

**OCCUPATIONAL SAFETY
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**FINAL STATEMENT OF REASONS****CALIFORNIA CODE OF REGULATIONS**

TITLE 8: Section 5155 of the General Industry Safety Orders

Airborne Contaminants - Wood Dust and Western Red Cedar

There are no modifications to the information contained in the Initial Statement of Reasons except for the following substantive and nonsubstantive modifications that are the result of public comments and/or Board staff evaluation.

**MODIFICATIONS AND RESPONSES TO COMMENTS RESULTING FROM
THE 45-DAY PUBLIC COMMENT PERIOD**

A modification is proposed to increase the PEL for wood dust from the proposed 1 mg/M³ to 2 mg/M³. The modification is necessary to address concerns expressed in oral and written comments that a proposed PEL of 1 mg/M³ is not feasible for the wood industry. However, a proposed PEL of 2 mg/M³ is considered feasible and will be more protective of worker health than the existing PEL of 5 mg/M³.

The Initial Statement of Reasons (ISOR) contains a nonsubstantive error in stating that smaller facilities of the Kalliny et al. study experienced higher exposures. The error states:

Most of the wood manufacturing facilities in the Kalliny study that are not in compliance with the proposed PEL were smaller scale facilities, employing in most cases only a few workers.

The Division of Occupational Safety and Health (Division) retracts its representation that most of the wood manufacturing facilities in the Kalliny study that are not in compliance with the proposed Permissible Exposure Limits (PEL) were smaller scale facilities, employing in most cases only a few workers.

SUMMARY OF AND RESPONSES TO ORAL AND WRITTEN COMMENTS**I. Written Comments:**

David Y. Shiraishi, MPH, Area Director, U.S. Department of Labor, Occupational Safety and Health Administration, by letter dated April 15, 2016.

Comment: Mr. Shiraishi's letter indicated that the proposal to amend Section 5155 to revise the PEL for Wood Dust and Western Red Cedar appears to be commensurate with the counterpart federal standard.

Response: The Board thanks Mr. Shiraishi for participating in this rulemaking process.

Dana Lee Cole, Executive Director, Hardwood Federation, by letter dated April 20, 2016.

Comment: The Hardwood Federation, representing 28 hardwood related trade associations and advocacy groups requests an extension of the comment period.

Response: The Board extended the Hearing and the comment period to 5 PM on May 19, 2016. The Hardwood Federation endorsed the comments of the American Wood Council submitted to the Board on May 19, 2016, and was co-signatory to a letter submitted to the Board by Dan Leacox on May 19, 2016, on behalf of the "Wood Dust and Western Red Cedar PELs Coalition." Please see the responses to these letters below.

Gary L. Heroux, Vice President, Product Acceptance, Composite Panel Association (CPA), by letter dated April 15, 2016.

Comment: The Composite Panel Association requests an extension of the comment period.

Response: The Board extended the Hearing and the comment period to 5 PM on May 19, 2016. The CPA endorsed the comments of the American Wood Council submitted to the Board on May 19, 2016, and was co-signatory to a letter submitted to the Board by Dan Leacox on May 19, 2016, on behalf of the "Wood Dust and Western Red Cedar PELs Coalition." Please see the responses to these letters below.

C.T. "Kip" Howlett, Jr., President, Hardwood Plywood and Veneer Association (HPVA), by letter dated April 15, 2016.

Comment: Hardwood Plywood and Veneer Association requests an extension of the comment period.

Response: The Board extended the Hearing and the comment period to 5 PM on May 19, 2016. The HPVA endorsed the comments of the American Wood Council submitted to the Board on May 19, 2016, and was co-signatory to a letter submitted to the Board by Dan Leacox on May 19, 2016, on behalf of the "Wood Dust and Western Red Cedar PELs Coalition." Please see the responses to these letters below.

Stewart E. Holm, Chief Scientist, American Wood Council (AWC), by letter dated April 15, 2016.

Comment: The American Wood Council requests an extension of the comment period.

Response: The Board extended the Hearing and the comment period to 5 PM on May 19, 2016. AWC submitted a comment to the Board on May 19, 2016, and was co-signatory to a letter submitted to the Board by Dan Leacox on May 19, 2016, on behalf of the “Wood Dust and Western Red Cedar PELs Coalition.” Please see the responses to these letters below.

Robert W. Glowinski, President & CEO, American Wood Council (AWC), by letter dated May 19, 2016. The letter was endorsed by 12 wood industry alliances, federations or associations some or all of which may be affiliates of AWC or of the larger umbrella organization, American Forest & Paper Association (AFPA), which AWC is affiliated.

AWC Comment 1: The proposed PEL is not feasible for a substantial portion of affected California companies and substantial evidence that the proposal is feasible has not been supplied.

Rulemaking requirements of California Labor Code Section 144.6 for “substantial evidence” that a proposed rule is technically and economically feasible have been ignored. This in effect makes employers bear the burden of proving the proposed PEL is infeasible.

Section 11350 of the California Government Code permits declaratory relief if an agency’s determination that a regulation is reasonably necessary is not supported by substantial evidence. Reasonableness includes recognition that adverse health effects result more from inadequate compliance with existing standards than from inadequate standards.

Response to AWC Comment 1: The Board thanks Mr. Glowinski and AWC for their comments and participation in the rulemaking process.

The determination of feasibility in the ISOR, Notice and Documents Relied Upon [collectively hereafter, the rulemaking documents] fulfills the statutory requirements of the Labor Code and Government Code and does not reverse the burden of proof and place it on employers. Technical and financial feasibility are demonstrated within the rulemaking documents.

AWC is correct that the California Government Code permits declaratory relief to be sought in court. However, the rulemaking documents provide the substantial evidence the law requires to demonstrate reasonable necessity and feasibility. The ISOR on page 3 states the necessity of lowering the PEL and references numerous studies showing health effects at exposures well below the current PEL. In addition to studies demonstrating reduced lung function (Mandryk et al. (1999), Chan-Yeung et al. (1980), and Andersen et al. (1977)), the ISOR also identifies mucus clearance difficulty as an important symptom at low levels of exposure as described by Randell and Boucher (2006) and Mandryk (1999).

The Board agrees with AWC that failure to comply with existing regulations can contribute to employee adverse health effects, but does not agree that it is unreasonable to establish an appropriate PEL to protect employees from adverse health effects that occur below the current PEL. The Notice cited lack of compliance with ventilation, fire prevention and other regulations. Compliance with existing regulations will, in most cases, bring an employer into compliance with the proposed PEL and is one of several factors that demonstrate the feasibility of the

proposal. For example, federal Occupational Safety and Health (OSHA) enforcement activity has found that regulations requiring adequate ventilation and appropriate ventilation maintenance have not been properly implemented in plants with high wood dust exposure. Compliance with the existing ventilation requirements will assist employers in meeting the proposed PEL.

The rulemaking documents refer to feasible work practices and engineering controls available to the wood industry today that were either not available or were more expensive at the time early studies documented high wood dust exposures. These include high-efficiency particulate air vacuums to replace dry sweeping and use of compressed air, enclosure-less bag-type dust collectors, less expensive cyclone dust collectors with improved designs, and more effective local exhaust ventilation at the point of dust generation on woodworking machines.

The last item, more effective dust capture at the point of dust release, was not explained in detail in the rulemaking documents, but is referenced in the “Woodworking eTool,” the eleventh enumerated Document Relied Upon listed in the ISOR. Within this federal OSHA woodworking eTool are descriptions of ventilation placement and design for the most common woodworking equipment, including saws, jointers, shapers, planers/molders, lathes, sanders and routers. These federal OSHA recommendations in turn reference a series of seven “hazard control” National Institute of Occupational Safety and Health (NIOSH) publications from 1996 and 2002 that describe and illustrate optimum ventilation design for each type of machine. These publications were based upon NIOSH observation and research. Several of the guides demonstrated that ventilation installed by machine manufacturers on older versions of this equipment was inefficient and of poor design. NIOSH discovered similar deficiencies even on the latest equipment models then available.¹ These NIOSH guidelines describe feasible, inexpensive and simple retrofits of the inadequate ventilation designs of then available commercial woodworking equipment. Suggested retrofits include, for example, additional or relocated shrouds or capture hoods. Materials to construct these suggested retrofits can be purchased at home improvement outlets and installed easily for most average size woodworking equipment. Solutions for large machinery typical of sawmills might require greater sophistication and financial input, but the principals of control are similar.

OSHA inspections of wood product manufacturing facilities often find unsafe and unhealthful work and ventilation practices that can easily and readily be improved to reduce dust exposures to assist with meeting the requirements of the proposal. These common observations include uncovered open belts and conveyors, use of compressed air to clean off surfaces, use of mobile bulk product moving equipment, such as front loaders with open cabs instead of air-conditioned/filtered cabs, and woodworking machine operator booths utilizing recirculated rather than clean outside air.

¹“NIOSH has developed new, innovative means for controlling dust exposures from these machines...these methods either increase the exhaust volume or velocity, or supply pressurized air to help blow dust particles from the machine into an exhaust hood. See “A Guide for Protecting Workers from Woodworking Hazards,” 1999, p 29 and *Appendix B, NIOSH Hazard Control*, p 46-52; <https://www.osha.gov/Publications/osh3157.pdf>

Several country-specific scientific studies indicate that the proposed PEL for wood dust has over time become more feasible. For example, Galea, et al. (2009) recorded an overall decline of wood dust exposure of 8.1% a year for the wood industry of the United Kingdom between 1985, and 2005. The Galea study suggested that “factors such as technological changes in production processes, response to new legislation and enforcement agency inspections together with global economic trends could be linked to the downward trends.” The Galea study was referenced in the HEAC summary report on wood dust (see ISOR Document Relied Upon #18).

At the October 6, 2010, Feasibility Advisory Committee (FAC) meeting, a representative of the AFPA and AWC averred that with then current (2010) installations there were some operations that could meet an exposure standard of 2 mg/M³ total dust, but would need respiratory protection to meet the 1 mg/M³ proposal. A spokesperson for Sierra Pacific Industries told the FAC that newer saw mills could attain the proposed PEL and that some sawmills possibly were already compliant. Since 2010, Sierra Pacific has renovated and upgraded several sawmills.

New and renovated plants tend to have improved dust controlling technologies for large industry (e.g. sawmills) and for smaller industries (e.g. fabricating shops). Portable woodworking tools that are more likely to be utilized in small wood fabricating shops have long been known to be major sources for exposure to wood dust. But portable tools are now commercially available with vacuum systems, making control of this source of exposure much more feasible than in the past.

Representatives of wood industries participating in the advisory process argued persuasively that the health-based exposure level of 1 mg/M³ *inhalable*² wood dust initially determined as the appropriate health based limit by the HEAC advisory panel was not feasible for some wood manufacturing processes utilizing available engineering controls. The HEAC panel agreed with the industry and recommended the proposed PEL of 1 mg/M³ for *total* wood dust. 1 mg/M³ total wood dust is twice the HEAC recommended maximum exposure of 1 mg/M³ inhalable dust and twice the level scientific evidence suggests would be a safe level and below which respiratory effects are not seen. HEAC deferred to the wood industry position despite the fact that substantial reliance on respiratory protection is feasible and could protect the entire occupationally exposed population to the 1 mg/M³ inhalable dust level.

A further reason to conclude that the proposed PEL of 1 mg/M³ total wood dust is feasible is that a number of governmental jurisdictions around the world [including France and some Canadian provinces] have adopted an enforceable occupational exposure limit of 1 mg/M³ inhalable dust (one-half the proposed PEL) for all wood species, while others have adopted this criterion for exposures to certain hardwood species. However, after further considering cost concerns expressed by commenters, the Board has modified the proposed PEL to 2 mg/M³ for total wood dust. Wood products industry representatives have stated that a PEL of 1 mg/M³ could be unreasonably costly and recommended a PEL of 2 mg/M³ as feasible. Modifying the PEL to 2 mg/M³ total wood dust will result in fewer employers having to take any action to meet the PEL,

² The ratio of inhalable wood dust to total wood dust at levels around the proposed PEL is generally in the range of 2 to 4.

fewer wood working operations needing to reconfigure or change out their dust control equipment, and fewer employees being required to use respirators. The modified PEL will thus result in significantly lower cost for employers compared to the original proposed PEL of 1 mg/M³.

AWC Comment 2: Utilization of the Kalliny, et al. study is fundamentally flawed and underestimates the economic consequences of the proposal. The ISOR inference that the Kalliny study of an inhalable dust industrial hygiene survey of 10 wood processing plants represents small manufacturers is incorrect.

The ISOR contains a major oversight with regard to the size of the facilities that were sampled in the Kalliny et al. study. Page three of the ISOR states “Most of the wood manufacturing facilities in the Kalliny study that are not in compliance with the proposed PEL were smaller scale facilities employing in most cases only a few workers.” But the companion longitudinal study (Glindmeyer et al. 2008) details that the number of workers at the 10 study plants ranged from 142 to 760.

This erroneous statement is substantially repeated on page four of the Notice: “Most of the wood manufacturing facilities that are not in compliance with the proposed PEL are smaller scale facilities, employing in most cases, only a few workers.” Then on page 6: “There will be no significant adverse economic impact on businesses as a result of this proposal because most affected businesses are already compliant with the proposed new PELs and those affected businesses not in compliance are also not in compliance with the existing PELs, either due to poor housekeeping and poor maintenance of existing exhaust and ventilation equipment or because of failure to install exhaust ventilation required under existing regulations.”

The Kalliny study estimated approximately 25% of 2,430 air samples exceeded the proposed PEL of 1 mg/M³ total dust. It is arbitrary and capricious to treat the figure of 25% as trivial. We include a table of the Kalliny study results at four plant types and the results from sanding operations at all plants, with the central tendency of dust measurements (50% above, 50% below the number) calculated.

Plant Type	N	MLEM (inhalable mg/m ³)	MLEM (total dust mg/m ³)
Furniture	1042	2.94	1.2
Cabinet	450	2.64	1.1
Wood Milling	471	2.06	0.82
Sawmill/Plywood Assembly	467	1.09	0.44
All Sanding Measurements	620	3.76	1.5

For sanding operations, the total dust central tendency was 1.5 mg/M³. Consequently, just looking at the number of samples below 1 mg/M³ total dust to determine feasibility is an arbitrary, capricious and unreasonable method of assessing feasibility. Basing feasibility on

percent samples, especially when based on tasks where measurements are expected to be lower is highly improper and contrary to applicable law.

We believe this view of feasibility is supported by case law governing federal OSHA standards adoption—a process enabled by substantially the same rulemaking authority granted to the Board. OSHA must prove a reasonable possibility that the typical firm subject to the PEL will be able to develop and install engineering and work practice controls capable of meeting the PEL in most operations; a PEL is not feasible if respirators must be utilized in a substantial number of industries or operations. A Federal Appellate case [*United Steelworkers v. Marshall*, 647 F.2d 1189, 1301 (DC Cir. 1980)] requires technical feasibility to be tested in each industry. When federal OSHA has not done this review sufficiently, courts have remanded standards back to the agency [*AFL-CIO v. OSHA*, 965 F. 2d 962, 980 (11th Cir. 1992)]. These principles are reflected in the cadmium and chromium standards adopted by both Federal OSHA and the Standards Board, which indicates that the Standards Board is governed by and follows the same legal principles.

The Board should not be so casual about the economic impact if such facilities have to go from a 5 mg/M³ or higher level down to 1 mg/M³. Census data for two manufacturing sectors with prevalent sanding operations (wood household and kitchen cabinet/countertop manufacturing) illustrate a significant decline in establishment numbers in recent years. The Board should be careful not to place a significant regulatory burden on this sector that would force closures.

Response to AWC Comment 2: AWC correctly identifies that the ISOR contains an error in stating that smaller facilities of the Kalliny et al. study experienced the higher exposures. The error, on page 8 of the ISOR, states the following:

Most of the wood manufacturing facilities in the Kalliny study that are not in compliance with the proposed PEL were smaller scale facilities, employing in most cases only a few workers.

The reference to small employers as most likely to be out of compliance should refer to the wood industry as a whole and not the ten facilities selected for the Kalliny study. It is the Division's enforcement experience that smaller employers tend to have lower rates for compliance with existing Title 8 regulations.

Although the ISOR incorrectly referenced the Kalliny et al. study regarding the size of employers with higher exposures, the study's aggregated sampling data for four types of wood manufacturing plants demonstrate feasibility with the proposed PEL. The aggregate geometric mean of all inhalable sampling for each type of plant converts to less than the proposed PEL of 1 mg/M³ total dust.

The Board does not agree that the low to moderate economic impact predicted on page 6 of the Notice is a casual dismissal of potential costs. Facilities that are not in compliance with existing parallel regulations, such as having a ventilation system, can reduce exposures to the PEL for a reasonable cost. In smaller shops, NIOSH information, OSHA experience, internet videos and

other woodworking websites demonstrate simple low-cost compliance methods without the need for professional ventilation experts.

Dust collecting equipment cost for woodworking machine setups in smaller shops are low. Moderate sized cyclone dust collectors used in large facilities can be purchased for the relatively moderate price of a few hundred to a few thousand dollars—although these purchases should have already occurred to comply with other Title 8 requirements. Poor work practices can be corrected and improvements made to existing ventilated machines and tools for zero or low-cost.

Overwhelmingly, California woodworking manufacturing places of employment employ fewer than 100 employees significantly exposed to wood dust. This is ascertained from data available from many public sources including OSHA's inspection database, the California Bureau of Electronic and Appliance Repair, Home Furnishings and Thermal Insulation's registration of manufacturers of upholstered furniture, internet business reporting sites and web information of AWC's membership. AWC reported small numbers of large facilities: 59 California manufacturing plants in the basic rough wood products industry, including 42 sawmill and related manufacturing plants. Many AWC employees are not significantly exposed to wood dust (for example: mechanical and electrical engineers, machinists, welders, electricians, technicians, marketing experts, sales personnel, accountants, office personnel, truck drivers, fork lift operators, lumber raters, and many other occupations).

The Board disagrees with AWC in its interpretation of the Kalliny data. While the Board does not think approximately 25% of exposures above the proposed wood dust PEL is trivial, the Board views roughly 75% of exposures already below the proposed PEL as a significant indicator of technical and economic feasibility.

AWC asserts that focus on the number of samples below 1 mg/M^3 is an arbitrary, capricious and unreasonable method of assessing feasibility. In fact, the Board reviewed the proportion of samples above the proposed PEL as well as those below. Kalliny job specific exposure readings indicate certain job tasks disproportionately skew average and mean exposures upwards—especially blowing off and sanding tasks. In most instances, it is the Division's enforcement experience that blowing off tasks can be eliminated with the substitution of other methods or are short duration/high exposure tasks for which the wearing of respirators is not burdensome. The Kalliny study does not distinguish between sanding tasks utilizing portable tools or larger equipment, but in both instances low-cost improvements in technology are available to lower exposures.

The Board disagrees with AWC's assertion that several federal court decisions bind the Board to reject a PEL which might require significant reliance on respirators to achieve compliance. Federal court decisions regarding federal OSHA rulemaking are not legally binding on the Board because the California Occupational Safety and Health Act of 1973 and the California Administrative Procedure Act define rulemaking authority in California. The Board does not agree that the cited cases dealt with sufficiently comparable circumstances.

California Code of Regulations, Title 8, Section 5144 requires respirator use when engineering and administrative controls have proven inadequate. Respirators are a technologically feasible method to comply with the proposal in rare cases that engineering and administrative controls are insufficient. Respirators are used in many industries throughout California to meet PEL requirements.

Moreover, the Board does not agree that the use of respirators is an unavoidable consequence for the workers performing the tasks the Kalliny study identified as over the proposed PEL. With reference to the table extracted from the study, the furniture and cabinet plants studied are shown with geometric mean exposure just above the proposed PEL. The Kalliny study identified sanding tasks as the main process category not achieving or close to achieving the proposed PEL. Many of the studies included in the rulemaking documents had the same finding. The wood dust hazard control guidelines published by NIOSH in 1996 demonstrate improved ventilation control solutions for different types of sanders that can be used.

The processes evaluated in the Kalliny study may not have benefited from use of the maximum achievable engineering controls and available practical administrative controls. Scientific studies and enforcement inspections often find that local exhaust ventilation has not been correctly configured. In addition to the feasible interventions discussed earlier, enclosed or partially enclosed control booths are an alternative solution to reduce exposures below the proposed PEL. The Kalliny study noted that the highest exposures are from blowing down machinery and surfaces with compressed air. Blowing down is a short term activity for which vacuuming can be substituted or for which short duration use of respirators can be utilized to reduce exposures. Another effective substitute work practice that generates less dust than blowing off is sweeping of surfaces towards ventilation duct openings, called "floor sweeps," located for that purpose a few inches above the floor.

The Board agrees with AWC that the number of wood product establishments have been declining in California, due to many factors, including international trade, but does not agree that the PEL reduction will alter those trends and tendencies as any cost increases associated with the lower PEL are minor and will not be a significant reduction in an establishment's overall profits. However, as stated in the response to AWC Comment 1, the Board has modified the proposed PEL to 2 mg/M³ for total wood dust.

AWC Comment 3: The Health Effect Advisory Committee (HEAC) and Division analysis of health effects of wood exposure is flawed because each of the three studies the Board cites to support the proposed PEL have notable deficiencies and other scientific studies of greater interpretative value are discounted or ignored.

The Mandryk et al. (1999) paper reported reduced lung function at four Australian sawmills exposed to a mean range of inhalable dust exposures just under 5 mg/M³. But the mean range across the four plants is for plant-wide averages, not to wood dust exposures per se, which include exposures much higher. Another study of the sawmills noted that at three of the four mills (green mills) local exhaust systems were absent and Mandryk et al. (2000) noted that at the remaining mill poor maintenance of the exhaust system was visibly obvious. The ISOR does not

mention that high concentrations of microbiologicals, which may be confounding factors in the health assessments, are associated with green mills.

The Chan-Yeung et al. (1980) study at a pulp and paper mill noted slight decreases in lung function at mean exposures of 0.5 mg/M^3 , but no statistically significant associations between wood dust and health effects. Therefore, there is no basis for using this study in setting a PEL for wood dust.

The Andersen et al. (1977) study referenced mucociliary clearance in Danish furniture workers, with increasing mucociliary transport time beginning with exposures below 5 mg/M^3 . The sampled facilities were relatively small, and the workspaces likely highly variable given roaming workers in a space of confined operations. Variable exposure could impact the results significantly. The study had no information about dust controls at the facilities and no reported statistics on the general population background rate of mucostasis and how that rate compared to workers exposed to the lower workplace dust concentrations recorded. The ISOR does not report that the study did not find differences between workers exposed to high or low wood dust concentrations. The study authors reported that the mucostatic effect seemed to be transient, which does not support the supposition that mucostasis may be a precursor for more serious health issues. Given these issues it would be inappropriate to use this study as a basis for this PEL proposal.

The Division failed to adequately evaluate the available scientific literature. In particular, the ISOR made no reference to the most data-intensive longitudinal pulmonary function study of the wood processing industry, Glindmeyer et al. (2008). This study was discussed at the HEAC at its March 24, 2010, meeting when several concerns about the study were raised. AWC answered those issues in a June 8, 2010, letter to HEAC. Glindmeyer et al. found no decreases in lung function at levels of 2 mg/M^3 and higher across the overall exposure range. The Glindmeyer et al. study, also known as the Tulane study, was a large, well-conducted, data-intensive longitudinal study of lung function in wood workers that provides a sound scientific basis for a health protective wood dust PEL. The Board should issue a revised PEL for wood dust supported by available substantial evidence. AWC believes a PEL less than 2 mg/M^3 is infeasible.

Response to AWC Comment 3: AWC criticizes the Board's reliance on three scientific studies, Mandryk et al., Chan-Yeung et al., and Andersen et al. The Board notes that studies in toxicology and epidemiology without deficiencies are non-existent; there are always questions that were not asked, tests not undertaken, and variables and inaccuracies that were not sufficiently anticipated. For occupational exposure limit setting, multiple studies and sources of evidence are reviewed and interpreted. Although the ISOR discusses these three studies, multiple additional studies and sources of evidence on exposure to wood dust were reviewed by the HEAC and the Division. The HEAC wood dust summary document is based upon a review of 97 studies, only 22 of which overlapped with the 170 studies reviewed by the American Conference of Governmental Industrial Hygienists Threshold Limit Values committee in its documentation.

The Board emphasizes that the ISOR and Notice only summarize high points of the advisory process and the Documents Relied Upon, while the proposal itself is based upon all that transpired in the advisory process and relevant contributions from all Documents Relied Upon.

In regard to the specific comments about the Mandryk study, the Board notes there are other studies mentioned in the advisory process and Documents Relied Upon which document respiratory effects at lower exposures, but Mandryk was mentioned for purposes of the summary nature of the ISOR because of its significant size, breadth and scope, finding similar health effects in four mills. The Board disagrees with AWC that reduced lung function in the Mandryk study was associated only with high levels of wood dust exposure; the Mandryk study also found health effects among workers with lower levels of wood dust exposure. The Mandryk study included one plant at which individual exposures were on average below the proposed PEL yet still found respiratory symptoms, including respiratory decline below age adjusted expectations. The Mandryk study also found that the joinery task had average exposures far below 5 mg/M^3 at all the plants, and respiratory changes were still observed. Finally, without specifying the plants or operations, the Mandryk study indicated ventilation systems were inadequately maintained. In this manner the Mandryk study supports the feasibility of the proposed PEL and is not an indicator that a higher PEL would be more appropriate. More recent studies that recommend an occupational exposure limit based on health effects often recommend a limit lower than the Board is proposing.

The Board agrees that high concentrations of microbiological agents such as bacteria and mold may be confounding factors in the health assessments seen in the wood industry. The HEAC summary report mentions the potential health effects of microbiological contamination of wood. However, the collective weight of many studies indicate the futility of trying to determine the specific health effects that may be attributable to the myriad of microbiological contaminants of wood dust. Many studies have investigated specific components, including the chemical and microbiological, of wood dust as potential controlling factors of health effects, but all occupational exposure limit setting bodies that have reviewed this question have decided to establish limits on wood dust as a whole as there is insufficient information to single out one, or several variables, or even to evaluate hard wood and soft wood dusts separately. (The exception to this is that several jurisdictions have singled out wood from a few highly allergenic tree species for a lower PEL than proposed by the Board). The Board also notes that the Mandryk, et al. study is included as a reference in the Glindmeyer Final Report.

AWC criticizes the Chan-Yeung et al. 1980 study's finding of adverse health effects from low level exposures (average of 0.5 mg/M^3) to wood dust because the adverse health effects were not statistically significant. Several occupational exposure limit setting organizations reviewing wood dust have concluded that 0.5 mg/M^3 would be an appropriate "No Observed Effects Level." Therefore, citing the Chan-Yeung study is appropriate to propose a health based exposure limit even lower than the proposed PEL.

AWC criticisms of the Anderson et al. study's deficiencies do not outweigh the utility of this study to broaden the information conveyed in an understandable way about the health effects of wood dust. The Anderson study was an early study documenting mucociliary effects at a time

when the potential consequences of the mucociliary stasis were not as fully recognized in the medical and toxicology communities as they are today. Other more recent studies with few scientific defects are included in the references in the rulemaking documents. At the June 2010, HEAC meeting, an expert on biological functioning of the upper airways spoke about the newer research and related the significance of the mucociliary clearance rate to the development of serious health effects over time and the relation to wood dust dose to the rate. As stated earlier, the ISOR is an overview or summary of the several years of study by the advisory committee and the Division. Functionally, the ISOR cannot be a treatise compiling each and every piece of evidence considered with each and every study limitation or shortcoming highlighted. Therefore, the Board does not agree with AWC's position that the Anderson, et al. study be excluded from the ISOR.

The Board disagrees that the PEL proposal resulted in inadequate reliance on relevant scientific literature. As detailed above, many other scientific studies were reviewed for the HEAC wood dust summary document, and this included the Glindmeyer et al. study. As AWC notes, and as the HEAC minutes reflect, the Glindmeyer study was substantially discussed by the full committee and included in the HEAC summary document. Many other studies listed in the documents relied upon demonstrated adverse respiratory effects at exposures near the proposed PEL. The ISOR does not discuss the Glindmeyer study in part because many of its subjects left the study prematurely. Glindmeyer sought to follow an initial population of workers over five years, but only 37% of the initial cohort could be followed even for the minimum study criterion of two and a half years. Glindmeyer attributes the large loss of study participants to macroeconomic effects and attempts to dismiss any possibility of a "healthy worker effect" in which workers more sensitive to a toxin leave the employment due to the sensitivity, while less sensitive workers remain. Yet the possibility of such an effect remains, reducing the robustness of the Glindmeyer study. In contrast, the Jacobsen et al. study was a longitudinal lung function study of six years duration with a much smaller loss of participants. The Jacobsen study found statistically significant decreased lung function at mean exposure levels less than the proposed PEL. Jacobsen also mentions several other studies that found decreased lung function and the other studies are mentioned in the HEAC summary document. Studies that demonstrate an adverse health effect have greater weight of evidence than "negative" studies, unless there are major methodological issues with the positive studies, which is not the case with the wood dust studies. Other health effects, in addition to decreased lung function, were considered in putting forward the proposed PEL. However, as stated in the response to AWC Comment 1, the Board has modified the proposed PEL to 2 mg/M³ for total wood dust.

Dan Leacox, Principal, Leacox & Associates, on behalf of the Wood Dust and Western Red Cedar PELs Coalition (Coalition), submitted a letter dated May 19, 2016. The letter listed as members of the Coalition 17 wood product manufacturing industry-related associations, councils, federations, institutes or associations; four construction-related associations; one retail industry related alliance; the Styrene Information and Research Center, the American Chemistry Council, the Walter & Prince LLP law firm and the California Chamber of Commerce.

Coalition Comment 1: This PEL proposal imposes a new burden on employers to prove it is infeasible rather than the proposal supporting feasibility with substantial evidence as required by law. Specifically, California Labor Code Section 144.6 states the Board will promulgate standards to protect employees to the extent feasible and Government Code Section 11350 provides for possible declaratory relief if a regulation is declared invalid due to the failure to support its necessity with substantial evidence. The Board should determine what is right for California workplaces, not other agencies with other agendas. Adverse health effects from occupational exposures generally stem more from inadequate compliance with existing standards than from inadequate standards; unreasonable standards discourage compliance and drive employers out of the state. Sustainability of good jobs in healthy workplaces requires due consideration of these phenomena.

Response to Coalition Comment 1: The Board thanks Mr. Leacox and the Coalition for all comments and participation in the rulemaking process. Please see the response above to AWC Comment 1.

Coalition Comment 2: FAC members were ignored, as the minutes show that two of four FAC members favored a PEL proposal of 2 mg/M³ over a PEL of 1 mg/M³ total dust. The Division's briefing to the Board at its April 21, 2016, meeting incorrectly stated that the FAC recommended the 1 mg/M³ PEL, thus ignoring the recommendation of half of the FAC.

Response to Coalition Comment 2: The Coalition is correct that there was an even split among the four FAC members between those favoring a PEL of 1 mg/M³ and those supporting 2 mg/M³. The written minutes of the FAC meeting are part of the Documents Relied Upon for this rulemaking, and these minutes make clear the nuanced views about feasibility expressed by each of the FAC members. Please also see the response to AWC Comments 1 and 2 for additional discussion of feasibility of the proposal.

Coalition Comment 3: Information about the consequences of respirators was ignored. These concerns were raised by AFPA/AWC and Sierra Pacific Industries representatives at the October 6, 2010, FAC meeting and in an AFPA letter. The suggestion of the letter and the AFPA representative that a 1 mg/M³ PEL would probably necessitate use of respirators was not given appropriate consideration.

Response to Coalition Comment 3: The Board does not agree that the proposal will necessitate excessive utilization of respiratory protection. The two discussions of respirator use mentioned by the Coalition are part of the rulemaking documents. Respirator use as it relates to feasibility of a PEL is also discussed above in the response to AWC Comment 2. At the October 6, 2010, FAC meeting, a wood industry representative estimated an annualized cost of \$200 per employee for a full respirator program. As elaborated on in the ISOR, the Board believes that only a small proportion of employees will need to use respirators during specific high exposure, but short duration tasks.

Coalition Comment 4: By asserting that 25% of 35,000 European air samples above the proposed PEL support feasibility of attainment of the PEL, the ISOR trivializes these samples. The ISOR

does not explain how these 9,400+ air samples support the notion that most workplaces should be able to keep all exposures below the proposed PEL.

Response to Coalition Comment 4: Please see the response to AWC Comment 2.

Coalition Comment 5: The ISOR (page eight) similarly dismisses feasibility issues in 75 percent of studied facilities. The ISOR states that almost 75 percent of over 2,400 air samples at 10 facilities... were in compliance and the Notice states nearly three quarters of affected facilities with air sampling data available are already compliant. How did the Division get from 75% of compliant air samples to 75% of compliant facilities? How did the Division define compliant facility?

Response to Coalition Comment 5: See the response to AWC Comments 1 and 2 for discussion of costs and feasibility.

Coalition Comment 6: The ISOR dismisses large facility feasibility issues when it asserts most facilities in the Kalliny study not in compliance with the proposed PEL were smaller scale facilities. The Glindmeyer et al. review of the Kalliny study stated the number of workers at each facility ranged from 142 to 760.

Response to Coalition Comment 6: In its response to AWC Comment 2, the Board acknowledges that an incorrect reference to size of employers in the Kalliny study was included in the ISOR. See the response to AWC Comment 2 for a more complete discussion of feasibility of compliance with the proposed PEL at facilities both small and large.

Coalition Comment 7: Page eight of the ISOR asserts the proposed PEL does not present feasibility issues to large facilities, as most such facilities already have centralized ventilation systems in place. This statement conflicts with the hundreds of air sample results in the Kalliny study above the proposed PEL.

Response to Coalition Comment 7: As elaborated on in the response to AWC comments, many low-cost interventions to reduce wood dust exposure are feasible. An employer that already has an existing exhaust ventilation system, however, does not have the expense of installing a new ventilation system. Several studies of wood dust exposures have documented faulty adjustment and/or maintenance of these systems; adjustments and improvements to ventilation system deficiencies are both effective in cost and reduced exposure outcomes. See the response to AWC Comment 2 for a more complete discussion of feasibility of compliance with the proposed PEL at facilities both small and large.

Coalition Comment 8: The ISOR (page 9) asserts that only 1,000 California firms will be financially impacted and asks what makes 1,000 an insignificant number and what the legal authority is for this supposed standard of feasibility.

Response to Coalition Comment 8: The Board did not use the term 'insignificant' on page 9 of the ISOR and the Board does not assert that 1,000 is an insignificant number of employers. The

estimate of 1,000 firms being financially impacted was derived from California Employment Development Department data tables (ISOR Document Relied Upon number four) and it is supported by AWC's own estimates of the number of California basic wood manufacturing employers (59). No claim of ultimate or legal significance is attached to a reasonably derived estimate of employer numbers such as this. The estimate provides information on the scope of the problem and total economic impact in the State of California.

Coalition Comment 9: The ISOR (page 8) discusses feasible alternatives for dust control, but does not support this discussion with substantial evidence. The use of some of these alternatives, such as enclosure-less bag-type dust collectors, is limited in terms of size and location. The advisory committee should have been reconvened or contacted to discuss these types of more recently available control technologies.

Response to Coalition Comment 9: The purpose of the FAC was to explore all aspects of feasibility--technological and economic. The FAC members and public participants in the meeting included skilled and informed stakeholders. The basic technological concepts and tools for dust control are well known to the industrial hygiene and engineering communities and were discussed during the FAC meetings. A discussion of limitations of dust control technology and respiratory protection issues also took place at the FAC meeting, as reflected in the minutes. Information about most recent innovations is easily accessible in technical journals, trade journals and vendor information. These further innovations have reduced costs since the conclusion of the FAC and further discussion of the advances would only re-inforce the feasibility of the proposal. As a result, the Board does not believe it is necessary to reconvene the FAC.

II. Oral Comments at the April 21, 2016, Public Hearing in Walnut Creek, California:

Linda Morse, MD, occupational physician and a principal at M&M Occupational Health and Safety Consultants stated she helped draft the original HEAC version of this proposal. The proposed lower PEL will prevent serious exposure illnesses such as the serious illness that a carpenter patient had presented with at her clinic. The proposal will help the medical community to recognize the signs and symptoms of illness due to exposure to wood dust, and it will help them catch exposure cases before they become very serious.

Response: The Board thanks Dr. Morse for her comments, participation in the rulemaking process, and support of the proposal.

Gail Bateson, Executive Director, Worksafe, stated that her organization supports the proposal regarding wood dust and western red cedar.

Response: The Board thanks Ms. Bateson for her comments, participation in the rulemaking process, and support of the proposal.

III. Oral Comments at the May 19, 2016, Continuation of the Public Hearing in San Diego, California:

Dan Leacox, Leacox & Associates, representing the American Wood Council and the Wood Dust and Western Red Cedar PELs Coalition, stated there were serious issues regarding feasibility determination for this proposal. These concerns are part of a continuing discussion regarding feasibility criteria for PELs with this proposal setting precedent regarding feasibility determination for future PELs. Mr. Leacox stated it is difficult to get strong proof that a PEL is feasible or infeasible because it is usually at a level that has not been tried before. The statutory burden to demonstrate the PELs feasibility lies with the state and should not be shifted to stakeholders and the regulated community. He stated that feasibility gives the Board control over the PEL setting, so the Board needs to consider this carefully. To adopt reasonable PELs, a good standard for demonstrating feasibility must be maintained.

The Division's briefing on this proposal stated that the FAC recommended adopting the proposed PEL, but the committee was actually split on their decision between recommendations of a PEL of 1 or 2 mg/M³. The difference between feasibility between the two figures is very large.

Representatives of AFPA/AWC and Sierra Pacific Industries told the FAC on October 6, 2010, that a PEL of 2 mg/M³ total dust could be achieved but not a PEL of 1 mg/M³.

The studies relied upon in the ISOR contain thousands of exposure measurements above the proposed PEL, which supports the notion that the PEL recommended in this proposal would force people to wear respirators. The Kalliny study, acknowledged in the ISOR as the most robust study of exposure levels, reports that 75% of the air samples collected were below the proposed PEL, but 25% were above. The economic analysis says that 75% of the facilities would be in compliance with the proposed PEL. It is not clear how this determination was made because all of the facilities in the Kalliny study reported air samples that were above the proposed PEL.

The ISOR financial impact assessment indicates that only 1,000 California firms will be financially impacted by the proposed PEL. It is not clear how the number of impacted firms became a factor in determining whether or not a PEL is feasible.

The ISOR mentions several new technologies developed since the FAC first met in 2010 that make the PEL feasible, but it is not clear if those technologies have been tested in the industry. There is no substantial evidence to show that the PEL is feasible, and the Division is asked to reconsider the PEL and bring a PEL back to the Board that is feasible.

Response: The Board thanks Mr. Leacox, AWC, and the Coalition for the comments and participation in the rulemaking comments. Please see the earlier Board responses to the written comments of AWC and the Coalition for responses to these oral comments.

Terry Webber, American Wood Council, asked the Division to carefully reconsider the

proposed PEL and come up with a revised PEL that is supported by substantial evidence. A PEL of less than 2 mg/M³ is infeasible. A PEL of 1 mg/M³ is not feasible for a substantial portion of affected California companies. The ISOR discussion and application of the Kalliny study is fundamentally flawed and dramatically underestimates the economic burden of the proposal. The ISOR finds that 25% of samples in the Kalliny study above the proposed PEL as trivial, when they are actually very significant. The ISOR contains a major oversight regarding the size of the facilities that were sampled in the Kalliny study. The Glindmeyer companion longitudinal study quantified the number of exposed workers from each of the facilities in the Kalliny as between 142 to 760. This serious error makes the ISOR assume that only smaller facilities will be affected by the proposed PEL, which may or may not be true, and data from the Kalliny study cannot be used to support this conclusion. The ISOR assumption that smaller facilities are the most out of compliance is erroneous. The economic impact of this proposal should not be treated casually, especially since this proposal will require these smaller facilities to go from a PEL of 5 mg/M³ to a PEL of 1 mg/M³.

The analysis of the health effects of exposure to wood dust relies on scientific studies that have notable deficiencies and discount or ignore other available scientific studies that have greater interpretive value in evaluating the health effects of exposure to wood dust. Each of the three studies mentioned in the ISOR as support for the proposed PEL have serious flaws that preclude their use for this purpose. The ISOR does not mention the Glindmeyer et al. study, although it is the largest and most data-intensive longitudinal pulmonary function study of wood workers across the wood processing industry. The Glindmeyer study's statistically robust data shows no adverse effects from inhalable dust within an exposure interval.

Response: The Board thanks Mr. Webber and AWC for their comments and participation in the rulemaking process. Please see the earlier Board responses to the written comments of AWC and the Coalition for responses to these oral comments.

Ms. Stock of the Board asked, in regard to the 25% from the Kalliny study not able to comply with the proposed PEL, if there is evidence in the study to indicate that the PEL cannot be achieved using engineering controls and personal protective equipment. **Mr. Leacox** responded that the facilities studied were employing the current technology, and that is why this proposal would push people into being required to use respirators.

Ms. Stock stated that respirators are not precluded as a measure to achieve feasibility. While engineering controls are preferable, having to use respirators does not mean that the PEL is infeasible. **Mr. Leacox** responded that the industry's written comments will provide a deeper guide on the subject of respirators, and will contain examples of rulemakings that demonstrate how pushing a group of workers into using respirators makes the PEL infeasible.

Response: The Board thanks Ms. Stock and Mr. Leacox for their comments and participation in the rulemaking process.

During the advisory process no members questioned if it was *possible* for all exposed workers to be successfully protected at the proposed wood dust PEL via a combination of engineering

controls, administrative and work practice controls (for example, eliminating compressed air blow off tasks), and respiratory protection.

While some scientific studies support the idea that some current technology (such as woodworking tools with attached ventilation) was in place in many facilities at which wood exposures have been evaluated, no personal air monitoring study reviewed had a thorough analysis or engineering assessment of the adequacy of the technology design, placement, use, and maintenance of the dust reducing equipment or technology. Even the Kalliny et al. study, which was more thorough than many, and which measured exposures at specific tasks, did not detail whether, for example, sanding tasks which had demonstrably higher exposures than most other tasks, were conducted only on large woodworking machines with ventilation, or if the ventilation incorporated NIOSH recommendations for improvements. Nor did the Kalliny study specify whether some measured sanding tasks were conducted with hand held tools, and if so, if these hand tools had vacuum lines, and if that was so, were these tools modified to improve the vacuum efficacy as suggested by the NIOSH guidelines. Indeed, the Kalliny study and many others suggest that at least some tasks (blowing off, specifically in Kalliny) and some ventilation equipment observed in the studies were not correctly arranged to minimize exposure.

Therefore, there is insufficient information to say that the ten facilities of the Kalliny study used current technology optimally. The criteria for selection of the firms in the Kalliny study did not include the effectiveness, design or maintenance status of the dust reducing technology in use. In many assessments of existing ventilations installations, industrial hygiene and engineering professionals find that the ducting design is defective, the dust collector is improperly sized, the system has not been cleaned or maintained, or, as NIOSH learned, the exhaust systems of the machines as purchased from the manufacturers were ineffective or not optimally designed.

For more information on feasible dust reducing measures and the issue of respirator use feasibility, please see the earlier responses to the written and oral comments of AWC and the Coalition.

Bruce Wick, California Professional Association of Specialty Contractors (CALPASC), expressed support for the statements of Mr. Leacox and Mr. Webber. The best way to protect workers is through a high level of employer compliance with the regulation. Lowering the PEL from 5 mg/M³ to 1 mg/M³ is a very dramatic move. Clear and compelling information is necessary to convince employers to comply. More PEL revisions are coming, so this proposal needs to get it right. A consensus needs to be found because employers who do not buy into it will not comply.

Response: The Board thanks Mr. Wick and CALPASC for their comments and participation in the rulemaking process. The Board agrees that employer concurrence is important for regulatory compliance. Please review earlier responses to AWC and the Coalition about feasibility and the necessity to lower the PEL. With respect to the wood-frame construction industry which CALPASC represents, please note that information about commercially available ventilated portable wood working tools for construction activities is today easily available on the internet.

Ms. Smisko of the Board asked the Division to respond to the comments made regarding demonstration of feasibility and to discuss criteria for determining whether or not a PEL is feasible. Each regulation is different and therefore it may be difficult to develop generic feasibility criteria, but some guidance on basic criteria would be helpful.

Response: The Board thanks Ms. Smisko for her comments and participation in the rulemaking process. PEL feasibility has a long history of litigation, especially nationally. The court cases mentioned in Mr. Glowinski's correspondence with the Board lists several that can be informative. The most influential national court decision for PEL setting was the US Supreme Court 1980 Benzene decision which says federal OSHA must show "significant risk," but is not required to support findings with "anything approaching scientific certainty." As discussed in the response to an earlier comment, federal court decisions are not necessarily definitive for California because of the independent legal basis of the requirements of the California Labor Code and the California Administrative Procedures Act.

The Division describes its general approach in procedures developed in 2007 for the PEL advisory committee process, found here: <http://www.dir.ca.gov/dosh/DoshReg/PEL-Process-3-07-final-draft.pdf>. Occupational Exposure Limit setting begins with risk assessment. Review of scientific literature is assessed for evidence of *significant* health effects in humans or animals and established toxicological principles employed to calculate safe levels. The Division reviews validated analytical and sampling methodology to evaluate if it is feasible to measure exposures at the target exposure level. The Division then reviews the extent of exposure to that chemical or substance in California, the availability of control technology and the extent of its current use. The likely range of costs for employers to come into compliance with the proposed PEL is then reviewed.

Dr. Blink of the Board asked the Division to provide an analysis of the economic impact that may occur as a result of the PEL being lowered to 1 mg, seemingly the coalition's main concern.

Response: Economic impact is estimated on the Form 399 that is reviewed by the California Department of Finance. Costs will be variable, ranging from the mid-hundreds for small shops to the low thousands for purchase of mid-size dust collectors or higher costs for a large facility that is grossly out of compliance with existing regulatory requirements such as those for combustible dust. Please also see the extensive earlier discussion in the responses to AWC and the Coalition about feasibility and low to moderate cost solutions in the replies to earlier comments.

MODIFICATIONS AND RESPONSE TO COMMENTS RESULTING FROM THE 15-DAY NOTICE OF PROPOSED MODIFICATIONS (January 25, 2017 – February 9, 2017)

No further modifications to the information contained in the Initial Statement of Reasons are proposed as a result of the 15-Day Notice of Proposed Modifications mailed on January 25, 2017.

Summary and Response to Written Comments:

Stewart E. Holm, Chief Scientist, American Wood Council (AWC), by letter dated February 9, 2017

Comment: AWC maintains that the health science (See Attachment A: Summary of Health Data) does not justify any need for a limit below the current PEL of 5 mg/M³. AWC also believes that the extent of feasibility for the industry is not lower than 2.5 mg/M³.

Nevertheless, the proposed change in the wood dust PEL from 1 mg/M³ to 2 mg/M³ is a big step in the right direction. It makes the limit feasible for a much greater portion of the industry that could not have met the 1 mg/M³ limit originally proposed.

AWC has not conducted an economic analysis of compliance with 2 mg/M³. However, AWC can say with confidence that the compliance cost for 2 mg/M³ will be a small fraction of the \$447,440,759 estimated for reducing the PEL from 5 mg/M³ to 1 mg/M³.

AWC thanks and congratulates the Board Chair for caring about the ability of furniture and cabinet makers to continue manufacturing in California and for taking a stand on their behalf. AWC thanks the Division for reassessing the extent of feasibility and recommending a more appropriate PEL.

In light of the choice before the Board to vote yes or no for a PEL of 2 mg/M³ total dust and with the understanding, obtained from the Division, that the method of measurement is the traditional 37 mm closed-face cassette technique (NIOSH Method 0500), AWC urges Board members to vote yes and approve the proposed PEL.

Response: The Board appreciates the AWC support of the modified proposed PEL of 2 mg/M³. Regarding comments about 5 mg/M³ and 2.5 mg/M³ and appendix A summary of health data, no new data or recommendations were provided that were not already provided in the AWC 45-day comments. We refer the commenter back to the response to those same comments about the higher PEL levels in AWC comments 1, 2 and 3.

Bruce Wick, Director of Risk Management, California Professional Association of Specialty Contractors (CALPASC) in an email dated February 7, 2017

Comment: CALPASC wishes to express its appreciation for the change in PEL for Wood Dust, as provided in the 15-Day notice published January 25, 2017. It is important for the Standards Board to promulgate regulations that are feasible, necessary, and protective. In this case, CALPASC believes the revision of the Wood Dust PEL to 2 from 1 is the appropriate number. CALPASC supports the changes in the 15-Day notice.

Response: The Board appreciates the support of the modified proposed PEL of 2 mg/M³.

Douglas L. Parker, Executive Director, Worksafe, by letter dated February 9, 2017

Comment: Worksafe believes the original PEL of $1\text{mg}/\text{M}^3$ for wood dust is the most protective and feasible standard. Nonetheless, Worksafe supports OSHSB's adoption of the $2\text{mg}/\text{M}^3$ PEL for wood dust. The proposed $2\text{mg}/\text{M}^3$ is a significant improvement from the current $5\text{mg}/\text{M}^3$ PEL. A $2\text{mg}/\text{M}^3$ PEL should result in increased use of engineering controls to meet the standard, avoiding overreliance on respirators as a control mechanism. Worksafe is unaware of any arguments opposing $2\text{mg}/\text{M}^3$ based on its lack of feasibility, and industry representatives are on record agreeing with the feasibility of a $2\text{mg}/\text{M}^3$ standard.

Additionally, Worksafe supports the proposed PEL of $.05\text{mg}/\text{M}^3$ for Western Red Cedar, based on its elevated health risks at low exposure levels and the need for such a standard to preserve the health of workers, all of which is supported by the record in this rulemaking process.

Response: The Board appreciates the support of the modified proposed PEL of $2\text{mg}/\text{M}^3$. A modified PEL of $2\text{mg}/\text{M}^3$ will address the cost concerns expressed while still affording increased protection to workers as compared to the current PEL of $5\text{mg}/\text{M}^3$.

Regarding the support of the proposed PEL of $0.05\text{mg}/\text{M}^3$ for Western Red Cedar, the proposed PEL is $0.5\text{mg}/\text{M}^3$ and was not modified in the 15-day notice. Thus, the comment is outside the scope of the 15-day notice but the Board does appreciate the general comment of support.

Joseph Harding, Technical Director, Power Tool Institute (PTI) by letter dated February 9, 2017

Comment: PTI was not aware of these proposed revisions until just a few days ago. PTI's initial assessment is that we have serious concerns about the potential effects of the proposed revisions on the construction industry. Since the construction industry employs many more people than the wood products manufacturing industry, any concerns related to the construction industry should be taken into account.

Due to the limited amount of time that PTI has been aware of these proposed revisions, PTI would like to request an extension for providing comments until March 9, 2017. If this extension is granted, it will allow us sufficient time to provide comprehensive comments on this important proposal for worker safety.

Response: The Board has taken concerns from the construction industry and refers the commenter to representative comments provided by the construction industry during the 45-day and 15-day comment periods. Regarding the request for an extension to the comment period, the Board declines as March 9, 2017, is beyond the year limit for concluding this rulemaking process.

ADDITIONAL DOCUMENTS RELIED UPON

None.

ADDITIONAL DOCUMENTS INCORPORATED BY REFERENCE

None.

REVISED ECONOMIC IMPACT ANALYSIS/ASSESSMENT

The Board has made a determination that this proposal should not result in a significant, statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states.

The Board has determined that approximately 4,000 firms have employees exposed to wood dust that are likely impacted by the proposed rulemaking. Based on the finding from the Kalliny study, the Board estimates that approximately 90% of these firms are already in compliance with the proposed PEL of 2 mg/M³ and will not need to take any action to reduce exposures. Approximately ten percent or 400 firms will be required to take action and will incur a cost as a result of the proposal. The Board estimates that employers who need to take action to meet the proposed PEL will need to spend approximately, on average, \$1,000 per facility to increase maintenance of existing control equipment, improve existing control equipment or purchase new control equipment for wood working machines. The total cost of the proposal is estimated at \$400,000 for the proposed PEL of 2 mg/M³.

DETERMINATION OF MANDATE

This regulation does not impose a mandate on local agencies or school districts as indicated in the Initial Statement of Reasons.

ALTERNATIVES CONSIDERED

The Board invited interested persons to present statements or arguments with respect to alternatives to the proposed standard. No alternative considered by the Board would be (1) more effective in carrying out the purpose for which the action is proposed; (2) would be as effective and less burdensome to affected private persons than the adopted action; or (3) would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law. Board staff were unable to come up with any alternatives or no alternatives were proposed by the public that would have the same desired regulatory effect.