of mortality in excess of the benchmark 1/1,000 excess risk level. (Preliminary Quantitative Risk Assessment Table II-12). OSHA has acknowledged that the residual risk at the proposed 50 ug/m3 PEL is significant, but has proposed a 50 ug/m3 PEL due to feasibility constraints (78 FR 56446).

As OSHA has set forth in the preamble, the levels of risk at the proposed 50 ug/m3 PEL are much greater than the estimates of residual risk posed by exposure permitted by other health standards issued by OSHA. For example, OSHA estimated that under the 1986 asbestos standard of 0.2 fibers/cc, the excess risk if cancer was 6.7/1,000 workers, and under the 1992 cadmium standard the remaining excess risk at the PEL was 3-15/1,000 workers. It is worth noting that as a result of a court challenge to the 1986 asbestos standard by the Building and Construction Trades Department and the AFL-CIO, OSHA was ordered to reduce the permissible exposures to asbestos even further to 0.1 fibers/cc, in order to further reduce the remaining significant risk, which was done through a new final rule in 1994.

OSHA has conducted an extensive feasibility analysis of the proposed standard that documents that the proposed standard of 50 ug/m3 is both technologically and economically feasible.[7] In general industry and maritime, according to OSHA's Preliminary Economic Analysis (PEA), engineering and work practice controls will reduce exposures to less than 50 ug/m3 for the vast majority of workers.[8] In construction, where the changing and mobile nature of the work create more variable

[7] Occupational Safety and Health Administration, U.S. Department of Labor (2013). Preliminary Economic Analysis and Initial Regulatory Flexibility Analysis – Supporting document for the Notice of Proposed Rulemaking for Occupational Exposure to Crystalline Silica. [OSHA-2010-0034-1720]

[8] According to the PEA in general industry and maritime, 15,172 out of 294,886 workers will be exposed above the PEL after full implementation of the standard (from Table V-11 and Table V-15).

exposures, the preliminary feasibility analysis finds that for more than 82 percent of all construction workers engineering and work practice controls can reduce exposures to less than 50 ug/m3.[9] For workers who continue to be exposed above these levels, respiratory protection will be required.

Many of the underlying studies on which the feasibility analysis is based found that engineering and work practice controls – generally wet methods and local exhaust ventilation – reduced exposures for most workers, in most jobs, most of the time to levels below the proposed PEL (78 FR 56452 -66). These studies also show that without these control measures, exposures to silica are often many times existing exposure limits, putting workers at great risk of harm. Thus the feasibility analysis and the underlying evidence show not only that the 50 ug/m3 standard is indeed technologically feasible, it also provides evidence that in some operations, the proper and consistent application of available control measures can reduce exposures to 25 ug/m3 or below.

The economic feasibility analysis also found that the cost of these controls is quite modest, costing on average $1,022 annually for employers in the construction industry (78 FR 56380) and $2,571 annually for employers in general industry and maritime (78 FR 56371). Overall, the cost to comply with a 50 ug/m3 exposure limit and other requirements in general industry and construction are less than .05 percent of industry revenues for the covered industries, and in no way threatens the viability of the industries impacted by the standard (PEA, Table VIII-12 and Table VIII-14).

If anything the feasibility analysis supports strengthening key provisions of the standard in order to protect workers from the significant risks of harm from silica that remain under the standard as proposed by OSHA.

AFL-CIO Comments/Position on Provisions of the Proposed Respirable Silica Standard

For the past several months, since the silica standard was proposed, the AFL-CIO has worked closely with affiliated unions to review and evaluate the proposed standard, its provisions and the underlying evidence to evaluate and develop a position on the proposed rule. It is our view that there is extensive evidence that demonstrates that exposure to silica poses a significant risk to workers and that reducing permissible exposures to 50 ug/m3 or less is feasible. It is our view that the proposed standard will significantly reduce the risk of workers exposed to silica, and that the standard can and

[9] According to the PEA in construction, 336,244 out of 1,849,175 at risk workers will be exposed above the PEL after full implementation of the standard (from PEA Table V-40 and Table V-44). The majority of the workers projected to be exposed over the PEL are in NAICS 238100, Foundation, Structure, and Building Exterior Contractors.

should be strengthened in several key ways to further protect workers from death and disease caused by exposure to silica.

Many unions are filing individual comments and will be presenting testimony that focuses on the exposures and control measures in their industries. The Building and Construction Trades Department, AFL-CIO, which has played a lead role on control of silica in construction, will be providing extensive comments and testimony of the proposed standard for construction. The AFL-CIO supports the Building Trades position on the provisions of the proposed construction standard. Our comments will focus primarily on the proposed standard as it applies to general industry and the maritime sector. Due to differences in the nature of work and employment in construction and general industry, there may be differences in recommendations for final provisions in the construction and general industry standards. These recommendations are based upon what the unions believe are the best feasible approaches for protecting workers from significant risk of harm from exposure to silica in these different sectors.

1. The Proposed PEL

OSHA has proposed a permissible exposure limit of 50 ug/m3 for exposure to respirable crystalline silica, reducing permissible exposures from approximately 100 ug/m3 in general industry and 250 ug/m3 in construction and maritime. As discussed above, there is extensive evidence demonstrating that workers exposed to the current permissible levels of silica are at extremely high risk of death and disease, and that reducing exposures to 50 ug/m3 will significantly reduce the risk. However, as OSHA acknowledges at the proposed 50 ug/m3 PEL, a significant risk to workers will remain. The 50 ug/m3 PEL is being proposed based upon feasibility considerations, not because it sufficiently protective to prevent adverse health effects.

The AFL-CIO supports the reduction of the PEL for respirable crystalline silica to 50 ug/m3. OSHA has a continuing duty to reduce remaining significant risk, so long as it is feasible to do so. Other groups and authorities have set a lower PEL of 25 ug/m3. OSHA's economic analysis suggests industry can afford further reductions to protect workers. As noted other groups and authorities have set a lower PEL of 25 ug/m3. We urge the agency to fully evaluate the evidence that is submitted to the record of this rulemaking to determine if more recent experience and evidence support the feasibility of a lower limit, and, if this is the case, to set a lower PEL in the final rule.

2. The 25 ug/m3 Action Level

OSHA has proposed an action level of 25 ug/m3, half the permissible exposure limit, which under this proposal is the level that triggers exposure monitoring or exposure assessment. Under the proposed rule, the action level does not trigger the requirement for medical surveillance.

The AFL-CIO supports the inclusion of a 25 ug/m3 action level in the standard. As we will discuss below, we believe that the action level should also serve as the trigger for medical surveillance in general industry.

The incorporation of an action level in health standards to trigger other provisions of rules has been a long standing practice by OSHA. The concept has been incorporated into OSHA standards at least going back to the 1974 vinyl chloride standard, which included an action level of 0.5 ppm, one-half the permissible exposure limit of 1 ppm, which triggered requirements for exposure monitoring and medical surveillance. (39 FR 35890). When the action level was first incorporated, the stated rationale was to "minimize the impact of the standard on employers who have attained exposure levels well below the permissible exposure limit." (39 FR 35893). Subsequently, the rationale for action levels evolved, and action levels were incorporated into standards in recognition that workplace exposures are variable, and to ensure that an employer is in compliance with the PEL, exposure monitoring should be conducted at levels below the PEL. (78 FR 56447-8, also see proposed asbestos standard, 49 FR 14124, April 10, 1984). This is particularly important for exposure to silica since exposures at the PEL pose a significant risk to workers and every effort should be made by employers to further reduce exposures if it is feasible to do so.

Most OSHA standards that include an action level set the level at one-half the permissible exposure limit. The only standards that have deviated from this approach are the 1994 asbestos standard and the 1992 formaldehyde standard. In the case of asbestos the action level was set at the same level as the PEL (0.1 fiber/cc) when OSHA determined that it was not feasible to accurately measure exposures below this level. (59 FR 40974-5). It should be noted that 1994 revised standard was a result of a court challenge to the 1986 asbestos standard, which set a PEL of 0.2 fiber/cc and included an action level of 0.1 fiber/cc. In response to the court decision and remand, OSHA reduced the PEL to 0.1 f/cc, but did not reduce the action level due to constraints in the measurement technique. In the case of formaldehyde, the standard sets a PEL of 0.75 ppm and an action level of 0.5 ppm. That standard also represents the result of a court challenge and remand. The formaldehyde standard as originally issued in 1987 set a PEL of 1 ppm and an action level of 0.5 ppm (52 FR 46291, December 4, 1987).

OSHA has established that it is feasible to reliably and accurately exposures of 25 ug/m3. The preliminary economic analysis contains an extensive discussion of this issue. (PEA IV -13-47). We urge OSHA to maintain the 25 ug/m3 action level in the final standard.

3. Exposure Assessment and Monitoring

In keeping with the practice in other OSHA health standards and the direction under Section 6(b)(7) of the Occupational Safety and Health Act, OSHA has included requirements for exposure assessment and monitoring in the proposed standard. The proposal requires that all employers who have workers potentially exposed to silica make an initial assessment of worker exposures. Employers are allowed to rely upon existing data from exposure monitoring conducted within a 12 month prior time period of conditions which closely resemble those that currently prevail, or have objective data that silica is not capable of being released in airborne concentrations above the action level under expected conditions of processing, use or handling.

Similar types of provisions have been included in other OSHA health standards. While the AFL-CIO does not object to relying on such data, in our view OSHA needs to provide greater clarification and guidance on the kind of data that may or may not be relied upon, particularly for objective data. This guidance will assist employers and workers and provide greater assurance that the data indeed adequately reflect workers' actual exposures in the workplace or on the jobsite.

In the general industry standard OSHA requires periodic exposure assessments if workers' exposures are above the action level, with more frequent assessments required if exposures exceed the PEL. Under the construction standard, employers who follow the specified control measures outlined in Table 1 of the proposed construction rule are relieved of this periodic exposure assessment requirement, an approach that makes sense given the feasibility of exposure monitoring in the construction industry where work is often short term and conditions are continually changing.

4. Regulated Areas

In areas where exposures exceed the PEL, the proposed standard requires that employers establish a regulated area or implement a written access plan to limit the number of workers exposed to high levels of silica. Provisions are included to control access to these areas, to ensure that workers in the area are provided adequate notice, information and respiratory protection and to limit contamination of other work areas. Provision for regulated areas have been included in OSHA health standards for decades and is a well - established practice. But this is the first time that the agency has provided an option of establishing an actual area that is demarcated or a procedure that will limit access. It appears that the difference between the two approaches is that one requires a physical demarcation, and the other relies upon an individual or gatekeeper to limit the number of workers exposed. In neither case are there specific requirements for posting warning signs to alert workers to the presence

of high levels of silica, provide specific health hazard warnings and control measures as have been included in all other OSHA health standards.

The AFL-CIO is concerned that the written access control option will not adequately protect workers and limit access to high exposure areas. It also will be very difficult to enforce. We recommend that OSHA eliminate the separate option of establishing a written access control plan and limit this provision to the establishment of regulated areas only.

In order to avoid exposure from contamination of clothing, the proposed standard requires that employees in a regulated area (or access control area) be provided with appropriate protective clothing or another means to remove excessive silica dust from contaminated clothing. But this requirement is limited to "where there is the potential for employees' work clothing to become grossly contaminated with finely divided material containing crystalline silica." (1910.1053 (e) (2)(v). This language is vague and undefined. It will be difficult to interpret, comply with and enforce. Other standards which contain requirements for protective clothing and decontamination simply require that it be provided if there exposure above the PEL. The AFL-CIO urges OSHA to remove the language from the proposed rule to where clothing has the potential "to become grossly contaminated."

5. Methods of Compliance

The proposed silica rule maintains OSHA's longstanding hierarchy of controls and requires that exposures be reduced to or below the PEL through the use of engineering and work practice controls unless the employer can demonstrate that such controls are not feasible. Where engineering and work practices controls are not sufficient to reduce exposures to or below the PEL, the employer is still required to implement feasible controls, supplemented by respiratory protection to comply with the PEL.

The AFL-CIO strongly supports the maintenance of the hierarchy of controls in the silica standard. As OSHA points out in the preamble, the application of the hierarchy of controls is consistent with good industrial hygiene practice and there is long experience that the use of engineering and work practice controls is superior at protecting workers from hazardous exposures. Moreover, the requirement for the hierarchy of controls has been upheld by the courts numerous times.

There is no evidence to support that primary reliance on respiratory protection is as effective to protect workers against silica or other health hazards, and volumes of evidence to support the effectiveness of engineering and work practice controls. Limiting exposure to silica at it source through engineering and work practice controls not only protects workers involved in the dust-generating operation, these controls also limit exposure to other workers and the public at large.

We urge OSHA to reject any efforts to weaken the requirements for the implementation of engineering and work practice controls for limiting occupational exposure to respirable silica.

a. Exposure Control Plan

The proposed standards do not include a requirement for an exposure control plan. As OSHA notes in the preamble the ASTM standards for general industry and construction both include a requirement for a exposure control plan that sets forth the engineering and work practice controls and other measures that will be used to bring exposures into compliance. OSHA has requested whether the silica standards should include a similar requirement.

Most other OSHA health standards include a requirement for a written compliance plan or exposure control plan. Indeed a review of existing health standard finds that except for the standards covering the 13 carcinogens (which have no PEL and require closed systems), all OSHA health standards that set a permissible exposure limit include a requirement for a written compliance plan that at a minimum must set out the control measures that will be used to meet the PEL. Some standards such as the cadmium standard include requirements for a comprehensive compliance program that must include a description of operations in which cadmium is emitted; the specific means that will be used to control exposure; air monitoring data; a schedule for implementation; the work practice program and more. (29 CFR 1910.127(f)(2).

OSHA has not provided any explanation why it has decided to exclude a requirement for a written compliance program or exposure control plan in the silica standard. Such plans are important both to identify operations where there may be over exposure, to identify the specific control measures that will be used and how they will be implemented, and to have procedures in place to assess that controls are being properly utilized and maintained. Without such plans there is no assurance that there will be a systematic and comprehensive approach to identifying and controlling silica exposures at the work site.

Just as it has with most other health standards, OSHA should include a requirement for a written compliance plan or exposure control plan in the final silica standard.

b. Abrasive Blasting

It has been long-recognized that the use of silica in abrasive blasting poses a significant health risk to workers. Because of this significant health risk and the difficulty of control of exposures, a number of countries have banned the use of crystalline silica as an abrasive blasting agent including Great Britain, which banned the practice in 1950, Germany Sweden and Belgium. Dozens of states and authorities

in the United States have done so as well. NIOSH recommended that silica sand be prohibited as an abrasive blasting material in its first criteria document on exposure to crystalline silica in 1974 (NIOSH Publication 75-120) and reiterated this recommendation in a 1992 special alert - *Preventing Silicosis and Deaths from Sandblasting.* (NIOSH Publication 92-102).

Despite the widespread practice of banning the use of silica in abrasive blasting, OSHA has failed to include such a prohibition in the proposed rule. Instead OSHA proposes to control exposure through the application of feasible engineering and work practice controls supplemented by respiratory protection. But OSHA itself has determined that it is not possible to reach the proposed PEL in abrasive blasting operations through the use of engineering and work practice controls (78 FR 56356).

The most effective way to protect workers in abrasive blasting from the hazards of silica is to prohibit the use of silica as a blasting agent. OSHA should follow the lead of other countries and authorities and include such a prohibition in the final silica rule.

c. Cleaning Methods

The proposed standard requires that dust accumulations be cleaned by HEPA-filtering vacuuming or wet methods where such accumulation, if disturbed could result in exposures that exceed the PEL. The proposal also prohibits the use of compressed air, dry sweeping and dry brushing where the activities could result in exposures that exceed the PEL.

The prohibition of such practices is sound industrial hygiene and is critical to ensuring that dust is controlled. Other OSHA health standards that regulate exposure to dusts include similar provisions. (e.g. asbestos 29 CFR 1910.1001, lead 29 CFR 1910.1025 and cadmium 29 CFR 1910.1027). However, all of these standards require that accumulations of dust be kept as low as practicable and do not trigger prohibitions by exposure above the PEL. OSHA has determined that exposure at the PEL still poses a significant risk to workers. All feasible efforts should be made to reduce those risks. OSHA should follow the well-established approach in its other health standard and prohibit practices of dry sweeping, compressed and require HEPA-filtering vacuuming or wet methods whenever silica dust is present.

6. Respiratory Protection

The proposed silica standard for general industry requires that employers follow the requirements of 29 CFR 1910.134 when respiratory protection is required under the rule. For construction, in addition to this basic requirement, Table 1 of the construction

standard specifies the type of respiratory protection for certain high exposure operations.

But there is no provision in 1910.134 or in the proposed silica rules for an employee to request or chose a respiratory that provides a higher level of protection than that required by the selection table in 1910.134, as is provided by a number of other OSHA health standards. For example, the asbestos standards for both general industry (1910.1001) and construction (1926.1101) and the cadmium standard (1910.1027, 1926.1127) require the employer to provide an employee a powered air purifying respirator instead of a negative pressure respirator upon request. Other standards, including formaldehyde (1910.1048), butadiene (1910.1051) and MDA (1910.150) require that where employees have difficulty breathing or cannot not wear a negative pressure respirator that a positive pressure respirator be provided.

The AFL-CIO strongly urges OSHA to include a provision in the final silica standards for both general industry and construction that provides workers the ability to choose a power air purifying respirator in place of a negative pressure respirator. This will allow workers who may encounter breathing resistance or other difficulty in wearing a negative pressure respirator, the ability to continue working in a job where silica exposures cannot feasibly be controlled below the PEL. OSHA itself has recognized that there may be situations where workers are unable to wear a negative pressure respirator. Indeed the standard, anticipates that such a finding may be made during the medical surveillance conducted under the rule.

But as discussed below in our comments on medical surveillance, there are serious concerns about discrimination against workers who may experience adverse health effects from silica exposure. The final standard should follow the model of the asbestos and cadmium standards and allow workers to request and obtain a PAPR without revealing their health status or health condition to their employer.

7. Medical Surveillance

The proposed standard includes requirements for employers to provide medical surveillance for workers exposed to silica. Such surveillance is important to detect adverse health effects that may occur as a result of silica exposure, provide appropriate medical follow-up and allow the medical provider to recommend appropriate interventions to reduce exposures and the risk to employees. Similar requirements for medical surveillance have been included in all OSHA standards for toxic substances.

The AFL-CIO strongly supports the inclusion of the medical surveillance requirements but has concerns that the requirements as proposed are inadequate. We also have

deep concerns about that the standard does not protect the confidentiality of employees' medical information.

a. Trigger for Medical Surveillance

The proposed standard requires that medical surveillance be available to all employees exposed to silica above the permissible exposure limit for more than 30 days a year. This is a departure from all other health standards that require that medical surveillance be provided to workers exposed above the action level.[10] We point out that the draft standard as submitted to OMB for review under Executive Order 12866 in 2011 required that medical surveillance be provided to all workers exposed above the action level.[11]

No reason has been provided for this change in this proposed rule or OSHA's long standing practice of requiring medical exams to be provided when exposures exceed the action level.

The change in this requirement is particularly troubling given OSHA's findings that exposures at the proposed PEL pose a significant risk to workers with an overall excess risk of mortality of 93 – 101 deaths/1,000 workers per year due to lifetime exposure (Table VII-2, 78 FR 56333). This risk does not reflect the risk of diseases that do not result in death, which is far greater. Moreover, according to OSHA's preliminary economic analysis, there are a large number of workers exposed between the PEL and the action level – 53,329 workers in general industry and 202,883 workers in construction (Table VIII-5, 78 FR 56349-52).

The AFL-CIO and unions recognize that due to differences in the proposed exposure monitoring requirements in general industry and construction, there may not be exposure data available for many operations in construction, since employers who follow the control measures set forth in Table I are relieved of that obligation. Therefore in construction, it may not be possible to determine which employees are exposed above the action level.[12] But in general industry, there will be exposure information available for workers exposed at the action level or above since an exposure assessment or monitoring is required for these workers. Medical surveillance should be provided to these workers to help further reduce the risk of serious disease from silica

[10] See Attachment 3 for a table comparing medical surveillance provisions of key OSHA health standards (asbestos, hexavalent chromium, cadmium, benzene, cotton dust, formaldehyde, methylenedianiline,1,3-butadiene and methylene chloride).
[11] Draft Proposed Rule, Occupational Exposure to Respirable Crystalline Silica, Docket No. OSHA-2010-0034, RIN 1218-AB70.
[12] It will be possible to determine which workers are presumable exposed above the PEL, since those workers will be required to wear respiratory protection.

exposure. The final standard for general industry should trigger medical surveillance for workers at exposure to the action level and above.

The AFL-CIO agrees with the Building and Construction Trades that in construction, the requirement for 30 days of annual exposure to trigger exposure is not workable and makes no sense. Given the changing and short-term nature of much construction work and mobility of employment, it is simply not possible to predict if a worker will be exposed for more than 30 days a year. We endorse the BCTD's position that this 30 day exposure requirement should be removed in the construction standard.

We point out that in a number of other OSHA health standards, including hexavalent chromium, benzene, formaldehyde and methylenedianiline, medical surveillance can also be triggered by reports of signs and symptoms associated with exposure, even if there the employee is not exposed above the trigger exposure level. Such a provision is particularly appropriate in the silica standard given the high level of risk that remains at exposures to the PEL and action level. We urge OSHA to include a provision that provides for medical examinations in response to employee reports of signs or symptoms of adverse health effects related to silica exposure in the final standard for both general industry and construction.

b. Frequency of Medical Surveillance

The proposed standard requires that follow-up medical surveillance be provided to employees once every three years or more frequently if recommended by the health care provider. This is a change from the draft standard submitted to OMB for review in 2011, which required annual examinations, with a three year frequency for chest x-rays and pulmonary function tests, unless recommended more frequently by the health care provider. It is also a departure from the frequency for medical examinations in other OSHA health standards. The AFL-CIO still is evaluating whether the three year provided in the standard is sufficient to identify adverse health effects and recommend appropriate, timely intervention. At a minimum we recommend that OSHA include a provision for follow-up exams to also be triggered by employee reports of signs or symptoms of silica exposure as is provided for in the OSHA standard on hexavalent chromium and other health standards. We will be reviewing the issue on the appropriate frequency for medical surveillance in greater depth and considering the comments and views of medical experts who will be filing comments and/or testifying in this rulemaking, and provide a final recommendation in post-hearing comments.

c. Content of Examinations

The proposed standard requires that medical examinations include a chest x-ray, pulmonary function test in addition to TB testing, a physical examination and medical

and exposure history, and other tests recommended by the health care provider. These examinations are appropriate for detecting conditions related to silica exposure.

One of the significant risks posed by exposure to silica is lung cancer. Indeed in its risk assessment OSHA has found that the risk of mortality from lung cancer caused by silica is greater than the risk of mortality from silicosis.[13] Recently there have been significant advances in early detection for lung cancer through screening with Low Dose CT (LDCT) scans. This past December, the U.S. Preventive Services Task Force (USPSTF) recommended annual LDCT scans for individuals who were at high risk of developing lung cancer.[14]

The AFL-CIO believes that given the high lung cancer risk posed by exposure to silica, OSHA should seriously consider a requirement for LDCT scans in the medical surveillance provisions of the final standard for workers determined to be at high risk. OSHA should seek input and guidance from NIOSH and medical experts who are participating in the rulemaking on the appropriate criteria for defining workers who are at high risk and the appropriate frequency of such screening. The AFL-CIO will provide further comments on this issue in our post-hearing comments.

d. PLHCP's Written Opinion and Medical Confidentiality

The proposed standard requires the PLHCP to provide the employer with a written medical opinion that includes a description of the employee's health condition as it relates to exposure to silica, including the PLHCP's opinion as to whether the PLHCP has detected any medical conditions that would place the employee at increased risk from exposure to silica; and any recommended limitations on the employee's exposure to silica or upon the use of PPE such as respirators. The PLHCP is not allowed to reveal to the employer specific findings or diagnoses unrelated to silica. Under the proposal, the employer, not the PLHCP is required to provide the written opinion to the employee.

While OSHA has expressed concern for balancing the employer's need for information against the employee's confidentiality interest, it is the AFL-CIO's view that the proposed standard strikes the wrong balance and fails to protect employee confidentiality.

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[13]OSHA estimates that the excess risk of lung cancer mortality at the existing general industry PEL of 0.1 mg/m3 general industry PEL is 22-29 1/1,000 workers and the excess risk of mortality from silicosis is 11/1,000 workers- Table VII-2, 78 FR 56333.

[14] Screening for Lung Cancer: U.S. Preventive Services Task Force recommendation, Annals of Internal Medicine, Published On-line December 31, 2013 at http://www.uspreventiveservicestaskforce.org/uspstf13/lungcan/lungcanfinalrs.pdf.

Though the proposal incorporates a similar approach and similar language on written opinions that have been used in other OSHA health standards for decades, OSHA's approach to medical confidentiality is out dated and fails to incorporate or reflect changes that have occurred in medical privacy and confidentiality. Indeed some other OSHA health standards contain provisions that require the PLHCP to provide the specific results of medical tests to the employer.[15] This is contrary to the American College of Occupational and Environmental Medicine's Guidance on Confidentiality of Medical Information in the Workplace, that specific medical details or diagnosis should not be provided to the employer without the employee's consent.[16]

There is great concern that employers will use medical information to retaliate against workers or blacklist them from future employment (particularly in the construction industry) in an effort to reduce obligations under the standard or workers' compensation or disability costs.

It is time for OSHA to bring the medical confidentiality provisions of its standards up to date and to protect workers' confidentiality and privacy. To this end, the AFL-CIO recommends that OSHA adopt an approach to the provision of medical information to employers that follows the approach contained in the regulations governing medical information under the Black Lung Program. (30 CFR 90.3) Specifically we recommend that the final standard require that the PLHCP's written opinion be provided directly to the employee by the PLCHP. The written opinion or other information from the medical examination should only be provided to the employer at the initiation by and with the written consent of the employee. The only information that should be provided directly to the employer by the PLHCP to the employer is a determination that the employee is unable to wear a respirator.

Moreover, we strongly urge OSHA to include provisions in the final standard that explicitly prohibit the employer from asking the employee or the PLHCP for a copy of the medical information, as is included in the black lung regulations, and a prohibition against an employer for retaliating or taking any adverse action against an employee based the employee's participation in the medical surveillance program or upon the results of any medical examination or tests conducted in the surveillance program. Violation of these requirements should be the basis for a citation under the rule, subject

[15] For example, the Cotton Dust standard requires that the physician provide the employer with "the results of the medical examination and tests, including the FEV1, FVC, and FEV1/FVC ratio." 29 CFR 1910.1043(h)(5).

[16] American College of Occupational and Environmental Medicine Committee on Ethical Practice in Occupational and Environmental Medicine, *Confidentiality of Medical Information in the Workplace,* November 06, 2012 http://acoem.org/Confidentiality_Medical_Information.aspx#

to penalty, in addition to any applicable action under the retaliation protections provided under section 11(c) of the Act.

8. Medical Removal Protection and Multiple Physician Review

Unlike many other OSHA health standards, OSHA has not included provisions on medical removal protection (MRP) or a multiple physician review mechanism (MPR) in the proposed silica standard. The stated reason is that the agency has made a preliminary determination that there are few instances where temporary worker removal and MRP will be useful (78 FR 56291). But the agency has requested comments as to whether medical removal provisions and MRP benefits should be included in the final rule.

Medical Removal Protection has been an important element of many OSHA health standards as a means to protecting workers from adverse health effects caused by exposure and to encourage workers to participate in medical surveillance. (see Attachment 3) The lead standard (29 CFR 1910.1025) issued in 1978 was the first OSHA rule to include such protection, with detailed requirements for removal from high exposure jobs, the provision of benefits to keep workers whole, and criteria for return to prior assignments or placement in other jobs. Since that time MRP has been included in OSHA health standards on formaldehyde (29 CFR 1910.1048), benzene (29 CFR 1910.1028), methylenedianiline (MDA) (29 CFR 1910.1050), cadmium (29 CFR 1910.1027), and methylene chloride (29 CFR 1010.1052).

The MRP provisions vary in their content and coverage. Triggers for removal include adverse findings from specific medical tests or medical monitoring or a medical determination that removal from exposure is warranted for health reasons. Benefits during removal range from 6 months (benzene, formaldehyde , MDA and methylene chloride) to 18 months (lead and cadmium). Some standards also require the removal or transfer of workers who are unable to wear a respirator to jobs with exposure below the PEL, either as part of the MRP provisions or as a separate requirement. For example, under the cadmium standard, workers removed for due to the inability to wear a respirator must be removed from exposure above the PEL and benefits maintained. Under the asbestos standard and cotton dust standard, there are no comprehensive MRP provisions; removal and transfer requirements apply only to cases where exposure exceed the PEL and the physician determines that the employee is unable to wear a respirator. Under these rules, employees must be assigned to another job or provided the opportunity to transfer to another job, if a position is available. In the case of a transfer, the employer is required to retain the same wage rate, seniority and other job benefits of the employee.

In its earlier standards that have included MRP, OSHA has emphasized the importance of MRP as a means to encourage workers to participate in medical surveillance

programs and to report signs and symptoms of disease (e.g. lead standard (43 FR 54440-73), and cadmium standard (57 FR 42366-8)). Such participation is critical as a protective measure to identify workers who may be experiencing adverse effects and need medical follow-up, treatment or other intervention to reduce exposures. As was discussed above, many workers exposed to silica fear that they will be retaliated against if they suffer and report adverse health effects due to exposure. Absent protection against retaliation and the assurance that they will not suffer adverse economic consequences as a result of health conditions, workers will not participate in and gain the benefits from medical surveillance.

The need for MRP is just as critical in the silica standard as it is for the lead, cadmium and other OSHA health standards. Just as OSHA has included MRP in many previous OSHA health standards as a means to provide protection to workers by removing them from further exposure, it is appropriate and important for OSHA to include MRP in the final silica standard for general industry.[17]

The AFL-CIO takes issue with OSHA's statement in the preamble that temporary removal and MRP will not be useful. This seems to suggest that MRP is only useful to address temporary health conditions. The AFL-CIO strongly disagrees. Indeed under virtually all the standards that include MRP, this protection applies to a broad range of health impacts, some temporary and some permanent. For example, the cadmium standard requires medical removal protection where a determination is made that the worker is unable to wear a respirator. There is no requirement that the condition is temporary. Similarly, as noted above all of the standards that include MRP - lead, benzene, formaldehyde, MDA, cadmium and methylene chloride - require removal protection when a physician determines it is necessary to remove a worker from exposure for health reasons related to exposure. This provision is not limited to conditions which are temporary.[18] Under the MRP provisions, it is the term of removal and benefits, not the medical conditions that are limited.

Even for permanent health conditions, temporary removal protection can be of great importance in protecting workers' health. Temporary removal will remove workers from further high exposure and will also provide time for employers to find other positions with lower exposures for at risk workers. MRP protection will give workers confidence that they can participate in medical surveillance without fear of adverse impacts due to adverse health effects from exposure.

[17] The AFL-CIO defers to the Building and Construction Trades Department, AFL-CIO on the appropriateness of including MRP in the silica standard for construction.

[18] In the decision on OSHA's 1987 final formaldehyde standard, the court rejected OSHA's argument that MRP should be limited to temporary reversible health conditions, finding that other standards required removal for permanent conditions. Upon remand, the formaldehyde standard was amended to provide MRP for removal involving permanent health conditions.

There is no doubt that there will be workers exposed to silica for which the PLHCP recommends removal from a high exposure job in order to limit further exposure and risk to the worker. Indeed, Alan White, a member of the United Steelworkers who participated in the OSHA press conference announcing the proposed silica rule, is one such individual. After being diagnosed with silicosis, his physician recommended that he be transferred to another lower job, and under the union contract this was done. But most workers don't have the benefits of a union contract like Alan White. They need the protection afforded by the MRP provisions in an OSHA standard.

The AFL-CIO recommends that OSHA include MRP provisions in the final general industry standard modeled after the MRP provisions in the cadmium rule. Removal can be triggered by the PLHCP determination that the worker should be removed from exposure based upon the results of medical examinations and tests, inability to wear a respirator, evidence of illness, other signs or symptoms of silica related dysfunction or disease or any other reason deemed medically sufficient by the PLHCP. But in keeping with our earlier recommendation on medical confidentiality, the decision to seek MRP should be the decision of the employee, triggered by the findings and recommendations of the PLHCP made to the employee. At the request and with the consent of the employee, the PLHCP can provide a written medical opinion to the employer that the employee should be removed from a high exposure job, triggering the MRP provisions of the rule. This is similar to the transfer and wage protection provisions of the black lung rules which we have cited earlier.

The standard should provide for a minimum of 6 months of MRP benefits. Where a PLHCP determines that an employee will not be able to return to their former job status, the employee should be given the opportunity to transfer to another job if available.

In addition to MRP, the final general industry standard should also provide for multiple physician review, similar to the MPR provisions in the OSHA health standards on lead, formaldehyde, MDA and cadmium.

9. Training and Information

The proposed silica standard builds off the Hazard Communication Standard (HCS) (29 CFR 1910.1200) to provide employees information and training about the hazards and control measure for occupational exposure to respirable silica. Employers are also required to ensure that each "affected employee" can demonstrate knowledge with respect the specific operations in the workplace that could result in exposure to silica; procedures the employer has implemented to protect the employee from exposure including appropriate work practices and the use of personal protective equipment; the requirements of the standard; and the purpose of the medical surveillance requirements of the rule.

While the information and training provisions embodied in the Hazard Communication standard may be appropriate for workers with potential exposure to silica, workers exposed to silica in the course of their work need additional training beyond what Hazard Communication and the proposed standard provide. First, workers exposed to silica need training on the appropriate engineering control measures to limit exposures.

OSHA has rightly required the use of such controls to limit exposures and should require training not only the appropriate engineering controls but also on how they should be used and maintained. Second, the standard should make clear that for workers exposed to silica the training should be on the specific control measure (engineering and work practice controls) that are used in that workplace or jobs where there is silica exposure. Training on generic control measures is not sufficient. In addition the information and training provisions should explicitly require that training be provided before a worker is assigned to a job with silica exposure and provide for refresher training on a regular basis – annually - or when there are changes in processes or control measures as is the case with many OSHA health standards.

The standard must also include a specific requirement that the training be provided in a language and manner that the employee can understand as is required by the bloodborne pathogens standard (29 CFR 1910.1030(g)(2)). This is particularly important in industries where there are large numbers of non-English speaking workers. The preamble indicates that this is OSHA's intent, but there is no requirement in the standard itself (78 FR 56474).

The AFL-CIO notes that the proposed standard fails to provide for warning signs to advise workers of the presence of silica in the workplace, its health hazards and appropriate control measures. While the hazard communication standard requires warning labels and data sheets for silica containing products, it does not require warning signs at the worksite. But such warning signs are required under most other OSHA heath standards for toxic substances. The AFL-CIO urges OSHA to include a requirement for the posting of warning signs in regulated areas where there is exposure to respirable silica. Such signs should warn of the presence of silica, respiratory hazard, the cancer hazard and the need for respiratory protection.

Conclusion

In summary, the AFL-CIO strongly supports OSHA's proposed respirable silica standard. This critical protection is long overdue. The proposal will significantly reduce workers' exposures to deadly silica dust and prevent thousands of deaths and diseases a year. The standard's provisions on medical surveillance, exposure control and training and education should be strengthened to further reduce exposure and risk to workers. The AFL-CIO urges OSHA to move expeditiously to complete this rulemaking and to issue final silica standards to protect workers from unnecessary disease and death.

ATTACHMENT 1
Timeline on OSHA's Silica Standard

1972 – OSHA adopts 1968 ACGIH TLV of 10 mg/m3 ÷ (%quartz + 2) as the general industry permissible exposure limit, and the ACGIH TLV of 250 mppcf ÷ (%quartz + 5) as the permissible exposure limit for silica in the construction industry. The ACGIH silica construction standard was originally set in 1962.

1974 – NIOSH issues criteria document recommending silica exposure limit of 50 ug/m^3.

1974 – OSHA issues Advance Notice of Proposed Rulemaking on revising and strengthening the silica standard for general industry and construction.

1991 – National Toxicology Program (NTP) classifies silica as "reasonably anticipated to be a human carcinogen."

1996 – Department of Labor launches major campaign on silica to reduce exposures and protect workers from silicosis in general industry, construction and mining. OSHA conducts special emphasis enforcement programs on silica.

1997 – OSHA puts silica on the regulatory agenda.

2000 – National Toxicology Program (NTP) lists silica as "known to be a human carcinogen."

2002 – Bush Administration designates a new OSHA silica standard as a high priority in the Fall 2002 Regulatory Plan and Agenda.

2003 – The draft silica standard undergoes review by a small business panel under the Small Business Regulatory Enforcement Fairness Act (SBREFA).

2004 – 2008 – Work on the silica standard stalls.

2009 – The Obama administration designates the standard silica as a high priority in the Fall 2009 regulatory agenda and work on the standard is reinitiated.

2011 – On February 14, 2011, the draft silica proposed standard is submitted for OMB review under Executive Order 12866.

2011/2012- Outside groups meet with OMB to convey their views on the standard. More than 30 industry groups have meetings with many industry groups advocating that the standard be stopped or weakened.

2011-2013 – the draft proposed standard is held by OMB for review for more than 2.5 years. EO 12866 provides 90 days for review and one 30 day extension.

2013 – On August 23, 2013, the proposed silica standard was released by OMB and announced by OSHA. The proposed rule was published in the Federal Register on September 12, 2013. The public comment period first set at December 11, 2013, was extended until January 27, 2014, and again until February 11, 2014. Public hearings on the rule are scheduled to commence on March 18, 2014.

ATTACHMENT 2

OSHA Health Standards Rulemaking Schedules

Respirable Silica (78 FR 56274)
Proposed Rule Announced-Posted on OSHA's Website – Aug 23, 2013
NPRM- Sept 12, 2013
Deadline for Comments – Dec 11, 2013
Public Hearings Scheduled to Commence – March 8, 2014
Deadline for Comments extended on Oct 31, 2013 to Jan 27, 2014
Public Hearings rescheduled to commence on March 18, 2014
Deadline for Comments extended on Jan 24, 2014 to Feb 11, 2014

Hazard Communication/GHS (77 FR 17574)
NPRM – Sept 30, 2009
Deadline for Comments – Dec 29, 2009
Public hearings March 2 - 5, 2009
Hearings conclude – March, 2009
Final Standard Issued – March 26, 2012

Hexavalent Chromium (71 FR 10099) (Court ordered time table)
NPRM - October 4, 2004
Deadline for comments – Jan3, 2005
Hearings commence – Feb 15, 2005
Hearings conclude – Feb 15, 2005
Final Standard Issued – Feb 28, 2006

Methylene Chloride (62 FR 1494)
NPRM – Nov. 7, 1991
Deadline for comments – April 6, 1992
Notice of public hearing – June 9, 1992
Comment period reopened – June 9, 1992 – Aug 24, 1992
Comments on construction issued extended to Sept 22, 1992
Hearings commence - Sept 16, 1992
Hearings conclude Oct 16, 1992
Record reopened – March 11, 1994
Rulemaking record closed – May 31, 1994
Final standard issued – Jan 10, 1997

Cadmium – (57 FR 42102)
NPRM- Feb 8, 1990
Deadline for comments - Apr 27, 1990
Public hearings commence – June 5, 1990
Record reopened - Sept 18, 1991
Record closed - Nov 4, 1991
Final Standard Issued – Sept 14, 1992

1,3- Butadiene (61 FR 56746)
NPRM- August 10, 1990
Deadline for comments – Oct 19, 1990
Public hearings commence – Jan 15, 1991
Public hearings conclude – Feb 21, 1991
Final rule issued – Nov 4, 1996

ATTACHEMENT 3

Comparison of Medical Surveillance Requirements of Key OSHA Health Standards

	Frequency and Triggers For Exams	Physician/PLHCP Opinions and Confidentiality	Medical Removal Protection	Multiple Physician Review
Asbestos 1910.1001 **1926.1101 Provisions are similar**	1910.1001(l) Medical surveillance -- 1910.1001(l)(1) General -- 1910.1001(l)(1)(i) Employees covered. The employer shall institute a medical surveillance program for all employees who are or will be exposed to airborne concentrations of fibers of asbestos at or above the TWA and/or excursion limit. 1910.1001(l)(1)(ii) Examination by a physician. 1910.1001(l)(1)(ii)(A) The employer shall ensure that all medical examinations and procedures are performed by or under the supervision of a licensed physician, and shall be provided without cost to the employee and at a reasonable time and place. 1910.1001(l)(1)(ii)(B) Persons other than licensed physicians, who administer the pulmonary function testing required by this section, shall complete a training course in spirometry sponsored by an appropriate academic or professional institution. 1910.1001(l)(2) Pre-placement examinations.	1910.1001(l)(7) Physician's written opinion. 1910.1001(l)(7)(i) The employer shall obtain a written signed opinion from the examining physician. This written opinion shall contain the results of the medical examination and shall include: 1910.1001(l)(7)(i)(A) The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at an increased risk of material health impairment from exposure to asbestos; 1910.1001(l)(7)(i)(B) Any recommended limitations on the employee or upon the use of personal protective equipment such as clothing or respirators; 1910.1001(l)(7)(i)(C) A statement that the employee has been informed by the physician of the results of the medical examination and of any medical conditions resulting from asbestos exposure that require further explanation or treatment; and 1910.1001(l)(7)(i)(D) A statement that the employee has been informed by the physician of the increased risk of lung cancer attributable to the combined effect of smoking and	1910.1001(g)(2)(iii) No employee must be assigned to tasks requiring the use of respirators if, based on their most recent medical examination, the examining physician determines that the employee will be unable to function normally using a respirator, or that the safety or health of the employee or other employees will be impaired by the use of a respirator. Such employees must be assigned to another job or given the opportunity to transfer to a different position, the duties of which they can perform. If such a transfer position is available, the position must be with the same employer, in the same geographical area, and with the same seniority, status, and rate of pay the employee had just prior to such transfer. 1910.1001(g)(2)(ii) Employers must provide an employee with a tight-fitting, powered air-purifying respirator (PAPR) instead of a negative pressure respirator selected according to paragraph (g)(3) of this standard when the employee chooses to use a PAPR and it provides adequate protection to the employee.	

	1910.1001(l)(2)(i) Before an employee is assigned to an occupation exposed to airborne concentrations of asbestos fibers at or above the TWA and/or excursion limit, a pre-placement medical examination shall be provided or made available by the employer. 1910.1001(l)(2)(ii) Such examination shall include, as a minimum, a medical and work history; a complete physical examination of all systems with emphasis on the respiratory system, the cardiovascular system and digestive tract; completion of the respiratory disease standardized questionnaire in Appendix D to this section, Part 1; a chest roentgenogram (posterior-anterior 14 x 17 inches); pulmonary function tests to include forced vital capacity (FVC) and forced expiratory volume at 1 second (FEV(1.0)); and any additional tests deemed appropriate by the examining physician. Interpretation and classification of chest roentgenogram shall be conducted in accordance with Appendix E to this section. 1910.1001(l)(3) Periodic examinations. 1910.1001(l)(3)(i) Periodic medical examinations shall be made available annually.	asbestos exposure. 1910.1001(l)(7)(ii) The employer shall instruct the physician not to reveal in the written opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to asbestos. 1910.1001(l)(7)(iii) The employer shall provide a copy of the physician's written opinion to the affected employee within 30 days from its receipt.		

	1910.1001(l)(3)(ii) The scope of the medical examination shall be in conformance with the protocol established in paragraph (l)(2)(ii) of this section, except that the frequency of chest roentgenogram shall be conducted in accordance with Table 1, and the abbreviated standardized questionnaire contained in, Part 2 of Appendix D to this section shall be administered to the employee. 1910.1001(l)(4) Termination of employment examinations. 1910.1001(l)(4)(i) The employer shall provide, or make available, a termination of employment medical examination for any employee who has been exposed to airborne concentrations of fibers of asbestos at or above the TWA and/or excursion limit. 1910.1001(l)(4)(ii) The medical examination shall be in accordance with the requirements of the periodic examinations stipulated in paragraph (l)(3) of this section, and shall be given within 30 calendar days before or after the date of termination of employment. 1910.1001(l)(5) Recent examinations. No medical examination is required of any employee, if adequate records show that the employee has been			

	examined in accordance with any of paragraphs ((l)(2) through (l)(4)) of this section within the past 1 year period. A pre-employment medical examination which was required as a condition of employment by the employer, may not be used by that employer to meet the requirements of this paragraph, unless the cost of such examination is borne by the employer.			
Lead 1910.1025	1910.1025(j) Medical surveillance - 1910.1025(j)(1) General. 1910.1025(j)(1)(i) The employer shall institute a medical surveillance program for all employees who are or may be exposed at or above the action level for more than 30 days per year. 1910.1025(j)(1)(ii) The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician. 1910.1025(j)(1)(iii) The employer shall provide the required medical surveillance including multiple physician review under paragraph (j)(3)(iii) without cost to employees and at a reasonable time and place. 1910.1025(j)(2) Biological monitoring - 1910.1025(j)(2)(i)	1910.1025(j)(3)(v) Written medical opinions. 1910.1025(j)(3)(v)(A) The employer shall obtain and furnish the employee with a copy of a written medical opinion from each examining or consulting physician which contains the following information: 1910.1025(j)(3)(v)(A)(1) The physician's opinion as to whether the employee has any detected medical condition which would place the employee at increased risk of material impairment of the employee's health from exposure to lead; 1910.1025(j)(3)(v)(A)(2) Any recommended special protective measures to be provided to the employee, or limitations to be placed upon the employee's exposure to lead; 1910.1025(j)(3)(v)(A)(3) Any recommended limitation upon the employee's use of respirators, including a determination of whether the employee can wear a powered air purifying respirator if	1910.1025(k) Medical Removal Protection - 1910.1025(k)(1) Temporary medical removal and return of an employee - 1910.1025(k)(1)(i) Temporary removal due to elevated blood lead levels - 1910.1025(k)(1)(i)(A) The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a periodic and a follow-up blood sampling test conducted pursuant to this section indicate that the employee's blood lead level is at or above 60 ug/100 g of whole blood; and, 1910.1025(k)(1)(i)(B) The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that the average of the last three blood sampling tests conducted pursuant to this section (or the average of all blood sampling tests conducted over the previous six (6) months, whichever is longer) indicates that the employee's blood lead level is at or above 50 [mu]g/100 g of whole blood; provided, however, that an employee need not be removed if the last blood sampling test	1910.1025(j)(3)(iii) Multiple physician review mechanism. 1910.1025(j)(3)(iii)(A) If the employer selects the initial physician who conducts any medical examination or consultation provided to an employee under this section, the employee may designate a second physician: 1910.1025(j)(3)(iii)(A)**(1)** To review any findings, determinations or recommendations of the initial physician; and 1910.1025(j)(3)(iii)(A)(2) To conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review. 1910.1025(j)(3)(iii)(B) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of

	Blood lead and ZPP level sampling and analysis. The employer shall make available biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin levels to each employee covered under paragraph (j)(1)(i) of this section on the following schedule: 1910.1025(j)(2)(i)(A) At least every 6 months to each employee covered under paragraph (j)(1)(i) of this section; 1910.1025(j)(2)(i)(B) At least every two months for each employee whose last blood sampling and analysis indicated a blood lead level at or above 40 ug/100 g of whole blood. This frequency shall continue until two consecutive blood samples and analyses indicate a blood lead level below 40 ug/100 g of whole blood; and 1910.1025(j)(2)(i)(C) At least monthly during the removal period of each employee removed from exposure to lead due to an elevated blood lead level. 1910.1025(j)(2)(ii) Follow-up blood sampling tests. Whenever the results of a blood lead level test indicate that an employee's blood lead level is at or above the numerical criterion for medical removal under paragraph (k)(1)(i)(A) of this section, the employer shall	a physician determines that the employee cannot wear a negative pressure respirator; and 1910.1025(j)(3)(v)(A)(4) The results of the blood lead determinations. 1910.1025(j)(3)(v)(B) The employer shall instruct each examining and consulting physician to: 1910.1025(j)(3)(v)(B)(1) Not reveal either in the written opinion, or in any other means of communication with the employer, findings, including laboratory results, or diagnoses unrelated to an employee's occupational exposure to lead; and 1910.1025(j)(3)(v)(B)(2) Advise the employee of any medical condition, occupational or nonoccupational, which dictates further medical examination or treatment.	indicates a blood lead level below 40 [mu]g/100 g of whole blood. 1910.1025(k)(1)(ii) Temporary removal due to a final medical determination. 1910.1025(k)(1)(ii)(A) The employer shall remove an employee from work having an exposure to lead at or above the action level on each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead. 1910.1025(k)(1)(ii)(B) For the purposes of this section, the phrase "final medical determination" shall mean the outcome of the multiple physician review mechanism or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section. 1910.1025(k)(1)(ii)(C) Where a final medical determination results in any recommended special protective measures for an employee, or limitations on an employee's exposure to lead, the employer shall implement and act consistent with the recommendation. 1910.1025(k)(1)(iii) Return of the employee to former job status. 1910.1025(k)(1)(iii)(A) The employer shall return an employee to his or her former job status: 1910.1025(k)(1)(iii)(A)(1) For an employee removed due to a blood lead level at or above 60 [mu]g/100 g, or due to an average blood lead level at or above 50 [mu]g/100 g, when two consecutive blood sampling tests indicate that the employee's blood lead level is below 40 [mu]g/100 g of whole blood; 1910.1025(k)(1)(iii)(A)(2) For an employee removed due to a final	the foregoing notification, or receipt of the initial physician's written opinion, whichever is later: 1910.1025(j)(3)(iii)(B)**(1)** The employee informing the employer that he or she intends to seek a second medical opinion, and 1910.1025(j)(3)(iii)(B)**(2)** The employee initiating steps to make an appointment with a second physician. 1910.1025(j)(3)(iii)(C) If the findings, determinations or recommendations of the second physician differ from thoseof the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement. 1910.1025(j)(3)(iii)(D) If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee through their respective physicians shall designate a third physician: 1910.1025(j)(3)(iii)(D)**(1)** To review any findings, determinations or recommendations of the prior physicians; and 1910.1025(j)(3)(iii)(D)**(2)** To conduct such examinations, consultations, laboratory tests and discussions with the prior physicians as the third physician deems necessary to resolve the disagreement of the prior physicians. 1910.1025(j)(3)(iii)(E) The employer shall act consistent with the findings, determinations and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise consistent with the recommendations of at least one of the three physicians. 1910.1025(j)(3)(vi) Alternate Physician Determination

	provide a second (follow-up) blood sampling test within two weeks after the employer receives the results of the first blood sampling test. 1910.1025(j)(3) Medical examinations and consultations - 1910.1025(j)(3)(i) Frequency. The employer shall make available medical examinations and consultations to each employee covered under paragraph (j)(1)(i) of this section on the following schedule: 1910.1025(j)(3)(i)(A) At least annually for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 ug/100 g; 1910.1025(j)(3)(i)(B) Prior to assignment for each employee being assigned for the first time to an area in which airborne concentrations of lead are at or above the action level; 1910.1025(j)(3)(i)(C) As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice concerning the effects of current or past exposure to lead on the employee's ability to procreate a healthy child, or that the employee has		medical determination, when a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to lead. 1910.1025(k)(1)(iii)(B) For the purposes of this section, the requirement that an employer return an employee to his or her former job status is not intended to expand upon or restrict any rights an employee has or would have had, absent temporary medical removal, to a specific job classification or position under the terms of a collective bargaining agreement. 1910.1025(k)(1)(iv) Removal of other employee special protective measure or limitations. The employer shall remove any limitations placed on an employee or end any special protective measures provided to an employee pursuant to a final medical determination when a subsequent final medical determination indicates that the limitations or special protective measures are no longer necessary. 1910.1025(k)(1)(v) Employer options pending a final medical determination. Where the multiple physician review mechanism, or alternate medical determination mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows: 1910.1025(k)(1)(v)(A) Removal. The employer may remove the employee from exposure to lead, provide special protective measures to the employee, or place limitations upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status. 1910.1025(k)(1)(v)(B)	Mechanisms. The employer and an employee or authorized employee representative may agree upon the use of any expeditious alternate physician determination mechanism in lieu of the multiple physician review mechanism provided by this paragraph so long as the alternate mechanism otherwise satisfies the requirements contained in this paragraph.

	demonstrated difficulty in breathing during a respirator fitting test or during use; and 1910.1025(j)(3)(i)(D) As medically appropriate for each employee either removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited pursuant to a final medical determination.		Return. The employer may return the employee to his or her former job status, end any special protective measures provided to the employee, and remove any limitations placed upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status, with two exceptions. If - 1910.1025(k)(1)(v)(B)(1) the initial removal, special protection, or limitation of the employee resulted from a final medical determination which differed from the findings, determinations, or recommendations of the initial physician or 1910.1025(k)(1)(v)(B)(2) The employee has been on removal status for the preceding eighteen months due to an elevated blood lead level, then the employer shall await a final medical determination. 1910.1025(k)(2) Medical removal protection benefits - 1910.1025(k)(2)(i) Provision of medical removal protection benefits. The employer shall provide to an employee up to eighteen (18) months of medical removal protection benefits on each occasion that an employee is removed from exposure to lead or otherwise limited pursuant to this section. 1910.1025(k)(2)(ii) Definition of medical removal protection benefits. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the earnings, seniority and other employment rights and benefits of an employee as though the employee had not been removed from normal exposure to lead or otherwise limited. 1910.1025(k)(2)(iii) Follow-up medical surveillance during the period of employee removal or limitation. During the period of time that an employee is removed from normal exposure to lead or	

			otherwise limited, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this section. 1910.1025(k)(2)(iv) Workers' compensation claims. If a removed employee files a claim for workers' compensation payments for a lead-related disability, then the employer shall continue to provide medical removal protection benefits pending disposition of the claim. To the extent that an award is made to the employee for earnings lost during the period of removal, the employer's medical removal protection obligation shall be reduced by such amount. The employer shall receive no credit for workers' compensation payments received by the employee for treatment related expenses. 1910.1025(k)(2)(v) Other credits. The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program, or receives income from employment with another employer made possible by virtue of the employee's removal. 1910.1025(k)(2)(vi) Employees whose blood lead levels do not adequately decline within 18 months of removal. The employer shall take the following measures with respect to any employee removed from exposure to lead due to an elevated blood lead level whose blood lead level has not declined within the past eighteen (18) months of removal so that the employee has been returned to his or her former job status: 1910.1025(k)(2)(vi)(A) The employer shall make available to the employee a medical examination pursuant to this section to obtain a final medical	

			determination with respect to the employee; 1910.1025(k)(2)(vi)(B) The employer shall assure that the final medical determination obtained indicates whether or not the employee may be returned to his or her former job status, and if not, what steps should be taken to protect the employee's health; 1910.1025(k)(2)(vi)(C) Where the final medical determination has not yet been obtained, or once obtained indicates that the employee may not yet be returned to his or her former job status, the employer shall continue to provide medical removal protection benefits to the employee until either the employee is returned to former job status, or a final medical determination is made that the employee is incapable of ever safely returning to his or her former job status. 1910.1025(k)(2)(vi)(D) Where the employer acts pursuant to a final medical determination which permits the return of the employee to his or her former job status despite what would otherwise be an unacceptable blood lead level, later questions concerning removing the employee again shall be decided by a final medical determination. The employer need not automatically remove such an employee pursuant to the blood lead level removal criteria provided by this section. 1910.1025(k)(2)(vii) Voluntary Removal or Restriction of An Employee. Where an employer, although not required by this section to do so, removes an employee from exposure to lead or otherwise places limitations on an employee due to the effects of lead exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that required by paragraph (k)(2)(i) of this section.	
Chromium	*Medical surveillance*.	1910.1026(k)(5)		

1910.1026	1910.1026(k)(1) *General*. 1910.1026(k)(1)(i) The employer shall make medical surveillance available at no cost to the employee, and at a reasonable time and place, for all employees: 1910.1026(k)(1)(i)(A) Who are or may be occupationally exposed to chromium (VI) at or above the action level for 30 or more days a year; 1910.1026(k)(1)(i)(B) Experiencing signs or symptoms of the adverse health effects associated with chromium (VI) exposure; or 1910.1026(k)(1)(i)(C) Exposed in an emergency. 1910.1026(k)(1)(ii) The employer shall assure that all medical examinations and procedures required by this section are performed by or under the supervision of a PLHCP. 1910.1026(k)(2) *Frequency*. The employer shall provide a medical examination: 1910.1026(k)(2)(i) Within 30 days after initial assignment, unless the employee has received a chromium (VI) related medical examination that meets the requirements of this paragraph within the last twelve months; 1910.1026(k)(2)(ii) Annually; 1910.1026(k)(2)(iii) Within 30 days after a	(5) PLHCP's written medical opinion. (i) The employer shall obtain a written medical opinion from the PLHCP, within 30 days for each medical examination performed on each employee, which contains: (A) The PLHCP's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to chromium (VI); (B) Any recommended limitations upon the employee's exposure to chromium (VI) or upon the use of personal protective equipment such as respirators; (C) A statement that the PLHCP has explained to the employee the results of the medical examination, including any medical conditions related to chromium (VI) exposure that require further evaluation or treatment, and any special provisions for use of protective clothing or equipment. (ii) The PLHCP shall not reveal to the employer specific findings or diagnoses unrelated to occupational exposure to chromium (VI). (iii) The employer shall provide a copy of the PLHCP's written medical opinion to the examined employee within two weeks after receiving it.		

	PLHCP's written medical opinion recommends an additional examination; 1910.1026(k)(2)(iv) Whenever an employee shows signs or symptoms of the adverse health effects associated with chromium (VI) exposure; 1910.1026(k)(2)(v) Within 30 days after exposure during an emergency which results in an uncontrolled release of chromium (VI); or 1910.1026(k)(2)(vi) At the termination of employment, unless the last examination that satisfied the requirements of paragraph (k) of this section was less than six months prior to the date of termination.			
Cadmium 1910.1027	1910.1027(l) Medical surveillance. - 1910.1027(l)(1) General. - 1910.1027(l)(1)(i) Scope. 1910.1027(l)(1)(i)(A) Currently exposed - The employer shall institute a medical surveillance program for all employees who are or may be exposed to cadmium at or above the action level unless the employer demonstrates that the employee is not, and will not be, exposed at or above the action level on 30 or more days per year (twelve consecutive months); and, 1910.1027(l)(1)(i)(B) Previously exposed - The	1910.1027(l)(10) *Physician's written medical opinion:* (i) The employer shall promptly obtain a written, medical opinion from the examining physician for each medical examination performed on each employee. This written opinion shall contain: (A) The physician's diagnosis for the employee; (B) The physician's opinion as to whether the employee has any detected medical condition(s) that would place the employee at increased risk of material impairment to health from further exposure to cadmium, including any indications of potential cadmium toxicity; (C) The results of any biological or other testing or related evaluations that directly assess	*Medical Removal Protection (MRP):* 1910.1027(l)(11)(i) *General*. 1910.1027(l)(11)(i)(A) The employer shall temporarily remove an employee from work where there is excess exposure to cadmium on each occasion that medical removal is required under paragraphs (l)(3), (l)(4), or (l)(6) of this section and on each occasion that a physician determines in a written medical opinion that the employee should be removed from such exposure. The physician's determination may be based on biological monitoring results, inability to wear a respirator, evidence of illness, other signs or symptoms of cadmium-related dysfunction or disease, or any other reason deemed medically sufficient by the physician. 1910.1027(l)(11)(i)(B) The employer shall medically remove an employee in accordance with paragraph	*Multiple physician review*. 1910.1027(l)(13)(i) If the employer selects the initial physician to conduct any medical examination or consultation provided to an employee under this section, the employee may designate a second physician to: 1910.1027(l)(13)(i)(A) Review any findings, determinations, or recommendations of the initial physician; and 1910.1027(l)(13)(i)(B) Conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review. 1910.1027(l)(13)(ii) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician provided by the

	employer shall also institute a medical surveillance program for all employees who prior to the effective date of this section might previously have been exposed to cadmium at or above the action level by the employer, unless the employer demonstrates that the employee did not prior to the effective date of this section work for the employer in jobs with exposure to cadmium for an aggregated total of more than 60 months. ***** 1910.1027(l)(2) Initial examination. 1910.1027(l)(2)(i) The employer shall provide an initial (preplacement) examination to all employees covered by the medical surveillance program required in paragraph (l)(1)(i) of this section. The examination shall be provided to those employees within 30 days after initial assignment to a job with exposure to cadmium or no later than 90 days after the effective date of this section, whichever date is later. ****** "Periodic medical surveillance." 1910.1027(l)(4)(i) For each employee who is covered under paragraph (l)(1)(i)(A), the employer shall provide at least the minimum level of periodic medical surveillance, which consists of periodic medical	the employee's absorption of cadmium; (D) Any recommended removal from, or limitation on the activities or duties of the employee or on the employee's use of personal protective equipment, such as respirators; (E) A statement that the physician has clearly and carefully explained to the employee the results of the medical examination, including all biological monitoring results and any medical conditions related to cadmium exposure that require further evaluation or treatment, and any limitation on the employee's diet or use of medications. (ii) The employer promptly shall obtain a copy of the results of any biological monitoring provided by an employer to an employee independently of a medical examination under paragraphs (l)(2) and (l)(4), and, in lieu of a written medical opinion, an explanation sheet explaining those results. (iii) The employer shall instruct the physician not to reveal orally or in the written medical opinion given to the employer specific findings or diagnoses unrelated to occupational exposure to cadmium.	(l)(11) of this section regardless of whether at the time of removal a job is available into which the removed employee may be transferred. 1910.1027(l)(11)(i)(C) Whenever an employee is medically removed under paragraph (l)(11) of this section, the employer shall transfer the removed employee to a job where the exposure to cadmium is within the permissible levels specified in that paragraph as soon as one becomes available. 1910.1027(l)(11)(i)(D) For any employee who is medically removed under the provisions of paragraph (l)(11)(i) of this section, the employer shall provide follow-up biological monitoring in accordance with (l)(2)(ii)(B) at least every three months and follow-up medical examinations semi-annually at least every six months until in a written medical opinion the examining physician determines that either the employee may be returned to his/her former job status as specified under (l)(11)(iv)-(v) or the employee must be permanently removed from excess cadmium exposure. 1910.1027(l)(11)(i)(E) The employer may not return an employee who has been medically removed for any reason to his/her former job status until a physician determines in a written medical opinion that continued medical removal is no longer necessary to protect the employee's health. 1910.1027(l)(11)(ii) Where an employee is found unfit to wear a respirator under paragraph (l)(6)(ii), the employer shall remove the employee from work where exposure to cadmium is above the PEL. 1910.1027(l)(11)(iii) Where removal is based on any reason other than the employee's inability to wear a respirator, the employer shall remove the employee from work where exposure to	employer conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, multiple physician review upon the employee doing the following within fifteen (15) days after receipt of this notice, or receipt of the initial physician's written opinion, whichever is later: 1910.1027(l)(13)(ii)(A) Informing the employer that he or she intends to seek a medical opinion; and 1910.1027(l)(13)(ii)(B) Initiating steps to make an appointment with a second physician. 1910.1027(l)(13)(iii) If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement. 1910.1027(l)(13)(iv) If the two physicians have been unable to quickly resolve their disagreement, then the employer and the employee, through their respective physicians, shall designate a third physician to: 1910.1027(l)(13)(iv)(A) Review any findings, determinations, or recommendations of the other two physicians; and 1910.1027(l)(13)(iv)(B) Conduct such examinations, consultations, laboratory tests, and discussions with the other two physicians as the third physician deems necessary to resolve the disagreement among them. 1910.1027(l)(13)(v) The employer shall act consistently with the findings, determinations, and recommendations of the third physician, unless the employer and the employee

	examinations and periodic biological monitoring. A periodic medical examination shall be provided within one year after the initial examination required by paragraph (l)(2) and thereafter at least biennially. Biological sampling shall be provided at least annually, either as part of a periodic medical examination or separately as periodic biological monitoring. ***** 1910.1027(l)(7) Emergency examinations: 1910.1027(l)(7)(i) In addition to the medical surveillance required in paragraphs (l)(2)-(6) of this section, the employer shall provide a medical examination as soon as possible to any employee who may have been acutely exposed to cadmium because of an emergency. 1910.1027(l)(8) Termination of employment examination: 1910.1027(l)(8)(i) At termination of employment, the employer shall provide a medical examination in accordance with paragraph (l)(4)(ii) of this section, including a chest X-ray, to any employee to whom at any prior time the employer was required to provide medical surveillance under paragraphs (l)(1)(i) or (l)(7) of this section. However, if the last examination satisfied the		cadmium is at or above the action level. 1910.1027(l)(11)(iv) Except as specified in paragraph (l)(11)(v), no employee who was removed because his/her level of CdU, CdB and/or B(2)-M exceeded the medical removal trigger levels in paragraphs (l)(3) or (l)(4) may be returned to work with exposure to cadmium at or above the action level until the employee's levels of CdU fall to or below 3 ug/g Cr, CdB falls to or below 5 ug/lwb, and B(2)-M falls to or below 300 ug/g Cr. 1910.1027(l)(11)(v) However, when in the examining physician's opinion continued exposure to cadmium will not pose an increased risk to the employee's health and there are special circumstances that make continued medical removal an inappropriate remedy, the physician shall fully discuss these matters with the employee, and then in a written determination may return a worker to his/her former job status despite what would otherwise be unacceptably high biological monitoring results. Thereafter, the returned employee shall continue to be provided with medical surveillance as if he/she were still on medical removal until the employee's levels of CdU fall to or below 3 ug/g Cr, CdB falls to or below 5 ug/lwb, and B(2)-M falls to or below 300 ug/g Cr. 1910.1027(l)(11)(vi) Where an employer, although not required by (l)(11)(i) thru (iii) of this section to do so, removes an employee from exposure to cadmium or otherwise places limitations on an employee due to the effects of cadmium exposure on the employee's medical condition, the employer shall provide the same medical removal protection benefits to that employee under paragraph (l)(12) as would have been provided had the removal been required under paragraph (l)(11)(i) thru (iii) of this section. 1910.1027(l)(12) *Medical Removal Protection Benefits*	reach an agreement that is consistent with the recommendations of at least one of the other two physicians. 1910.1027(l)(14) *Alternate physician determination*. The employer and an employee or designated employee representative may agree upon the use of any alternate form of physician determination in lieu of the multiple physician review provided by paragraph (l)(13) of this section, so long as the alternative is expeditious and at least as protective of the employee.

	requirements of paragraph (l)(4)(ii) of this standard and was less than six months prior to the date of termination, no further examination is required unless otherwise specified in paragraphs (l)(3) or (l)(5); 1910.1027(l)(8)(ii) However, for employees covered by paragraph (l)(1)(i)(B), if the employer has discontinued all periodic medical surveillance under (l)(4)(v), no termination of employment medical examination is required.		*(MRPB)*. 1910.1027(l)(12)(i) The employer shall provide MRPB for up to a maximum of 18 months to an employee each time and while the employee is temporarily medically removed under paragraph (l)(11) of this section. 1910.1027(l)(12)(ii) For purposes of this section, the requirement that the employer provide MRPB means that the employer shall maintain the total normal earnings, seniority, and all other employee rights and benefits of the removed employee, including the employee's right to his/her former job status, as if the employee had not been removed from the employee's job or otherwise medically limited. 1910.1027(l)(12)(iii) Where, after 18 months on medical removal because of elevated biological monitoring results, the employee's monitoring results have not declined to a low enough level to permit the employee to be returned to his/her former job status: 1910.1027(l)(12)(iii)(A) The employer shall make available to the employee a medical examination pursuant to this section in order to obtain a final medical determination as to whether the employee may be returned to his/her former job status or must be permanently removed from excess cadmium exposure; and 1910.1027(l)(12)(iii)(B) The employer shall assure that the final medical determination indicates whether the employee may be returned to his/her former job status and what steps, if any, should be taken to protect the employee's health. 1910.1027(l)(12)(iv) The employer may condition the provision of MRPB upon the employee's participation in medical surveillance provided in accordance with this section.	
Benzene	1910.1028(i)	1910.1028(i)(7)	Medical removal plan.	

1910.1028	Medical surveillance - 1910.1028(i)(1) General. 1910.1028(i)(1)(i) The employer shall make available a medical surveillance program for employees who are or may be exposed to benzene at or above the action level 30 or more days per year; for employees who are or may be exposed to benzene at or above the PELs 10 or more days per year; for employees who have been exposed to more than 10 ppm of benzene for 30 or more days in a year prior to the effective date of the standard when employed by their current employer; and for employees involved in the tire building operations called tire building machine operators, who use solvents containing greater than 0.1 percent benzene. ****** 1910.1028(i)(3) Periodic examinations. 1910.1028(i)(3)(i) The employer shall provide each employee covered under paragraph (i)(1)(i) of this section with a medical examination annually following the previous examination. ****** 1910.1028(i)(5) Additional examinations and referrals. 1910.1028(i)(5)(i)Where the employee develops signs and symptoms commonly	Physician's written opinions. 1910.1028(i)(7)(i) For each examination under this section, the employer shall obtain and provide the employee with a copy of the examining physician's written opinion within 15 days of the examination. The written opinion shall be limited to the following information: 1910.1028(i)(7)(i)(A) The occupationally pertinent results of the medical examination and tests; 1910.1028(i)(7)(i)(B) The physician's opinion concerning whether the employee has any detected medical conditions which would place the employee's health at greater than normal risk of material impairment from exposure to benzene; 1910.1028(i)(7)(i)(C) The physician's recommended limitations upon the employee's exposure to benzene or upon the employee's use of protective clothing or equipment and respirators. 1910.1028(i)(7)(i)(D) A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions resulting from benzene exposure which require further explanation or treatment. 1910.1028(i)(7)(ii) The written opinion obtained by the employer shall not reveal specific records, findings and diagnoses that have no bearing on the employee's ability to work in a benzene-exposed workplace. 1910.1028(i)(8)	1910.1028(i)(8)(i) When a physician makes a referral to a hematologist/internist as required under paragraph (i)(5)(ii) of this section, the employee shall be removed from areas where exposures may exceed the action level until such time as the physician makes a determination under paragraph (i)(8)(ii) of this section. 1910.1028(i)(8)(ii) Following the examination and evaluation by the hematologist/internist, a decision to remove an employee from areas where benzene exposure is above the action level or to allow the employee to return to areas where benzene exposure is above the action level shall be made by the physician in consultation with the hematologist/internist. This decision shall be communicated in writing to the employer and employee. In the case of removal, the physician shall state the required probable duration of removal from occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision. 1910.1028(i)(8)(iii) For any employee who is removed pursuant to paragraph (i)(8)(ii) of this section, the employer shall provide a follow-up examination. The physician, in consultation with the hematologist/internist, shall make a decision within 6 months of the date the employee was removed as to whether the employee shall be returned to the usual job or whether the employee should be removed permanently. 1910.1028(i)(8)(iv) Whenever an employee is temporarily removed from benzene exposure pursuant to paragraph (i)(8)(i) or (i)(8)(ii) of this section, the employer shall transfer the employee to a comparable job for which the employee is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible, but in no event higher than	

	associated with toxic exposure to benzene, the employer shall provide the employee with an additional medical examination which shall include those elements considered appropriate by the examining physician.		the action level. The employer shall maintain the employee's current wage rate, seniority and other benefits. If there is no such job available, the employer shall provide medical removal protection benefits until such a job becomes available or for 6 months, whichever comes first. 1910.1028(i)(8)(v) Whenever an employee is removed permanently from benzene exposure based on a physician's recommendation pursuant to paragraph (i)(8)(iii) of this section, the employee shall be given the opportunity to transfer to another position which is available or later becomes available for which the employee is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible but in no event higher than the action level. The employer shall assure that such employee suffers no reduction in current wage rate, seniority or other benefits as a result of the transfer. 1910.1028(i)(9) Medical removal protection benefits. 1910.1028(i)(9)(i) The employer shall provide to an employee 6 months of medical removal protection benefits immediately following each occasion an employee is removed from exposure to benzene because of hematological findings pursuant to paragraphs (i)(8)(i) and (ii) of this section, unless the employee has been transferred to a comparable job where benzene exposures are below the action level. 1910.1028(i)(9)(ii) For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the current wage rate, seniority and other benefits of an employee as though the employee had not been removed. 1910.1028(i)(9)(iii)	

			The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program, or from employment with another employer made possible by virtue of the employee's removal.	
Cotton Dust 1910.1043	1910.1043(h) Medical surveillance - 1910.1043(h)(1) General. 1910.1043(h)(1)(i) Each employer covered by the standard shall institute a program of medical surveillance for all employees exposed to cotton dust. 1910.1043(h)(1)(ii) The employer shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician and are provided without cost to the employee. 1910.1043(h)(1)(iii) Persons other than licensed physicians, who administer the pulmonary function testing required by this section shall have completed a NIOSH-approved training course in spirometry. 1910.1043(h)(2) Initial examinations. The employer shall provide medical surveillance to each employee who is or may be exposed to cotton dust. For new employees, this examination shall be provided prior to initial assignment.	1910.1043(h)(5)**:** Physician's written opinion. (i) The employer shall obtain and furnish the employee with a copy of a written opinion from the examining physician containing the following: (A) The results of the medical examination and tests including the FEV(1), FVC, AND FEV(1)/FVC ratio; (B) The physician's opinion as to whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of the employee's health from exposure to cotton dust; (C) The physician's recommended limitations upon the employee's exposure to cotton dust or upon the employee's use of respirators including a determination of whether an employee can wear a negative pressure respirator, and where the employee cannot, a determination of the employee's ability to wear a powered air purifying respirator; and, (D) A statement that the employee has been informed by the physician of the results of the medical examination and any	1910.1043(f)(2)(ii) Whenever a physician determines that an employee who works in an area in which the cotton-dust concentration exceeds the PEL is unable to use a respirator, including a powered air-purifying respirator, the employee must be given the opportunity to transfer to an available position, or to a position that becomes available later, that has a cotton-dust concentration at or below the PEL. The employer must ensure that such employees retain their current wage rate or other benefits as a result of the transfer.	

	1910.1043(h)(3) Periodic examinations. 1910.1043(h)(3)(i) The employer shall provide at least annual medical surveillance for all employees exposed to cotton dust above the action level in yarn manufacturing, slashing and weaving, cotton washing and waste house operations. The employer shall provide medical surveillance at least every two years for all employees exposed to cotton dust at or below the action level, for all employees exposed to cotton dust from washed cotton (except from washed cotton defined in paragraph (n)(3) of this section), and for all employees exposed to cotton dust in cottonseed processing and waste processing operations. 1910.1043(h)(3)(ii) Medical surveillance as required in paragraph (h)(3)(i) of this section shall be provided every six months for all employees in the following categories: 1910.1043(h)(3)(ii)(A) An FEV(1) of greater than 80 percent of the predicted value, but with an FEV(1) decrement of 5 percent or 200 ml. on a first working day; 1910.1043(h)(3)(ii)(B) An FEV(1) of less than 80 percent of the predicted value; or 1910.1043(h)(3)(ii)(C) Where, in the opinion of the	medical conditions which require further examination or treatment. (ii) The written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposure.		

	physician, any significant change in questionnaire findings, pulmonary function results, or other diagnostic tests have occurred. 1910.1043(h)(3)(iii) An employee whose FEV(1) is less than 60 percent of the predicted value shall be referred to a physician for a detailed pulmonary examination.			
Formaldehyde 1910.1048	The employer shall make medical surveillance available for employees who develop signs and symptoms of overexposure to formaldehyde and for all employees exposed to formaldehyde in emergencies. When determining whether an employee may be experiencing signs and symptoms of possible overexposure to formaldehyde, the employer may rely on the evidence that signs and symptoms associated with formaldehyde exposure will occur only in exceptional circumstances when airborne exposure is less than 0.1 ppm and when formaldehyde is present in material in concentrations less than 0.1 percent.	1910.1048(1910.1048(l)(7) - Physician's written opinion. (i) For each examination required under this standard, the employer shall obtain a written opinion from the examining physician. This written opinion shall contain the results of the medical examination except that it shall not reveal specific findings or diagnoses unrelated to occupational exposure to formaldehyde. The written opinion shall include: (A) The physician's opinion as to whether the employee has any medical condition that would place the employee at an increased risk of material impairment of health from exposure to formaldehyde; (B) Any recommended limitations on the employee's exposure or changes in the use of personal protective equipment, including respirators; (C) A statement that the employee has been informed by the physician of any medical conditions which would be aggravated by exposure to formaldehyde, whether these conditions may have resulted from past formaldehyde exposure or	Medical removal. 1910.1048(l)(8)(i) The provisions of paragraph (l)(8) apply when an employee reports significant irritation of the mucosa of the eyes or of the upper airways, respiratory sensitization, dermal irritation, or dermal sensitization attributed to workplace formaldehyde exposure. Medical removal provisions do not apply in the case of dermal irritation or dermal sensitization when the product suspected of causing the dermal condition contains less than 0.05 percent formaldehyde. 1910.1048(l)(8)(ii) An employee's report of signs or symptoms of possible overexposure to formaldehyde shall be evaluated by a physician selected by the employer pursuant to paragraph (l)(3). If the physician determines that a medical examination is not necessary under paragraph (l)(3)(ii), there shall be a two-week evaluation and remediation period to permit the employer to ascertain whether the signs or symptoms subside untreated or with the use of creams, gloves, first aid treatment or personal protective equipment. Industrial hygiene measures that limit the employee's exposure to formaldehyde may also be implemented during this period. The employee shall be referred immediately to a physician prior to expiration of the two-week period if the signs or symptoms worsen.	Multiple physician review. 1910.1048(l)(9)(i) After the employer selects the initial physician who conducts any medical examination or consultation to determine whether medical removal or restriction is appropriate, the employee may designate a second physician to review any findings, determinations or recommendations of the initial physician and to conduct such examinations, consultations,and laboratory tests as the second physician deems necessary and appropriate to evaluate the effects of formaldehyde exposure and to facilitate this review. 1910.1048(l)(9)(ii) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation for the purpose of medical removal or restriction. 1910.1048(l)(9)(iii) The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the notification of the right to seek a second medical opinion, or receipt of the

		from exposure in an emergency, and whether there is a need for further examination or treatment. (ii) The employer shall provide for retention of the results of the medical examination and tests conducted by the physician. (iii) The employer shall provide a copy of the physician's written opinion to the affected employee within 15 days of its receipt.	Earnings, seniority and benefits may not be altered during the two-week period by virtue of the report. 1910.1048(l)(8)(iii) If the signs or symptoms have not subsided or been remedied by the end of the two-week period, or earlier if signs or symptoms warrant, the employee shall be examined by a physician selected by the employer. The physician shall presume, absent contrary evidence, that observed dermal irritation or dermal sensitization are not attributable to formaldehyde when products to which the affected employee is exposed contain less than 0.1 percent formaldehyde. 1910.1048(l)(8)(iv) Medical examinations shall be conducted in compliance with the requirements of paragraph (l)(5)(i) and (ii). Additional guidelines for conducting medical exams are contained in Appendix C. 1910.1048(l)(8)(v) If the physician finds that significant irritation of the mucosa of the eyes or of the upper airways, respiratory sensitization, dermal irritation, or dermal sensitization result from workplace formaldehyde exposure and recommends restrictions or removal, the employer shall promptly comply with the restrictions or recommendation of removal. In the event of a recommendation of removal, the employer shall remove the affected employee from the current formaldehyde exposure and if possible, transfer the employee to work having no or significantly less exposure to formaldehyde. 1910.1048(l)(8)(vi) When an employee is removed pursuant to paragraph (l)(8)(v), the employer shall transfer the employee to comparable work for which the employee is qualified or can be trained in a short period (up to 6 months), where the formaldehyde exposures are as low as possible, but not higher than the action level. The employer shall maintain the	initial physician's written opinion, whichever is later; 1910.1048(l)(9)(iii)(A) The employee informs the employer of the intention to seek a second medical opinion, and 1910.1048(l)(9)(iii)(B) The employee initiates steps to make an appointment with a second physician. 1910.1048(l)(9)(iv) If the findings, determinations or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve the disagreement. If the two physicians are unable to quickly resolve their disagreement, then the employer and the employee through their respective physicians shall designate a third physician who shall be a specialist in the field at issue: 1910.1048(l)(9)(iv)(A) To review the findings, determinations or recommendations of the prior physicians; and 1910.1048(l)(9)(iv)(B) To conduct such examinations, consultations, laboratory tests and discussions with the prior physicians as the third physician deems necessary to resolve the disagreement of the prior physicians. 1910.1048(l)(9)(v) In the alternative, the employer and the employee or authorized employee representative may jointly designate such third physician. 1910.1048(l)(9)(vi) The employer shall act consistent with the findings, determinations and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise

			employee's current earnings, seniority, and other benefits. If there is no such work available, the employer shall maintain the employee's current earnings, seniority and other benefits until such work becomes available, until the employee is determined to be unable to return to workplace formaldehyde exposure, until the employee is determined to be able to return to the original job status, or for six months, whichever comes first. 1910.1048(l)(8)(vii) The employer shall arrange for a follow-up medical examination to take place within six months after the employee is removed pursuant to this paragraph. This examination shall determine if the employee can return to the original job status, or if the removal is to be permanent. The physician shall make a decision within six months of the date the employee was removed as to whether the employee can be returned to the original job status, or if the removal is to be permanent. 1910.1048(l)(8)(viii) An employer's obligation to provide earnings, seniority and other benefits to a removed employee may be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program or from employment with another employer made possible by virtue of the employee's removal. 1910.1048(l)(8)(ix) In making determinations of the formaldehyde content of materials under this paragraph the employer may rely on objective data.	consistent with the recommendations of at least one of the three physicians.
MDA 1910.1050	The employer shall make available a medical surveillance program for employees exposed to MDA: 1910.1050(m)(1)(i)(A) Employees exposed at or above the action level for 30 or more days per year;	1910.1050(m)(8) - *Physician's written opinion*. (i) For each examination under this section, the employer shall obtain, and provide the employee with a copy of, the examining physician's written opinion within 15 days of its receipt. The written	*Medical removal*. 1910.1050(m)(9)(i) *Temporary medical removal of an employee*. 1910.1050(m)(9)(i)(A) *Temporary removal resulting from occupational exposure*. The employee shall be removed from work environments in which exposure to MDA is at or above the action	*Multiple physician review mechanism*. 1910.1050(m)(6)(i) If the employer selects the initial physician who conducts any medical examination or consultation provided to an employee under this section, and the employee has signs or symptoms of occupational exposure to MDA (which

	1910.1050(m)(1)(i)(B) Employees who are subject to dermal exposure to MDA for 15 or more days per year; 1910.1050(m)(1)(i)(C) Employees who have been exposed in an emergency situation; 1910.1050(m)(1)(i)(D) Employees whom the employer, based on results from compliance with paragraph (e)(8), has reason to believe are being dermally exposed; and 1910.1050(m)(1)(i)(E) Employees who show signs or symptoms of MDA exposure. 1910.1050(m)(1)(ii) The employer shall ensure that all medical examinations and procedures are performed by, or under the supervision of, a licensed physician, at a reasonable time and place, and provided without cost to the employee. *Additional examinations*. Where the employee develops signs and symptoms associated with exposure to MDA, the employer shall provide the employee with an additional medical examination including a liver function test. Repeat liver function tests shall be conducted on the advice of the physician. If the results of the tests are normal, tests must be repeated two to three weeks from the initial testing. If the	opinion shall include the following: (A) The occupationally-pertinent results of the medical examination and tests; (B) The physician's opinion concerning whether the employee has any detected medical conditions which would place the employee at increased risk of material impairment of health from exposure to MDA; (C) The physician's recommended limitations upon the employee's exposure to MDA or upon the employee's use of protective clothing or equipment and respirators; and (D) A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions resulting from MDA exposure which require further explanation or treatment. (ii) The written opinion obtained by the employer shall not reveal specific findings or diagnoses unrelated to occupational exposures.	level or where dermal exposure to MDA may occur, following an initial examination (paragraph (m)(2) of this section), periodic examinations (paragraph (m)(3) of this section), an emergency situation (paragraph (m)(4) of this section), or an additional examination (paragraph(m)(5) of this section) in the following circumstances: 1910.1050(m)(9)(i)(A)**(1)** When the employee exhibits signs and/or symptoms indicative of acute exposure to MDA; or 1910.1050(m)(9)(i)(A)**(2)** When the examining physician determines that an employee's abnormal liver function tests are not associated with MDA exposure but that the abnormalities may be exacerbated as a result of occupational exposure to MDA. 1910.1050(m)(9)(i)(B) *Temporary removal due to a final medical determination*. 1910.1050(m)(9)(i)(B)**(1)** The employer shall remove an employee from work environments in which exposure to MDA is at or above the action level or where dermal exposure to MDA may occur, on each occasion that there is a final medical determination or opinion that the employee has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to MDA. 1910.1050(m)(9)(i)(B)**(2)** For the purposes of this section, the phrase "final medical determination" shall mean the outcome of the physician review mechanism used pursuant to the medical surveillance provisions of this section. 1910.1050(m)(9)(i)(B)**(3)** Where a final medical determination results in any recommended special protective measures for an employee, or limitations on an employee's exposure to MDA, the employer shall implement and act consistent	could include an abnormal liver function test), and the employee disagrees with the opinion of the examining physician, and this opinion could affect the employee's job status, the employee may designate an appropriate, mutually acceptable second physician: 1910.1050(m)(6)(i)(A) To review any findings, determinations, or recommendations of the initial physician; and 1910.1050(m)(6)(i)(B) To conduct such examinations, consultations, and laboratory tests as the second physician deems necessary to facilitate this review. 1910.1050(m)(6)(ii) The employer shall promptly notify an employee of the right to seek a second medical opinion after each occasion that an initial physician conducts a medical examination or consultation pursuant to this section. The employer may condition its participation in, and payment for, the multiple physician review mechanism upon the employee doing the following within fifteen (15) days after receipt of the foregoing notification, or receipt of the initial physician's written opinion, whichever is later: 1910.1050(m)(6)(ii)(A) The employee informing the employer that he or she intends to seek a second medical opinion, and 1910.1050(m)(6)(ii)(B) The employee initiating steps to make an appointment with a second physician. 1910.1050(m)(6)(iii) If the findings, determinations, or recommendations of the second physician differ from those of the initial physician, then the employer and the employee shall assure that efforts are made for the two physicians to resolve any disagreement.

	results of the second set of tests are normal and, on the advice of the physician, no additional testing is required		with the recommendation. 1910.1050(m)(9)(ii) *Return of the employee to former job status*. 1910.1050(m)(9)(ii)(A) The employer shall return an employee to his or her former job status: 1910.1050(m)(9)(ii)(A)(1) When the employee no longer shows signs or symptoms of exposure to MDA, or upon the advice of the physician. 1910.1050(m)(9)(ii)(A)(2) When a subsequent final medical determination results in a medical finding, determination, or opinion that the employee no longer has a detected medical condition which places the employee at increased risk of material impairment to health from exposure to MDA. 1910.1050(m)(9)(ii)(B) For the purposes of this section, the requirement that an employer return an employee to his or her former job status is not intended to expand upon or restrict any rights an employee has or would have had, absent temporary medical removal, to a specific job classification or position under the terms of a collective bargaining agreement. 1910.1050(m)(9)(iii) *Removal of other employee special protective measure or limitations*. The employer shall remove any limitations placed on an employee, or end any special protective measures provided to an employee, pursuant to a final medical determination, when a subsequent final medical determination indicates that the limitations or special protective measures are no longer necessary. 1910.1050(m)(9)(iv) *Employer options pending a final medical determination*. Where the physician review mechanism used pursuant to the medical surveillance provisions of this section, has not yet resulted in a final medical determination with respect to an employee, the employer shall act as follows:	1910.1050(m)(6)(iv) If the two physicians have been unable to resolve quickly their disagreement, then the employer and the employee through their respective physicians shall designate a third physician; 1910.1050(m)(6)(iv)(A) To review any findings, determinations, or recommendations of the prior physicians; and 1910.1050(m)(6)(iv)(B) To conduct such examinations, consultations, laboratory tests, and discussions with the prior physicians as the third physician deems necessary to resolve the disagreement of the prior physicians. 1910.1050(m)(6)(v) The employer shall act consistent with the findings, determinations, and recommendations of the third physician, unless the employer and the employee reach an agreement which is otherwise consistent with the recommendations of at least one of the three physicians.

			1910.1050(m)(9)(iv)(A) *Removal*. The employer may remove the employee from exposure to MDA, provide special protective measures to the employee, or place limitations upon the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status. 1910.1050(m)(9)(iv)(B) *Return*. The employer may return the employee to his or her former job status, and end any special protective measures provided to the employee, consistent with the medical findings, determinations, or recommendations of any of the physicians who have reviewed the employee's health status, with two exceptions. 1910.1050(m)(9)(iv)(B)**(1)** If the initial removal, special protection, or limitation of the employee resulted from a final medical determination which differed from the findings, determinations, or recommendations of the initial physician; or 1910.1050(m)(9)(iv)(B)**(2)** If the employee has been on removal status for the preceding six months as a result of exposure to MDA, then the employer shall await a final medical determination. 1910.1050(m)(9)(v) *Medical removal protection benefits*. 1910.1050(m)(9)(v)(A) *Provisions of medical removal protection benefits*. The employer shall provide to an employee up to six (6) months of medical removal protection benefits on each occasion that an employee is removed from exposure to MDA or otherwise limited pursuant to this section. 1910.1050(m)(9)(v)(B) *Definition of medical removal protection benefits*. For the purposes of this section, the requirement that an employer provide medical removal protection benefits means that the employer shall maintain the earnings,	

			seniority, and other employment rights and benefits of an employee as though the employee had not been removed from normal exposure to MDA or otherwise limited. 1910.1050(m)(9)(v)(C) *Follow-up medical surveillance during the period of employee removal or limitations*. During the period of time that an employee is removed from normal exposure to MDA or otherwise limited, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this section. 1910.1050(m)(9)(v)(D) *Workers' compensation claims*. If a removed employee files a claim for workers' compensation payments for a MDA-related disability, then the employer shall continue to provide medical removal protection benefits pending disposition of the claim. To the extent that an award is made to the employee for earnings lost during the period of removal, the employer's medical removal protection obligation shall be reduced by such amount. The employer shall receive no credit for workers' compensation payments received by the employee for treatment-related expenses. 1910.1050(m)(9)(v)(E) *Other credits*. The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program, or receives income from non-MDA-related employment with any employer made possible by virtue of the employee's removal. 1910.1050(m)(9)(v)(F) *Employees who do not recover within the 6 months of removal*. The employer shall take the following measures with respect to any employee removed from exposure to MDA: 1910.1050(m)(9)(v)(F)**(1)**	

			The employer shall make available to the employee a medical examination pursuant to this section to obtain a final medical determination with respect to the employee; 1910.1050(m)(9)(v)(F)**(2)** The employer shall assure that the final medical determination obtained indicates whether or not the employee may be returned to his or her former job status, and, if not, what steps should be1 taken to protect the employee's health; 1910.1050(m)(9)(v)(F)**(3)** Where the final medical determination has not yet been obtained, or, once obtained indicates that the employee may not yet be returned to his or her former job status, the employer shall continue to provide medical removal protection benefits to the employee until either the employee is returned to former job status, or a final medical determination is made that the employee is incapable of ever safely returning to his or her former job status; and 1910.1050(m)(9)(v)(F)**(4)** Where the employer acts pursuant to a final medical determination which permits the return of the employee to his or her former job status, despite what would otherwise be an abnormal liver function test, later questions concerning removing the employee again shall be decided by a final medical determination. The employer need not automatically remove such an employee pursuant to the MDA removal criteria provided by this section. 1910.1050(m)(9)(vi) *Voluntary removal or restriction of an employee*. Where an employer, although not required by this section to do so, removes an employee from exposure to MDA or otherwise places limitations on an employee due to the effects of MDA exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to that	

			required by paragraph (m)(9)(v) of this section.	
1,3-Butadiene 1910.1051	1910.1051(k)(1)(ii) Employers (including successor owners) shall continue to provide medical screening and surveillance for employees, even after transfer to a non-BD exposed job and regardless of when the employee is transferred, whose work histories suggest exposure to BD: 1910.1051(k)(1)(ii)(A) At or above the PELs on 30 or more days a year for 10 or more years; 1910.1051(k)(1)(ii)(B) At or above the action level on 60 or more days a year for 10 or more years; or 1910.1051(k)(1)(ii)(C) Above 10 ppm on 30 or more days in any past year; and	1910.1051(k)(7) The written medical opinion. 1910.1051(k)(7)(i) For each medical evaluation required by this section, the employer shall ensure that the physician or other licensed health care professional produces a written opinion and provides a copy to the employer and the employee within 15 business days of the evaluation. The written opinion shall be limited to the following information: 1910.1051(k)(7)(i)(A) The occupationally pertinent results of the medical evaluation; 1910.1051(k)(7)(i)(B) A medical opinion concerning whether the employee has any detected medical conditions which would place the employee's health at increased risk of material impairment from exposure to BD; 1910.1051(k)(7)(i)(C) Any recommended limitations upon the employee's exposure to BD; and 1910.1051(k)(7)(i)(D) A statement that the employee has been informed of the results of the medical evaluation and any medical conditions resulting from BD exposure that require further explanation or treatment. 1910.1051(k)(7)(ii) The written medical opinion provided to the employer shall not reveal specific records, findings, and diagnoses that have no bearing on the employee's ability		

		to work with BD. Note: However, this provision does not negate the ethical obligation of the physician or other licensed health care professional to transmit any other adverse findings directly to the employee.		
Methylene Chloride 1910.1052	1910.1052(j) *Medical surveillance*. 1910.1052(j)(1) Affected employees. The employer shall make medical surveillance available for employees who are or may be exposed to MC as follows: 1910.1052(j)(1)(i) At or above the action level on 30 or more days per year, or above the 8-hour TWA PEL or the STEL on 10 or more days per year; 1910.1052(j)(1)(ii) Above the 8-TWA PEL or STEL for any time period where an employee has been identified by a physician or other licensed health care professional as being at risk from cardiac disease or from some other serious MC-related health condition and such employee requests inclusion in the medical surveillance program; 1910.1052(j)(1)(iii) During an emergency. 1910.1052(j)(2) Costs. The employer shall provide all required medical surveillance at no cost to affected employees, without loss of pay and at a reasonable time and place. 1910.1052(j)(3)	*Written medical opinions*. 1910.1052(j)(9)(i) For each physical examination required by this section, the employer shall ensure that the physician or other licensed health care professional provides to the employer and to the affected employee a written opinion regarding the results of that examination within 15 days of completion of the evaluation of medical and laboratory findings, but not more than 30 days after the examination. The written medical opinion shall be limited to the following information: 1910.1052(j)(9)(i)(A) The physician or other licensed health care professional's opinion concerning whether exposure to MC may contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke) or dermal disease or whether the employee has any other medical condition(s) that would place the employee's health at increased risk of material impairment from exposure to MC. 1910.1052(j)(9)(i)(B) Any recommended limitations upon the employee's exposure to MC, including removal from MC exposure, or upon the employee's use of respirators, protective clothing, or other protective	1910.1052(j)(11) *Medical Removal Protection (MRP)*. 1910.1052(j)(11)(i) Temporary medical removal and return of an employee. 1910.1052(j)(11)(i)(A) Except as provided in paragraph (j)(10) of this section, when a medical determination recommends removal because the employee's exposure to MC may contribute to or aggravate the employee's existing cardiac, hepatic, neurological (including stroke), or skin disease, the employer must provide medical removal protection benefits to the employee and either: 1910.1052(j)(11)(i)(A)(1) Transfer the employee to comparable work where methylene chloride exposure is below the action level; or 1910.1052(j)(11)(i)(A)(2) Remove the employee from MC exposure. 1910.1052(j)(11)(i)(B) If comparable work is not available and the employer is able to demonstrate that removal and the costs of extending MRP benefits to an additional employee, considering feasibility in relation to the size of the employer's business and the other requirements of this standard, make further reliance on MRP an inappropriate remedy, the employer may retain the additional employee in the existing job until transfer or removal becomes appropriate, provided: 1910.1052(j)(11)(i)(B)(1) The employer ensures that the employee receives additional medical surveillance, including a physical examination at least	*Multiple Health Care Professional Review Mechanism*. 1910.1052(j)(14)(i) If the employer selects the initial physician or licensed health care professional (PLHCP) to conduct any medical examination or consultation provided to an employee under this paragraph (j)(11), the employer shall notify the employee of the right to seek a second medical opinion each time the employer provides the employee with a copy of the written opinion of that PLHCP. 1910.1052(j)(14)(ii) If the employee does not agree with the opinion of the employer-selected PLHCP, notifies the employer of that fact, and takes steps to make an appointment with a second PLHCP within 15 days of receiving a copy of the written opinion of the initial PLHCP, the employer shall pay for the PLHCP chosen by the employee to perform at least the following: 1910.1052(j)(14)(ii)(A) Review any findings, determinations or recommendations of the initial PLHCP; and 1910.1052(j)(14)(ii)(B) conduct such examinations, consultations, and laboratory tests as the PLHCP deems necessary to facilitate this review. 1910.1052(j)(14)(iii) If the findings, determinations or recommendations of the second PLHCP

	Medical personnel. The employer shall ensure that all medical surveillance procedures are performed by a physician or other licensed health care professional, as defined in paragraph (b) of this section. 1910.1052(j)(4) Frequency of medical surveillance. The employer shall make medical surveillance available to each affected employee as follows: 1910.1052(j)(4)(i) Initial surveillance. The employer shall provide initial medical surveillance under the schedule provided by paragraph (n)(2)(iii) of this section, or before the time of initial assignment of the employee, whichever is later. The employer need not provide the initial surveillance if medical records show that an affected employee has been provided with medical surveillance that complies with this section within 12 months before April 10, 1997. 1910.1052(j)(4)(ii) Periodic medical surveillance. The employer shall update the medical and work history for each affected employee annually. The employer shall provide periodic physical examinations, including appropriate laboratory surveillance, as follows: 1910.1052(j)(4)(ii)(A) For employees 45 years of age or older, within 12 months of the initial	equipment. 1910.1052(j)(9)(i)(C) A statement that the employee has been informed by the physician or other licensed health care professional that MC is a potential occupational carcinogen, of risk factors for heart disease, and the potential for exacerbation of underlying heart disease by exposure to MC through its metabolism to carbon monoxide; and 1910.1052(j)(9)(i)(D) A statement that the employee has been informed by the physician or other licensed health care professional of the results of the medical examination and any medical conditions resulting from MC exposure which require further explanation or treatment. 1910.1052(j)(9)(ii) The employer shall instruct the physician or other licensed health care professional not to reveal to the employer, orally or in the written opinion, any specific records, findings, and diagnoses that have no bearing on occupational exposure to MC. [Note to paragraph (j)(9)(ii): The written medical opinion may also include information and opinions generated to comply with other OSHA health standards.]	every 60 days until transfer or removal occurs; and 1910.1052(j)(11)(i)(B)(2) The employer or PLHCP informs the employee of the risk to the employee's health from continued MC exposure. 1910.1052(j)(11)(i)(C) The employer shall maintain in effect any job-related protective measures or limitations, other than removal, for as long as a medical determination recommends them to be necessary. 1910.1052(j)(11)(ii) End of MRP benefits and return of the employee to former job status. 1910.1052(j)(11)(ii)(A) The employer may cease providing MRP benefits at the earliest of the following: 1910.1052(j)(11)(ii)(A)(1) Six months; 1910.1052(j)(11)(ii)(A)(2) Return of the employee to the employee's former job status following receipt of a medical determination concluding that the employee's exposure to MC no longer will aggravate any cardiac, hepatic, neurological (including stroke), or dermal disease; 1910.1052(j)(11)(ii)(A)(3) Receipt of a medical determination concluding that the employee can never return to MC exposure. 1910.1052(j)(11)(ii)(B) For the purposes of this paragraph (j), the requirement that an employer return an employee to the employee's former job status is not intended to expand upon or restrict any rights an employee has or would have had, absent temporary medical removal, to a specific job classification or position under the terms of a collective bargaining agreement. 1910.1052(j)(12) *Medical Removal Protection Benefits*. 1910.1052(j)(12)(i) For purposes of this paragraph (j), the term medical removal protection benefits means	differ from those of the initial PLHCP, then the employer and the employee shall instruct the two health care professionals to resolve the disagreement. 1910.1052(j)(14)(iv) If the two health care professionals are unable to resolve their disagreement within 15 days, then those two health care professionals shall jointly designate a PLHCP who is a specialist in the field at issue. The employer shall pay for the specialist to perform at least the following: 1910.1052(j)(14)(iv)(A) Review the findings, determinations, and recommendations of the first two PLHCPs; and 1910.1052(j)(14)(iv)(B) Conduct such examinations, consultations, laboratory tests and discussions with the prior PLHCPs as the specialist deems necessary to resolve the disagreements of the prior health care professionals. 1910.1052(j)(14)(v) The written opinion of the specialist shall be the definitive medical determination. The employer shall act consistent with the definitive medical determination, unless the employer and employee agree that the written opinion of one of the other two PLHCPs shall be the definitive medical determination. 1910.1052(j)(14)(vi) The employer and the employee or authorized employee representative may agree upon the use of any expeditious alternate health care professional determination mechanism in lieu of the multiple health care professional review mechanism provided by this paragraph so long as the alternate mechanism otherwise satisfies the requirements contained in this paragraph.

	surveillance or any subsequent medical surveillance; and 1910.1052(j)(4)(ii)(B) For employees younger than 45 years of age, within 36 months of the initial surveillance or any subsequent medical surveillance. 1910.1052(j)(4)(iii) Termination of employment or reassignment. When an employee leaves the employer's workplace, or is reassigned to an area where exposure to MC is consistently at or below the action level and STEL, medical surveillance shall be made available if six months or more have elapsed since the last medical surveillance. 1910.1052(j)(4)(iv) Additional surveillance. The employer shall provide additional medical surveillance at frequencies other than those listed above when recommended in the written medical opinion. (For example, the physician or other licensed health care professional may determine an examination is warranted in less than 36 months for employees younger than 45 years of age based upon evaluation of the results of the annual medical and work history.)		that, for each removal, an employer must maintain for up to six months the earnings, seniority, and other employment rights and benefits of the employee as though the employee had not been removed from MC exposure or transferred to a comparable job. 1910.1052(j)(12)(ii) During the period of time that an employee is removed from exposure to MC, the employer may condition the provision of medical removal protection benefits upon the employee's participation in follow-up medical surveillance made available pursuant to this section. 1910.1052(j)(12)(iii) If a removed employee files a workers' compensation claim for a MC-related disability, the employer shall continue the MRP benefits required by this paragraph until either the claim is resolved or the 6-month period for payment of MRP benefits has passed, whichever occurs first. To the extent the employee is entitled to indemnity payments for earnings lost during the period of removal, the employer's obligation to provide medical removal protection benefits to the employee shall be reduced by the amount of such indemnity payments. 1910.1052(j)(12)(iv) The employer's obligation to provide medical removal protection benefits to a removed employee shall be reduced to the extent that the employee receives compensation for earnings lost during the period of removal from either a publicly or an employer-funded compensation program, or receives income from employment with another employer made possible by virtue of the employee's removal. 1910.1052(j)(13) *Voluntary Removal or Restriction of an Employee*. Where an employer, although not required by this section to do so, removes an employee from exposure to MC or otherwise places any limitation on an employee due to	

			the effects of MC exposure on the employee's medical condition, the employer shall provide medical removal protection benefits to the employee equal to those required by paragraph (j)(12) of this section.	