

Attachment B - Summary of Major PRA-related Public Comments from FEA CHAPTER V: COSTS OF COMPLIANCE

I. Costs for General Industry

Cost of Air Quality Permit Notification

The Agency received comments suggesting that foundries and other manufacturing plants would be required by the Environmental Protection Agency (EPA), or other federal or state environmental authorities, to incur an administrative cost to ensure their systems are compliant with relevant EPA regulations. Commenters expressed concern that the permitting process itself could be a major undertaking, made worse by difficult compliance deadlines. Given that the final rule provides extra time for planning and permitting, OSHA has examined the potential impacts of the new rule and finds that the commenters are overstating the potential for such costs. The argument for significant permitting costs was typically combined (e.g., Document ID 2379, Appendix 3) with an argument that the Agency underestimated the amount of ventilation required to comply with the final rule; comments on ventilation requirements are dealt with in great detail elsewhere in this chapter.

Upon investigation, while OSHA agrees that it would be appropriate to recognize an administrative burden with respect to the interfacing environmental regulations, the Agency believes that many of the commenters' concerns were overstated. First, many control methods needed to comply with the final rule will not require alterations to existing ventilation systems. As discussed earlier in Chapter V, work practices, housekeeping and maintenance are important components in controlling exposures; in many cases existing ventilation, as designed and permitted with the environmental authority, is adequate, but needs to be maintained better. In addition, most establishments, particularly smaller ones, will continue to have particulate emissions levels that fall below the level of EPA permit requirements. In the case of large facilities that do not, the changes will be on a sufficiently small scale that they will not require elaborate re-permitting, but will only require minor incremental costs for notifying the environmental authorities, or in some cases, submitting a "minor" permit. (*See* <http://www2.epa.gov/nsr> and <http://www2.epa.gov/title-v-operating-permits>.) Taking into account the preceding silica PEL and the estimate that baghouses will capture 99 percent of silica emissions (Document ID 3641, p. VII-19), OSHA concludes that it is unlikely that facilities will encounter a need for significant air permit modifications.

The Agency recognizes, however, that there will be minor incremental costs for notifying environmental authorities. While many establishments in the United States may have no requirement to act, the Agency has conservatively assumed that all establishments with twenty or more employees in most industries will need to dedicate a certain amount of time to preparing a

one-time notification to environmental authorities to ensure that their air permits accurately reflect current operating conditions. OSHA has determined that small establishments would generally lack the large scale industrial facilities requiring permits, and that the few that might require such permits would be balanced out by the likely inclusion of medium establishments that do not actually require permits for their emissions. The industries excluded were those that generally lack large scale industrial facilities or that do not produce a concentrated, as opposed to diverse or unconsolidated, emission source. The excluded industries were hydraulic fracturing, shipyards, dental equipment and labs, jewelry, railroads, and landscaping.

To allow for adequate administrative time for creating and submitting the notification, at those facilities that could potentially incur costs, OSHA allocated 20 hours to establishments with 20 to 499 employees and 40 hours to establishments with 500 or more employees. A manager's loaded hourly wage rate of \$74.97 was applied to estimate the cost to employers (BLS, 2012b). The costs per establishment were estimated at approximately \$1,500 per medium establishment and \$3,000 per large establishment. Because both new permit applications and permit modifications are minor administrative chores, OSHA's cost estimates are sufficient to cover either case.

Comments and responses on exposure monitoring

Alternatives to hiring an industrial hygienist

In the PEA, OSHA estimated that employers would incur the cost of hiring an industrial hygienist to perform all necessary sampling. However, some commenters noted that there were less costly alternatives to hiring an outside IH consultant to conduct exposure monitoring.

A number of commenters suggested that the silica sampling could instead be conducted by in-house personnel. Kellie Vazquez, from Holes, Incorporated (a construction contractor), testified that the company she represented has done exposure monitoring using in-house personnel for some tasks its workers perform (Document ID 3580, Tr. 1411), while Andrew O'Brien from the National Industrial Sand Association (NISA) reported that "many NISA member companies [have] found that it is more cost-effective for them to train particular staff, and acquire the relevant equipment, than it is to hire consultants" (Document ID 3414, p. 10-11). Dr. Franklin Mirer, from the AFL-CIO, reported that General Motors has "a union rep who does all the air sampling," that at Johnson Controls hourly workers are performing exposure monitoring, and that, in his opinion, "the regular kind of facility management safety rep can do [exposure monitoring] as well" (Document ID 3578, Tr. 985-986). Dr. Mirer noted that while OSHA's exposure monitoring costs are "correctly derived from estimates of traditional consultant IH measurements, paying professional wages," employers could reduce costs by having "trained production or maintenance personnel, employed at the production facility, collect the samples" (Document ID 2256, Attachment 3, p. 12).

NISA urged OSHA to model costs for firms that choose to perform exposure monitoring using in-house personnel (Document ID 2195, p. 24), noting that the cost of doing so was not significant:

...even the two largest companies [that NISA surveyed on this issue], one of which is publicly-held, regard these costs as sufficiently minor that the companies, which rigorously track all elements of their operating costs, do not bother to track the employee costs associated with dust exposure monitoring (Document ID 2195, p. 23).

Mr. O'Brien stated that "some percentage of OSHA-regulated establishments can and will internalize the function [of air monitoring]" and that the ability of firms to perform monitoring in-house is not an issue of business or establishment size. Mr. O'Brien directed OSHA to a document on the NISA website that could assist firms in performing air monitoring in-house¹ (Document ID 3414, pp. 10-11). Mr. O'Brien also testified that NISA has a three-day program to train workers to become qualified to do exposure sampling (not restricted to silica sampling) (Document ID 3577, Tr. 609).

Some commenters also suggested that when conducting the sampling in-house, employers could further reduce costs by utilizing less-expensive dust monitoring, as opposed to exposure monitoring specifically for respirable crystalline silica. Under this approach, if the content of dust in the air was less than the action level, an employer could then conclude that the respirable crystalline silica content would also be below the action level. Dr. Mirer suggested that "real-time aerosol monitor[ing] combined with area samples for silica would enable source identification, real-time results, knowing the overexposure within minutes of when it happened rather than waiting for the lab results to come back" and that "rather than do full shift sampling at each station," employers can "take area samples for silica, and then ... use a dust monitor at each position to look at what the mass [of dust] is, apply the silica content, and you've got [the content of respirable crystalline silica]" (Document ID 3578, Tr. 941-942, 1004).

Robert Scholz, from TRC Consulting, testified that respirable dust monitors are commercially available and that if the silica content of the dust was known, then one could calculate exposures. Mr. Scholz also noted that these methods have been used by the foundry industry for twenty years and have become more widely used in the last ten years (Document ID 3584, Tr. 2738-9), while Scott Schneider, from the Laborers' Health and Safety Fund of North America, testified

¹ The document referenced is "Occupational Health Program for Exposure to Crystalline Silica in the Industrial Sand Industry", submitted as Document ID 2195, Appendix B. The document was accessed by OSHA staff on April 21, 2015 and does contain instructions for collection of exposure samples.

that respirable dust monitors are “becoming more useful, easier, and less expensive, and could be used” for defining a regulated area or on a job site. (Document ID 3589, Tr. 4264).

OSHA acknowledges that it might be more cost effective for firms to comply with the exposure monitoring requirement by using in-house personnel or by following the performance option and using less expensive general respirable dust monitoring, and that the Agency’s assumption that all affected firms will comply by following the scheduled monitoring option and hiring consulting industrial hygienists will likely result in an overestimation of the cost of compliance.² However, OSHA does not have sufficient data in the rulemaking record regarding how many employers may choose to perform monitoring in-house, with or without the use of commercially available dust monitoring, or how much those alternatives would cost. For example, even if a significant number of employers attempted in-house monitoring, it is not clear how many of those would need to provide additional training to their employees who would conduct the sampling, or how often those conducting the less expensive dust monitoring would need to incur additional costs when the silica content of the dust was not already known. Thus, OSHA was not able to make an accurate determination regarding the share of firms that would comply using other methods, or the cost involved in doing so. Because of this, OSHA is taking the more conservative approach and assuming that employers will follow the scheduled monitoring option for exposure monitoring. It should be noted, however, that the final standard does not preclude employers from utilizing other methods in order to comply with this provision when following the performance option under paragraph (d)(2).

Cost of an industrial hygienist

Having concluded that the final estimates will be based on the use of an industrial hygienist, the Agency turns now to the cost of that service. OSHA received a large number of comments on its estimate in the PEA that an IH would spend one day, at a cost of \$500, to set up and collect up to eight PBZ samples. Many of the commenters critical of OSHA’s cost estimates provided alternative estimates of their own, but these estimates ranged widely, as did the assumptions underlying them. Most of the comments discussed below are from general industry, but relevant comments from construction have been included as well.

First of all, some commenters took issue with the assumption of establishments hiring outside IH consultants to conduct the exposure assessments. Andrew O’Brien, from the NISA, stated that “NISA’s member companies conduct exposure assessments using in-house personnel” (Document ID 3414, p. 10). OSHA recognizes that establishments may employ an in-house IH or an in-house IH technician to conduct the monitoring. However, there will be other

² Employers may comply with the exposure monitoring requirements of the standard by utilizing dust monitoring instead of silica monitoring only if they are following the performance option under section (d)(2) and treating the result as objective data. If employers are following the scheduled monitoring option, as this cost section assumes, then under section (d)(5), they must follow Appendix A and utilize a method that tests for respirable crystalline silica content.

establishments that do not, and OSHA is attempting to estimate an average cost across all establishments while erring on the side of overestimating rather than underestimating costs. Kellie Vazquez, from Holes Incorporated, stated that OSHA's costs were too low and that she would need to hire an industrial hygienist and provide a company vehicle at a total cost over \$100,000 per year (Document ID 2338, p. 4). OSHA notes that the final rule does not specify that the exposure monitoring be performed by employees of a regulated employer. An employer could choose the less expensive option between hiring an IH employee and contracting with an IH consultant.

In terms of using an IH consultant, Franklin Mirer of the AFL-CIO stated that "the monitoring costs are correctly derived from estimates of traditional consultant IH measurements, paying professional wages" (Document ID 2256, Attachment 3, p. 8).

The Precast/Prestressed Concrete Institute (PCI), estimated:

the cost of a single one-day monitoring visit by an industrial hygienist, assuming 8 hours on site, 3 hours for preparation, 5 hours for report writing, and 4 hours for travel, would be at least \$1,000 plus \$100-\$150 for the laboratory costs³ (Document ID 2276, p. 9).

The American Foundry Society (AFS) commented that "[t]he industrial hygienist cost is closer to \$1700 per day rather than \$500 as estimated by OSHA in the PEA" (Document ID 2379, Appendix 3, p. 22). The AFS included consultant fees, travel time, and pump rental in its estimate. Christopher Norch, from Denison Industries and testifying on behalf of the AFS, noted that it cost one foundry \$3,000 for one day of sampling by a consultant (Document ID 3584, Tr. 2678).

The American Subcontractors Association, a national trade association representing subcontractors, specialty trade contractors, and suppliers in the construction industry, reported that "retaining an industrial hygienist to conduct such monitoring would cost between \$1,500 and \$2,500 per day (Document ID 2187, p. 5).

The Asphalt Roofing Manufacturers Association asserted that OSHA's estimate of the costs to comply with this provision was unreasonably low because, among other things:

- The estimate includes only the cost of a base level IH technician to collect the samples. It does not take into account oversight costs and project planning or project management by a consultant CIH [certified industrial hygienist].
- The costs for travel and other reasonable project expenses are not

³ OSHA notes that laboratory costs have been separately estimated, so they should not be included in estimates of IH costs.

included.

- The costs for IH consultant reports are not included.
- The costs for developing IH employee letters for those who participated in sampling were not included (Document ID 2291, p. 19).

Dr. Ronald Bird, on behalf of the Chamber of Commerce, similarly commented that OSHA omitted:

. . . costs of preparation for sampling, including research regarding past monitoring results, if any, and qualitative inspection of the facility, processes and materials used to identify work areas susceptible to exposure, analyzing workers task similarities and other factors relevant to grouping workers for air sampling purposes . . . (Document ID 2368, p. 12).

These criticisms of OSHA's estimates were echoed by the Independent Petroleum Association of America, which estimated a cost of \$2,500 per day for a visit by an IH to conduct sampling, including the IH's travel, salary, equipment, and report-preparation costs. These estimates were based on "[average] survey response by hydraulic fracturing companies for per day cost of IH visit to [hydraulic fracturing] site (remoteness premium)" (Document ID 2301, Attachment 3, tab Exposure Assessment Factors and Exposure Assessment Costs). The IPAA further noted that:

Where a static industry may be expected to be located within reasonable proximity to infrastructure and services required to comply with the ancillary provisions, hydraulic fracturing operations typically are not. Members of the Associations have reported that hiring an industrial hygienist to conduct exposure monitoring at a hydraulic fracturing site has four to six times as much per day [\$2,000 to \$3,000] as OSHA has estimated [\$500] would be required for a stationary industry within a reasonable distance to a metropolitan area (Document ID 2301, p. 73).⁴

URS Corporation, on behalf of ACC, commented that OSHA underestimated costs of a CIH because the Agency omitted additional time "for the CIH to draw conclusions based on the sampling and to write reports," which URS Corporation estimated would take an additional day (Document ID 2307, Attachment 8, p. 20).

OSHA has interpreted URS's cost model to yield an IH exposure monitoring cost of \$3,200, consisting of two days at \$1,600 a day (including \$100 a day for travel). Relatedly, in post-hearing comments on behalf of the ACC, Environomics reported that it had

⁴ The bracketed costs were added by OSHA for clarity.

increased the estimated costs for exposure assessment by increasing the unit cost estimate for an industrial hygienist to visit a site for exposure sampling, and by reducing the average number of overexposed employees that would likely be sampled during a single site sampling visit (thus projecting more sampling visits as necessary to assess exposure for all General Industry employees suspected of being exposed above the PEL) (Document ID 4015, p. 52).

To summarize, the Agency received IH cost estimates from commenters of \$500 or less (AFL-CIO and NISA), \$1,000 (PCI), \$1,700 (AFS, with \$3,000 reported by one foundry), \$2,000 (an average calculated for ASA-reported range), \$2,500 (an average calculated for IPAA), and \$3,200 (URS/ACC). These various cost estimates reflect important differences in assumptions concerning IH qualifications and expertise (from an IH technician to an IH to a CIH); the duration of IH exposure monitoring to obtain up to eight samples, including report writing (1 day versus more than 1 day); and possible related IH expenses (particularly travel-related costs).

In addition, during the comment period, OSHA had its contractor, ERG, conduct telephone interviews with seven industrial hygiene consultants to obtain better estimates of the costs associated with exposure monitoring.⁵ In a memorandum from ERG to OSHA, dated May 28, 2014, summarizing the interview results, ERG concluded from the interviewee comments that written reports may be needed to identify potential sources of exposure, that IH labor costs would apply to the preparation of sampling reports, and that it is common practice for a single IH (or field technician) to collect up to 8 full-shift samples and prepare a report in a single day (Document ID 3767). Averaging over the seven IH consultant interviewees, ERG reported that they estimated a minimum labor cost of \$1,813 and a maximum labor cost of \$2,411—or an average labor cost of \$2,112 per day of sampling, including report writing. In addition to these summary costs, OSHA found two statements in the ERG report to be critical:

One of the consultants stated that sampling costs are typically highest during the “discovery phase,” such as characterization of a new site or facility or compliance with a new rulemaking, and that sampling costs are generally lower for routine periodic monitoring (Document ID 3767, p. 2).

Along the same lines, ERG also reported that an IH technician is often used “to perform routine sampling at well characterized sites; however, for new or complex operations, a certified industrial hygienist (CIH) might be needed” (Document ID 3767, p. 2).

These two statements help explain the wide variation in cost estimates submitted by commenters. In effect, commenters appear to be estimating costs for exposure monitoring under two entirely

⁵ Interview questions included the price range for a typical sampling project and report, labor costs for sample collection and report, other costs such as sample analysis and equipment rental, and regional differences in costs, for example for firms with office locations in different parts of the country, among others.

different sets of circumstances: (1) initial monitoring during the “discovery phase” or for sites that have not previously been well characterized (in terms of being evaluated for purposes of exposure monitoring); and (2) routine periodic monitoring at sites that have previously been well characterized. Accordingly, OSHA has concluded that the best way to categorize the estimates provided in the comments is to provide two estimates of exposure monitoring costs in this FEA: one for initial monitoring and one for periodic monitoring.

Laboratory fees

Based on the 2000 EMSL Laboratory Testing Catalog, which was the source used for the PEA, OSHA estimated that analysis of each sample will cost \$140.27 (adjusted to 2012 dollars by OSHA (2016)) in lab fees and shipping costs. This is roughly consistent with the laboratory costs estimate of \$100-\$150 offered by the Precast/Prestressed Concrete Institute (Document ID 2276, p. 9). NISA also submitted cost estimates from five NISA member companies that showed a cost per sample ranging from \$49 to \$129 for “analytics,” which is lower than OSHA’s estimate (Document ID 4008, Attachment 3, p. 1). Given these fairly consistent ranges of cost, OSHA is again using the same cost in constant dollars that it did in the PEA because the EMSL catalog represents a published cost from a widely used laboratory.⁶

OSHA also again notes the comments promoting the use of commercially available dust-monitoring equipment discussed above. While the use of this equipment in practice would likely reduce the number of samples that would be sent to laboratories, meaning that OSHA’s estimate of the laboratory fee costs is an overestimate, any cost reductions would result from a combination of factors such as whether the silica content of the dust is known and how many employers would use these devices. OSHA did not find sufficient information in the record to determine what the reduction in laboratory expenses would be if some employers used dust-monitoring equipment. Furthermore, under the scheduled monitoring option, employers would need to comply with the laboratory requirements in Appendix A. OSHA is therefore, for cost purposes, taking a conservative approach and assuming that employers would follow the scheduled monitoring option instead of the performance option and pay the laboratory fee for each sample.

Number of Exposure Samples Taken Annually

Current Compliance

⁶ Because of the age of the original data source, ERG obtained supplemental information by contacting EMSL Laboratory, Galson Labs, and Analytics Corporation (all AIHA-accredited). ERG found the current cost estimates to average close to the original estimates in constant dollars, while noting that shipping costs per sample will vary with the number of samples and with the urgency of delivery.

The AFL-CIO commented that OSHA's costs for exposure monitoring assumed that employers are not already conducting exposure monitoring, and contended that OSHA thus overestimated the costs of compliance because those employers would not need to spend the estimated amount to comply with the new exposure monitoring requirements (Document ID 2256, Attachment 4, pp. 1 and 5). Dr. Ruth Ruttenberg, speaking on behalf of the AFL-CIO, noted that the preliminary initial regulatory flexibility analysis (PIRFA) included an existing compliance assumption of 32.6 percent that was removed in the PEA (Document ID 2256, Attachment 4, p. 5). The PIRFA compliance assumption was based on 1988 National Occupational Exposure Survey (NOES) data, which presented a wide range of percentages and which OSHA concluded were somewhat unreliable. After weighing comment from the SBAR panel, OSHA determined it was prudent not to include baseline compliance estimates in the PEA based on NOES data and instead to await evidence to be submitted on this issue. Unfortunately, such evidence was not submitted to the record. The Agency agrees that it is very likely that some employers already conduct exposure monitoring, but concludes that there is not sufficient evidence in the record as to how many establishments currently conduct exposure monitoring. Therefore, for costing purposes for the FEA, as in the PEA, OSHA has conservatively assumed no current compliance with the exposure monitoring requirements.

Comments and Responses on Medical Surveillance

Underestimation of Costs

A frequent criticism expressed by commenters was that OSHA had underestimated the costs associated with the medical surveillance provision. Some commenters, such as the National Precast Concrete Association, only asserted that OSHA's cost estimates for various provisions, including medical surveillance, were underestimated, without specifying any particular element of those costs or providing any alternative cost estimates (Document ID 2067, p. 4). Some commenters were more specific. John Burke, from OSCO Industries, Inc., commented that the "local cost of the required medical surveillance procedures [at] \$185/annually is approximately one-half of the cost required to conduct the medical surveillance on one employee" (Document ID 1992, p. 7). The cost Mr. Burke was referring to was for a single worker (per small entity in NAICS 331511) in Table IX-1 of the PEA, but that was the *annualized* medical surveillance cost for 2.2 workers in a small foundry, not the unit cost for a single worker. The comparable OSHA cost estimate for an initial medical screening for a single current employee in a small (20-499 employee) establishment, as shown in Table V-10 (page V-53) of the PEA, was \$384—which is larger than Mr. Burke's estimate of \$370 (since \$185 is one-half of the required cost, according to Mr. Burke). George Kennedy, from the National Utility Contractors Association, commented that "the cost of a medical evaluation that meets the NPRM requirements ranges from \$300 to \$500 per employee plus hourly wages and travel costs" (Document ID 2171, p. 5).

The Portland Cement Association (PCA) provided detailed cost information on the components of the medical exam:

The total minimum cost for the four medical tests is more than twice the estimated cost in the proposal; the average national cost to comply with the medical testing provisions for employees in a medical surveillance program contained in the proposed rule is more than five times the estimate provided to OSHA (Document ID 2284, p. 7).

The PCA utilized <http://health.costhelper.com> and www.newchoicehealth.com to source its estimates. Both sites appear to be privately-held information providers and not necessarily subject to public data standards for validity. OSHA disagrees with PCA's estimates based on a review of these sites by ERG, an OSHA contractor, which produced significantly different results, with low-end costs substantially less than the low end cited by PCA (ERG, 2015). Furthermore, the PCA comment seems to have drawn many of its cost estimates not from the "typical" costs given by the CostHelper website but from site user-submitted comments about what they had been billed for similar procedures. Characterizing these as if they capture nationally-representative ranges of costs is inaccurate.⁷ It is noteworthy that PCA's estimates for medical surveillance were above the range put forward by all other commenters in both general industry (as discussed above) and in construction (as discussed in the construction medical surveillance cost section later in this chapter). Also, while a number of commenters argued that costs within a certain range were typical of their members or employees, PCA did not make that claim.

The Asphalt Roof Manufacturers Association (ARMA) commented that OSHA's costs in the PEA substantially underestimated the full cost for:

(i) the exam, (ii) the time away from work for the employee to have the exam performed, (iii) backfill of the job position while the exam is performed, and (iv) recordkeeping. The cost for just the exam may approach as much as \$500 to \$700 per exam, depending on the region of the country. Of course, larger employers

⁷ From ERG (May 1, 2015): For example, the page for "X-Ray Cost" gives two different ranges for those without insurance and 19 different costs, including one for a chest x-ray. The costs that are cited are drawn from NewChoiceHealth.com, Berger Health System in Ohio, Baptist Memorial Health Care in Memphis, as well as user-submitted comments regarding what the user paid for a foot/hip/ankle X-ray and "CT abdomen with contrast." The estimate given by PCA as an "average national cost" (\$370) appears to be the cost from NewChoiceHealth.com for a chest x-ray; it is not clear how the "minimum national cost" (\$190) was derived, as this figure is not currently listed on the site. The "maximum national cost" (\$5,300) might be based on the \$5,200 cost submitted by user "Budde in Booneville, MS" for a CT abdomen with contrast, which is a significantly different (and more expensive) test than a chest x-ray.

For a pulmonary function test, CostHelper estimates the cost as "\$40-\$800 total," whereas the PCA comment gives the minimum as \$490 and maximum as \$4,500. The "maximum national cost" listed by PCA appears to have been derived from a comment by the user "SecondBreath in Boston, MA," who estimated the costs at \$4,445.00, and went on to say "Gross charges before insurance discount. Same tests two months ago were \$2,155. At an affiliated regional hospital same tests were around \$800."

may be able to negotiate lower costs based on volume of exams needed [footnote reference added by OSHA] (Document ID 2291, p. 26).⁸

Similarly, Stephanie Salmon, from the American Foundry Society (AFS), submitted a table comparing the estimates presented in the PEA for medical surveillance to estimates from the AFS, stating that “[t]hose [medical surveillance costs] estimated by AFS are higher than those estimated by OSHA in the PEA” (Document ID 2379 Appendix 3, p. 23). OSHA is unable to comment on the individual ARMA and AFS estimates as they did not contain source or reference material. While OSHA cannot address the validity of the ARMA and AFS estimates, OSHA recognizes that there is a wide range of costs and fees per service. The cost estimates included in this FEA represent a midpoint in the range, as derived from a national database of Medicare reimbursement, plus 30 percent to compensate for the effect of Medicare discounts that are unlikely to apply to occupational medicine environments. While it is possible that costs in particular geographic areas (or as ARMA notes, for different-sized employers) may run higher or lower than the national average, no evidence was presented to suggest that OSHA’s methodology for deriving a national estimate for workers and industries affected by the silica rule as a whole was flawed.

In addition, the National Rural Electric Cooperative Association (NRECA) submitted a cost estimate for initial health screenings for its members, arguing that “in the absence of objective air monitoring data, all employees may be subject to the establishment of an initial baseline examination” (Document ID 2365, p. 17). OSHA acknowledges that there will be many workers who meet the trigger for medical surveillance and will need initial medical examinations in the first year. However, employers in general industry or maritime excluded from the scope of the final rule based on objective data or whose employees' exposures will not meet or exceed the action level of 25 $\mu\text{g}/\text{m}^3$ for 30 or more days a year will not be subject to the medical surveillance requirements at all.

Travel Time Estimates

OSHA included an estimate in the PEA of 60 minutes of worker time for off-site travel to have a medical examination when required by the general industry and maritime standard. NRECA commented that:

“[g]iven the rural nature of our members, the range used in OSHA’s estimate is likely understated. More travel time and fewer medical personnel in rural area will increase this estimate in the case of rural electric cooperatives” (Document ID 2365, pp. 3 and 17).

⁸ OSHA notes that ARMA provided no cost information for the items (ii) through (iv) and that item (iii) is already reflected in item (ii). To see this latter point, consider that without the medical surveillance the employer would pay one employee for the work to be completed; with medical surveillance, the result is the same except that one more worker would have to be paid (not two more).

The Agency's analysis examines the economic impact on all affected industries. The NRECA represents employers who comprise only a fraction of the energy generation and supply industry. While the Agency recognizes that there will be instances where the travel time for a particular worker at a rural worksite will be greater than the 60 minutes that OSHA has estimated in its unit costs, this estimate represents a national average for workers in general industry or maritime. Logically, more rural, geographically dispersed jobs are likely to require more travel time; this additional travel time is already offset in the average by the concentration of jobs in other areas with nearby medical services available where the travel time would be significantly less than 60 minutes. The commenter did not identify any other deficiencies in the estimate. Additionally, OSHA compared the travel estimate to that in previous rules. For example, OSHA's chromium rule did not have the travel component broken out but an initial medical exam was estimated at 3 hours which includes the exam, written opinion, and travel time. For silica, the estimate is 2 hours for the exam and 15 minutes for recordkeeping. Applying the same breakdown to chromium would leave 45 minutes for travel time. Given this review of the chromium rulemaking, OSHA concludes that it is likely being conservative and overestimating the amount of travel time necessary and will revisit the issue in future rulemakings. However, because the record was not further developed in this rulemaking, OSHA is not now reducing its estimate from the PEA.

OSHA also notes that one commenter, the National Federation of Independent Business (NFIB), said that one member reported that "his company requires workers to go to the doctor in pairs" (Document ID 2210, p. 8), which would increase lost worktime costs. However, the Agency believes this example is so unusual and unrepresentative of most business practices that lost worktime costs have not been revised to reflect this single example.

Current Compliance and Overlap with Respiratory Protection

Although OSHA believes that some affected establishments currently provide some medical testing to their silica-exposed employees (as evidenced by the comments from firms and industry associations on their current medical surveillance costs), the Agency doubts that many provide the comprehensive health screening required under the rule. For example, Dal-Tile commented that:

Other OSHA regulations already require the facility to implement and maintain a Respiratory Protection Program (RPP). One component of an RPP is the requirement for every person who uses a respirator at any time during the year to ensure that they are physically capable of safely wearing the respirator. This is accomplished by requiring the employee to complete OSHA's Medical Questionnaire and submit it to a Doctor or other qualified occupational health care provider (Document ID 2147, p. 3).

The Dal-Tile comment notes the potential overlap of the respirator fitness evaluation required by OSHA's existing RPP requirement with the medical surveillance requirements of the final rule. In fact, the medical and work history required by the medical surveillance provisions of the final rule would also satisfy the respirator medical clearance required by the RPP, and a PLHCP report to the employer of the worker's fitness to wear a respirator. However, the Agency has conservatively ignored, in both the PEA and the FEA, any cost reduction for medical surveillance in the final rule arising from baseline compliance with the medical clearance requirement for respirator use.

Employee Turnover

In the PEA, OSHA estimated a hiring rate of 27.2 percent (utilizing 2008 data from the Bureau of Labor Statistics Job Openings and Labor Turnover Survey) and judged that 75 percent of new hires would require an initial health screening. As specified in paragraph (i)(2) of the rule, employees who had received a medical examination that meets the requirements of the rule within the previous three years will be exempt from the initial medical examination, so not all new hires will require initial medical testing. As noted earlier, OSHA estimated that 25 percent of new hires in general industry and maritime will be exempt from the initial medical examination.

A number of commenters noted that job turnover would affect the costs attributable to the medical surveillance requirement, because the final rule states that employees will not need an initial exam within 30 days of initial assignment if they have received a medical examination that meets the requirements of the rule within the last three years. For example, Dr. Ruth Ruttenberg, on behalf of the AFL-CIO, suggested that if no portability of medical records is assumed, "then there is an overestimation of cost for ...medical surveillance" (Document ID 2256, Attachment 4, p. 5). Dr. Ruttenberg continued by stating that "when individuals leave their jobs, it does not mean that they leave their industry...Portability of training and medical surveillance will help avoid duplication of services" and reduce compliance costs to employers (Document ID 2256, Attachment 4, p. 6). OSHA agrees that if an employee receives the required medical screening at one job, and then moves to a second job at which the employee would be covered by an OSHA silica standard, the second employer would not need to incur expenses for re-screening if it is within the time period specified in the standard. OSHA's cost estimates for medical surveillance in the FEA (and previously in the PEA) do avoid "duplication of services," consistent with the final rule. As noted earlier, OSHA did not receive comment on the accuracy of the 75 percent estimate. Hence, the Agency is retaining its estimate that 100 percent of current affected employees and 75 percent of new hires (based on the share of turnover associated with new hires to the industry) who meet the criteria for receiving medical surveillance, will be tested in the initial year after promulgation of this final rule.

Updated Unit Costs for FEA

Based on the preceding comments and the Agency's responses, OSHA has decided to maintain the same unit cost structure and time requirements used in the PEA, with the only changes being to update unit costs from 2009 to 2012 dollars.

Familiarization Costs

OSHA did not estimate any employer familiarization costs in the PEA. OSHA's rationale for not including familiarization costs in the PEA was that there was already an existing silica standard in place and, therefore, the Agency expected that any familiarization costs for a revised silica standard would be negligible. However, several commenters on the proposed rule argued that employers will need to spend time to become familiar with the requirements of the final rule; that the employer time spent is the direct result of the final rule itself; and, therefore, that OSHA should include employer familiarization costs as part of the costs of the final rule.

For example, James Hardie Building Products, Inc. (Document ID 2322, p. 175) stated that:

[T]he newly (or more extensively) regulated firm will almost certainly carry out the following activities, none of which have been accounted for or included in OSHA's analysis.

- Obtaining, reviewing, and developing an understanding of rule provisions and how they apply to the affected business
- Receiving review, analysis, and consultation by legal counsel (internal or outside) to identify the precise obligations imposed by the rule
- Consultation with insurance carrier(s) and possible revisions to policies and terms
- Developing or revising existing policies and procedures (e.g., code of conduct, EHS, employee development, training, performance evaluation, and procurement)
- Making adjustments to job scheduling and employee deployment to job sites
- Management monitoring of regulatory compliance and new/revised program success
- Initiation/expansion of employee health tracking
- Referrals to a pulmonologist, as required, and
- Records management for all of the above.

Ronald Bird, on behalf of the United States Chamber of Commerce, also commented on familiarization costs:

Familiarization covers at least the basic "initial" screening analysis to determine the likelihood that the regulation contains any applicable requirements or exposes the employer to any legal liabilities that merit further examination. For employers who are unable to conclude from an initial screening review whether a new or

revised rule applies, there would be “extended familiarization” effort required to fully review the regulation to determine in detail what elements of the regulation apply and to plan organizational adjustments to comply with the rules (Document ID 2368, p. 9).

In addition, Stuart Sessions, of Environomics, Inc., in characterizing OSHA’s cost estimates as being too low in general, included the following as an example of such costs that OSHA had omitted from its cost analysis: “Cost to read the rule, become familiar with it and plan a compliance strategy for the facility or business” (Document ID 4231, Attachment 1, p. 11).

OSHA finds the comments in support of including *some* familiarization costs persuasive—along the lines recommended by Stuart Sessions above— and the Agency has now concluded that employers will need to spend some time to understand the ancillary provisions and the other new and revised components of the final rule and to determine what actions they must take in order to comply. OSHA notes that, in addition to its other purposes, the familiarization time will help supervisors to prepare/select training to provide to other supervisors and to other employees of the firm. The issue that remains is to estimate the magnitude of these familiarization costs.

To provide some context, the Agency notes that there is an existing OSHA PEL for respirable crystalline silica that covers the same group of employers, and an existing OSHA hazard communication standard that covers all workplace exposures, including respirable crystalline silica. Therefore, OSHA expects that the vast majority of employers will already know whether they are going to be covered by the final rule and will be familiar with the types of processes and controls available to reduce their employees’ exposure to silica.

The Agency further notes that it is offering various materials to assist employers in understanding and complying with the final rule. These include guidance materials such as fact sheets and other summary materials on the final rule; an OSHA dedicated silica webpage that will contain outreach and compliance assistance products; and, as required by Section 212 of the Small Business Regulatory Enforcement Fairness Act,⁹ the release and dissemination of a small business compliance guide (not limited for use to small businesses) to provide additional guidance and ease familiarization and compliance with the final rule. In addition, OSHA has developed guidance to educate stakeholders on new Agency approaches taken in the respirable crystalline silica rule such as the requirements for the PLHCP’s written medical opinion for the employer. Furthermore, OSHA expects that industry associations will be providing additional support materials and services to their members covered by the rule. For example, such materials are already provided by the Marble Industry of America (MIA) including “videos, handouts, and training guidelines on awareness and prevention to minimize the risk of silicosis” which are provided “free-of-charge to stone companies online” (Document ID 1722, p. 1).

⁹ P.L. 104-121, March 29, 1996 (as amended by P.L. 110-28, May 25, 2007)

OSHA also intends to work with individual employers and industry groups to address specific compliance questions as necessary.

One commenter, Dr. Ronald Bird, on behalf of the United States Chamber of Commerce, offered an example of 8 hours as an amount of familiarization time that was a “composite of several persons’ inputs” into Dr. Bird’s review of OSHA’s proposal, while adding: “It is difficult to imagine that the requisite review time would be much less, and for larger firms and complex operations the time could be much more” (Document ID 2368, p. 10).

An 8-hour estimate is the same that OSHA used in its most recent estimate of familiarization time in its 2012 update to the Hazard Communication Standard (see 77 FR 17637-17638 (March 26, 2012)). OSHA believes that this is a reasonable estimate of familiarization time for a typical firm for this final silica rule.

II. COSTS FOR THE CONSTRUCTION INDUSTRY

Comments and responses on exposure monitoring

OSHA received a number of comments on the costs of exposure monitoring, with some commenters stating that OSHA had underestimated costs and others stating that OSHA had overestimated costs. As OSHA has retained the same cost methodology and unit costing used in general industry and maritime for construction, some of the relevant comments from that section are again discussed below. Note, however, that many of the construction industry comments are moot points in that, in the final rule, almost all silica-generating tasks would fall under Table 1 and require no exposure monitoring at all if employers fully and properly implement the engineering controls, work practices, and respiratory protection specified by Table 1. Sampling would be only conducted under rare conditions (as subsequently discussed) as the expectation is that most establishments will be complying with Table 1 protocols.

Robert Matuga, from the National Association of Home Builders (NAHB), commented that:

[Trade contractors] also work on multiple jobsites in a day, sometimes three to four, and their tasks and work conditions vary. In this instance, an industrial hygiene firm would be required to take multiple tests at multiple jobsites in a single day. These jobsites can be spread over a large geographic area covering fifty miles or more. Because of these conditions, exposure monitoring would be a constant ongoing activity (Document ID 2334, p. 6).

OSHA disagrees with NAHB's assertion that exposure monitoring would be a constant activity. Most or all of these establishments would choose to follow Table 1, negating the need for monitoring. For establishments who would be performing tasks on Table 1 but not using Table 1, OSHA expects that the reason would likely be the availability of objective data (e.g., provided by professional trade or industry associations) showing that the exposures are below the threshold for engineering controls (or exposure monitoring) requirements to apply.

Commenters also disagreed with the estimate of 15 percent of workers requiring reassessment. In particular, in his testimony, Jack Waggener, speaking for URS, testified that:

For the periodic monitoring, OSHA, who we believe is unrealistically low, assumed that 15 percent of the workers would be over the action level and that no worker would be over the PEL. We expect many

people to be over the PEL and many more people to be over the action level (Document ID 3582, Tr. 2019).

The Agency believes that Mr. Waggener simply misunderstood the Agency's methodology here. OSHA estimated that there would be an additional 15 percent of those at or over the action level performing additional testing due to a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the action level. OSHA was not suggesting that only 15 percent of worker exposures would be over the action level and none over the PEL.

Additionally, the American Foundry Society (AFS) asserted that the percentage of exposure sampling should be increased by 25 percent for reassessment based on experience (Document ID 2379, Attachment 3, p. 35). OSHA does not have strong evidence to dispute the AFS estimate, so the Agency has adopted AFS's 25 percent estimate for this FEA.

Under paragraph (d)(2)(vii)(B) of the final rule, the employer must provide any required PPE at no cost to the observer. One commenter, the Korte Company, asserted that OSHA had omitted the cost of PPE for an employee's designated representative during observation of monitoring "without regards to whether or not the representative is trained or qualified to be wearing the required PPE" (Document ID 3230, p.1). In response, OSHA would like to make several points. In most cases, observation of monitoring is expected to occur during the set-up and at the end of the exposure monitoring—where a respirator would not be required. Exposure monitoring is expected to occur relatively infrequently in construction under the final rule because OSHA expects most employers to rely on Table 1, which does not require exposure monitoring. OSHA judges that when exposure monitoring is conducted, observation of monitoring is typically a relatively rare occurrence. In most cases, designated representatives have experience in observing monitoring, often in the presence of chemicals for which respirators would be required; therefore, the designated representatives would be expected to be trained and qualified to wear a respirator and may own their own respirators with an APF of at least 10. For these reasons, OSHA has not included additional exposure monitoring costs for PPE during observation of monitoring.

Number of Exposure Samples Taken Annually

OSHA notes that the National Association of Manufacturers (NAM) argued that in order to "demonstrate results meeting the 95 percent confidence limit [...] it would be necessary to take 20 or more samples under substantially identical conditions" (Document ID 2380, Attachment 2, p. 17). OSHA disagrees with NAM's justification for

the extensive sampling and has discussed the 95-percent-confidence-interval issue in greater detail in the Summary and Explanation section of the preamble concerning general industry and maritime compliance with the PEL. OSHA therefore estimated that employers would not need to repeat sampling in order to achieve any particular confidence level.

Existing Compliance Rate

Dr. Ruth Ruttenberg on behalf of the AFL-CIO noted that OSHA's costs for exposure monitoring assumed that employers are not already conducting exposure monitoring and contended that OSHA is therefore overestimating the costs of compliance because those employers already engaging in exposure monitoring would not need to incur additional costs to comply with the new exposure monitoring requirements (Document ID 2256, Attachment 4, p. 5). The Agency agrees that it is very likely that some employers already conduct exposure monitoring, but concludes that there is not sufficient evidence in the record as to how many establishments currently conduct exposure monitoring. Therefore, for costing purposes for the FEA, as in the PEA, OSHA has conservatively assumed no current compliance with the exposure monitoring requirements.

Comments and Responses on Medical Surveillance

Unit costs

A frequent criticism expressed by commenters was that OSHA had underestimated the costs for the construction sector associated with the medical surveillance provision. See, e.g., comments from the Leading Builders of America (Document ID 2269, p. 18) and Fann Contracting, Inc. (Document ID 2116, Silica Comments 1, p. 18). However, the Leading Builders of America did not offer alternative estimates for the Agency to consider and Fann Contracting's only alternative estimate was an observation that travel time in Arizona could take many hours. While the Agency recognizes that there will be instances where the travel time for a particular construction worker would be greater than what OSHA has estimated in its unit costs, there will be other instances when the travel time is much less, considering that this estimate represents a national average for construction workers. Logically, more rural, geographically dispersed jobs are likely to require more travel time to medical facilities; this is offset, however, by the concentration of jobs in other areas with available nearby medical services. Note, however, that travel time was estimated to be 90 minutes for construction workers versus 60 minutes for workers in general industry or maritime to reflect the anticipated larger percentage of jobs in rural or remote areas. Further, as discussed in the general industry section, after reviewing other OSHA rulemakings, OSHA concludes that it is likely being conservative and overestimating the amount of travel time necessary and will revisit the issue in future rulemakings. For example, the asbestos in construction rule only includes 30 minutes of travel round trip for medical examinations. However, because the record was not further developed in this rulemaking, OSHA is not now reducing its estimate from the PEA.

A number of commenters from the construction sector provided specific cost estimates for initial medical examinations that were consistent with, or less than, OSHA's estimates

of \$389.38 to \$424.94 per employee. In some cases, the submitted cost estimates were bundled with costs representing other provisions of the standard. The Associated General Contractors of Michigan (AGCM) commented that “[t]he cost of training and medical health evaluations for each individual worker would cost more than \$300 per person” (Document ID 2265, Attachment 2, p. 2). The American Subcontractors Association reported average member estimates of \$250 to \$300 per employee for the required medical examinations (Document ID 2187, p. 7). The General Contractors Association of New York commented that “[t]he average cost of a single fit test and doctor exam to qualify employees for work is \$275” (Document ID 2314, p. 2). The Precast/Prestressed Concrete Institute (PCI) stated that “fit testing and associated medical clearance for one worker [would] cost between \$75 and \$400, depending on location” (Document ID 4029, p. 3). Note that OSHA judged that the medical and work history required by the medical surveillance provisions of the final rule could also provide respirator fitness results required by the RPP, but for costing purposes for the final rule, the Agency assumed no current compliance with the health evaluation requirements for RPP in the final rule.

Eric Olson, from the Western Construction Group, commented that “the local [occupational medicine clinic] stated that this evaluation would cost approximately \$150 per person because of the x-ray requirement... [s]o the financial impact of the average union mason in St. Louis at \$36 per hour is \$222 per worker” (Document ID 2183, pp. 3-4). Peter Soyka of Soyka & Company LLC reviewed OSHA’s proposal for James Hardie Building Products, Inc. and found OSHA’s medical surveillance unit costs “unrealistically low” (Document ID 2322, Attachment G, p. 16). Mr. Soyka indicated that to arrive at his estimate he “retained OSHA’s existing methodology ... adjust[ed] this number to 2012 dollars, applied this average cost to the corrected number of affected workers” and “used a three-year amortization period to annualize the costs of medical surveillance” (Document ID 2322, Attachment G, p. 28). Mr. Soyka arrives at an average annualized cost per at-risk worker of \$229.40, which is only slightly higher than OSHA’s estimated annualized cost of about \$226 (Document ID 2322, Attachment G, Appendix A, p. A-4). In conclusion, OSHA estimated in the PEA that medical surveillance would cost between \$389 and \$425 per worker for initial screening (annualized cost of \$226), depending on establishment size, which is comparable with the estimates presented above by the PCI and James Hardie Building Products and is higher than the estimates provided above by the ACGM, the Western Construction Group, and the General Contractors Association of New York.

Mr. Toscas of the Precast/Prestressed Concrete Institute (PCI) also argued that “an additional employee may also be needed to manage the new [medical surveillance] program at a cost of \$50,000 - \$60,000 per year” (Document ID 2276, p. 10). It was not explained why an employer would need to hire a new employee to manage a medical

surveillance program; the actual performance of the medical surveillance would be performed by medical staff, which has already been captured as an employer expense. The administrative element of keeping track of when employees are due for another medical examination or related information is a simple administrative task, as is any potential recordkeeping. Many OSHA rules require medical examinations and medical surveillance, including 29 CFR 1910.1027 (Cadmium), 29 CFR 1910.1026 (Chromium VI), and 29 CFR 1926.1101 (Asbestos), and OSHA has never estimated costs for adding a medical surveillance manager. To OSHA's knowledge (and no evidence has been presented otherwise in this record), employers have been able to meet the requirements of these rules without having to hire additional employees for administrative oversight.

Total costs

Some commenters used the Agency's cost estimates to provide an independent calculation of the costs. In its post-hearing comment, the CISC submitted calculations relating to the costs of the medical surveillance provision (Document ID 4023, Silica Cost Analysis, spreadsheet tab 16). These calculations, however, did not provide new information on the unit costs related to medical surveillance. The NAHB, commented that "[i]f each construction employee required only one screening per year at \$377.77, the total cost would be roughly \$1.2 billion" (Document ID 2296, p. 18). OSHA does not take issue with the unit cost. However, as widespread as silica exposure is in construction, the Agency estimates that less than forty percent of all construction workers have jobs that are potentially at risk for any silica exposure (see Table III-9 of this FEA). And of those, only construction workers required to wear respirators for 30 or more days per year would need to be offered medical surveillance. Unlike in the proposal, OSHA has included Table 1 in the final rule as a separate means of compliance for the majority of silica-generating tasks likely to arise in construction, and most of those tasks would not require respirator use under normal conditions. Additionally, as in the proposal, the final rule generally requires employers to offer full medical screenings for all affected workers initially and then every three years— not annually, as implied by the NAHB's estimates.

Current compliance

Although OSHA believes that some affected establishments in construction currently provide some medical testing to their silica-exposed employees, there was significant testimony in the record that many employers would at least have to make changes to their existing practices in order to comply with the new standard (See, e.g., Document ID 3580, Tr. 1535; Document ID 3585, Tr. 3004). Therefore, for costing purposes, the

Agency assumed no current compliance with the health screening requirements of the rule. Given this assumption, OSHA is likely overestimating costs as the Agency believes there are currently establishments in construction that utilize medical testing for silica-exposed employees.

Employee Turnover

For the PEA, OSHA estimated a hiring rate in the construction sector of 64.0 percent (utilizing 2008 data from the Bureau of Labor Statistics Job Openings and Labor Turnover Survey) and judged that 40 percent of new hires would require an initial health screening. OSHA did not receive comment on this 40 percent estimate, other than from commenters questioning whether it accounted for persons who would not need to be re-screened, which it does.

A concern among the commenters was that the amount of turnover in the construction industry rendered the medical surveillance requirement impractical, or at least very expensive. For example, NAHB commented that “in both home building and remodeling, workforce is transitory by nature and there is a very high rate of turnover in the workforce” (Document ID 2296, p. 44). Kelli Vazquez, from Holes Incorporated, presented cost estimates for her company based on an assumption that every new hire will need an initial exam (Document ID 2338, p. 6). The FEA does take into account a high turnover rate in construction. For the FEA, in order to estimate turnover rates in construction, OSHA (2016) used the hiring rate of 70.3 percent in construction as estimated in 2012 by the Bureau of Labor Statistics (BLS, 2012a), as opposed to the 64.0 percent rate from the PEA, which was based on the older 2008 data from the same source. As specified in paragraph (h)(2) of the rule, employees who had received a medical examination that meets the requirements of this section within the previous three years would be exempt from undergoing a second “initial” medical examination. Therefore, not all new hires would require initial medical testing even if they otherwise qualified for such testing as measured by foreseeable respirator use alone. However, as explained in the discussion of the costs of the general industry standard, OSHA lacks sufficient data to identify the percentage who would remain in silica construction jobs but would not require re-testing. Therefore, the Agency is not changing its estimate that 100 percent of current affected employees and 40 percent of new hires (reflecting the large percentage of construction workers who are rehired in the construction sector) who meet the criteria for receiving medical surveillance will be tested in the initial year after promulgation of this final rule.

Familiarization Costs and Costs of Communication of Silica Hazards to Employees

OSHA did not estimate any employer familiarization costs in the PEA in support of the proposed rule. However, for the same reasons explained in the discussion of familiarization costs for employers in general industry and maritime, OSHA is including familiarization costs in this FEA for employers in the construction sector. As was done for general industry and maritime, OSHA's estimate of familiarization costs for construction reflects the total familiarization time, costed at a supervisory wage, for each covered employer and is a function of establishment size. OSHA estimates that the average familiarization time will be the same as needed in general industry work: 4 hours per covered employer with fewer than 20 employees; 8 hours per covered employer with 20 to 499 employees; and 40 hours per covered employer with 500 or more employees. These estimates represent an average familiarization time for an establishment of a given size and, as a result, it is expected that some establishments will spend less time on familiarization than estimated here (e.g., if worker exposure never meets or exceeds the action level) and some will spend more time on familiarization than estimated here.

[Written Exposure Control Plan](#) *Employee Notification and Briefing*

Marcus Kuizenga, of James Hardie Building Products, Inc., commenting on OSHA's estimates for communication under the regulated area and written access control plan requirements in the PEA, stated that OSHA had estimated costs only to communicate to employees, but not to subcontractors at the same worksite (Document ID 2322, Attachment 1, p. 177). The Agency's preliminary estimate in the PEA encompassed communication to all at-risk workers at a worksite, where a worker could be an employee, a contractor, a subcontractor, or other worker under the control of the employer. OSHA assumed that each worker's employer, and not necessarily the general contractor at a worksite, would be responsible for employee communication. This all-inclusive group of workers requiring communication under the requirements in the proposed rule for regulated work areas and written access controls is the same group that would require job briefings under the written exposure control requirements in the final rule (although some of these workers will be addressed through direct access controls rather than job briefings).

For the FEA, OSHA is retaining the underlying assumptions used in the PEA. Despite the fact that there may be employees of many different employers at a worksite, OSHA did not increase the crew size for its estimates in the FEA both because subcontractors are likely to have their own competent person (which means that costs for the employee briefing provision to be implemented for the subcontractor's workers will be borne by the subcontractor and not the contracting employer) and because in many situations the workers generating the silica dust are the only ones at the jobsite at the time. This latter

point was noted in the case of granite countertop installation in a comment by Tony Zimbelman representing the National Association of Homebuilders (Document 2334, pp. 5 and 7).