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Attachment No. 2

INITIAL STATEMENT OF REASONS

CALIFORNIA CODE OF REGULATIONS

Title 8: Division 1, Chapter 4, Subchapter 7, Article 107, Section 5155
of the General Industry Safety Orders

Airborne Contaminants

SUMMARY

Pursuant to California Labor Code, Section 142.3, the Occupational Safety and Health Standards Board (Standards Board) may adopt, amend, or repeal occupational safety and health standards or orders. Section 142.3 permits the Standards Board to prescribe, where appropriate, suitable protective equipment and control or technological procedures to be used in connection with occupational hazards and provide for monitoring or measuring employee exposure for their protection. California Labor Code, Section 144.6 requires that the Standards Board, when dealing with standards for toxic materials and harmful physical agents, adopt standards which most adequately assure, to the extent feasible, that no employee suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard for the period of one's working lifetime. This section also requires that the Standards Board base standards on research, demonstrations, experiments and other information as may be appropriate. Labor Code, Section 144.6 also lists other considerations such as the latest scientific literature, the reasonableness of the standards, and experience gained under this and other health and safety laws.

Existing Section 5155 establishes minimum requirements for controlling employee exposure to specific airborne contaminants. This section specifies several types of airborne exposure limits, requirements for control of skin and eye contact, workplace environmental monitoring through measurement or calculation, and medical surveillance requirements. On an ongoing basis with the assistance of an advisory committee, the Division of Occupational Safety and Health (Division) develops proposals to amend these airborne exposure limits known as Permissible Exposure Limits (PELs). This ongoing review is necessary to take into account changes in the information available to assess the effects of exposures to airborne substances that can be present in the workplace.

SPECIFIC PURPOSE AND FACTUAL BASIS OF THE PROPOSED ACTION

In accordance with Labor Code Section 144.6, the purpose of this proposal to Section 5155 is to regulate employee exposure to toxic materials such that, to the extent feasible, the health or functional

capacity of the employee is not materially impaired. This proposal was developed by the Division pursuant to the Division's independent mandate to maintain surveillance and propose standards to the Standards Board in accordance with Labor Code Section 147.1. The Division has developed and presented similar proposals to the Standards Board in the past, normally at approximately three-year intervals. The last similar proposal was held for public hearing in September 2005, and took effect July 2006. The Division relies in part on changes made to the Threshold Limit Values (TLVs) published by the American Conference of Governmental Industrial Hygienists (ACGIH) to indicate substances to be considered for change. The development of this proposal is consistent with past practice. This rulemaking considers changes in ACGIH TLVs dating from 1997. The changes to ACGIH TLVs are the most important source used by the Division to produce the base list for consideration for new and revised PELs for several reasons. The ACGIH TLVs are the most comprehensive single source of exposure limits available, the ACGIH TLVs are substantiated by available documentation, and there are ongoing reviews of the TLVs by the ACGIH with annual revisions.

The Division, in developing the current and past proposals, has convened advisory committees to consider and make recommendations on the substances in the base list. The Airborne Contaminants Advisory Committee (Committee), which considered substances for development of this proposal, met between May 2001 and January 2004. The Committee independently evaluated the changes made to TLVs using the ACGIH documentation, presentations and additional documentation provided by interested parties, documents referred to in the ACGIH documentation, and other documents provided by the members of the Committee. The meetings of the Committee were open to the public. Particularly because the original recommendations of the Committee for the substances which are the subject of this rulemaking were all below the ACGIH TLV, the Division held an additional public advisory meeting on May 18, 2005 to receive informal comments from interested parties. Where comments were received at this meeting on a specific substance, they are noted in the discussion of the substance below. In some cases, the levels recommended by the Committee were changed based on information received during this additional advisory process.

The following is a discussion of the specific changes to Table AC-1 in the order that they occur in the proposal. The ACGIH documents, minutes of the Advisory Committee meetings, other documents, and the reasons listed below form the factual basis for this proposal.

The Permissible Exposure Limit for **allyl glycidyl ether** is proposed to be lowered from 5 ppm as an 8-hour time-weighted average (TWA) to 0.2 ppm (0.93 mg/M^3) and the existing TLV-STEL (Short Term Exposure Limit) of 10 ppm (44 mg/M^3) is proposed to be deleted. The proposed limit was recommended by the Committee and differs from the TLV of 1 ppm adopted by the ACGIH in 1997 to prevent respiratory irritation. The primary use of allyl glycidyl ether is as a reactive diluent and as a resin intermediate. It is also used as a stabilizer of chlorinated compounds, vinyl resins, and rubber. ACGIH noted that this substance also causes dermatitis, and possibly also sensitization. The Committee based its recommendation on the findings of Gagnaire et al. (1987) and Schaper (1993). The Gagnaire et al. study based its findings on "$RD_{50,}$" the concentration of a substance causing a 50 percent decrease in respiratory rate. Gagnaire et al. identified an RD_{50} for allyl glycidyl ether in mice of 5.7 ppm. Schaper showed that ACGIH TLVs are highly correlated with the value (0.03 x RD_{50}). This calculation yields a result for allyl glycidyl ether of 0.17, which the Committee rounded up to 0.2 as its recommended PEL value. Committee members noted that in addition to protecting against

respiratory irritation, the proposed PEL would provide an increased margin of safety against potential risks of sensitization and carcinogenicity noted in the ACGIH TLV documentation.

A new Permissible Exposure Limit for **1-bromopropane** is proposed as an 8-hour time-weighted average of 5 ppm TWA (25 mg/M^3). The PEL proposed differs from the TLV of 10 ppm adopted by the ACGIH in 2005. 1-bromopropane is a potential substitute for solvents used to clean metals and electronics such as in specialized aircraft part degreasing operations and has been used as a solvent in adhesives. The documentation of the TLV for 1-bromopropane indicates that it was adopted to provide protection against the potential for neurotoxicity, hepatotoxicity, and reproductive and developmental toxicity. The PEL proposed also differs from the recommendation of the Committee for a PEL of 1 ppm. The Committee at its meeting January 9, 2004 considered two possible 8-hour TWA PEL recommendations presented by Julia Quint of Hazard Evaluation Systems and Information Service (HESIS): 1 ppm based on 2003 HESIS and Office of Environmental Health Hazard Assessment (OEHHA) documents and 3.3 ppm based on an assessment by the National Toxicology Program's (NTP) Center for the Evaluation of Risks to Human Reproduction (CERHR). The OEHHA assessment, dated December 2, 2003, was conducted for the California Air Resources Board and was based on reproductive system effects in male rats reported by Ichihara et al. in 2000. The CERHR assessment, dated October 2003, was based on reproductive system effects in both male and female rats reported in a study by WIL Research Laboratories in 2001 sponsored by the Brominated Solvents Consortium. The value of 3.3 ppm is calculated from the No Observed Adverse Effect Concentration (NOAEC) of 100 ppm in test animals in the WIL Research study, application of an interspecies uncertainty factor of 3.16 (the square root of 10) and an intraspecies uncertainty factor of 10, and adjustment for an 8-hour workday and 5-day workweek. At the May 18, 2005 advisory meeting, representatives of manufacturers and vendors of 1-bromopropane products commented on the Committee's recommendation of a PEL of 1 ppm. Their comments included concerns that a PEL of 1 ppm would amount to a ban on the use of 1-bromopropane in California and that there were flaws in the Ichihara study underlying the OEHHA Interim Reference Exposure Level. They also noted the importance of skin absorption and suggested that a PEL for 1-bromopropane should include a "skin" notation. In light of concerns with the Ichihara study expressed by these stakeholders and by the authors of the CERHR report, this rulemaking proposes a PEL of 5 ppm (8-hour TWA) for 1-bromopropane, along with a "skin" notation. The PEL of 5 ppm is a rounding up from the level of 3.3 ppm to a more standardized PEL value.

The Permissible Exposure Limit for **coal (bituminous) dust** is proposed to be lowered from 2 mg/M^3, respirable fraction, as an 8-hour time-weighted average, to 0.9 mg/M^3 (8-hour TWA) respirable fraction. Bituminous coal is used or handled in California in electricity cogeneration facilities, cement kilns, and coal transport operations. The proposed PEL is the same as the ACGIH TLV but differs from the recommendation of the Committee. The ACGIH TLV documentation, in discussing the basis for the TLV recommendation, states the following with respect to predicted prevalences of progressive massive fibrosis (PMF) and coal workers pneumoconiosis (CWP) among miners exposed to coal dust:

> Predicted PMF prevalences, based on U.S. data, for a 40-year exposure to mean concentrations of 1 and 0.5 mg/m^3 (coal rank 80 to 87%) were 13/1000 to 17/1000 and 12/1000 to 14/1000, respectively, indicating that a substantial reduction in dust exposure results in a minimal reduction in expected prevalence of PMF. However, in going from a mean coal mine dust exposure of 2 to 1 mg/m^3, predicted prevalences for category 2 or greater CWP were reduced

from 28 to 42% (based on rank of coal). At a mean respirable dust concentration of 1 mg/m^3 (80 to 87% coal rank), the predicted prevalence for category 2 or greater CWP is 13/1000 to 23/1000.

Both ACGIH and the National Institute for Occupational Safety and Health (NIOSH) note that exposures of 1 or 0.5 mg/M^3 are not zero risk levels. The NIOSH Recommended Exposure Level (REL) for coal mine dust is 1 mg/M^3 as a 10-hour TWA, equivalent to the TLV of 0.9 mg/M^3 as an 8-hour TWA. As noted above, ACGIH cites studies estimating a risk level for PMF of 13 to 17 per 1000 workers with 40 years exposure at 1 mg/M^3, and 12 to 14 per 1000 workers at 0.5 mg/M^3. This is substantially higher than the 1 in 1,000 excess risk level suggested as an appropriate target for workplace chemical regulation by the U.S. Supreme Court's "benzene decision" [*Industrial Union Dept., AFL-CIO v. American Petroleum Institute, et al.*, 448 U.S. 607, 634 (1980)]. In light of the excess disease risk remaining at their respective recommended exposure limits, both the ACGIH documentation and the NIOSH Criteria Document recommend that worker exposures to bituminous coal dust be controlled to the lowest level achievable below the TLV and REL. The NIOSH Criteria Document additionally recommends frequent monitoring of worker exposures to coal dust and participation of exposed miners in medical screening and surveillance. The Committee had recommended a PEL of 0.1 mg/M^3 based upon a linear extrapolation of the risk noted by ACGIH in the interest of approaching the 1 in 1,000 risk level. In light of the ACGIH statement on the level of disease risk at 0.5 vs. 1 mg/M^3, the Standards Board believes it is not in a position at the present time to propose a PEL lower than the TLV. Therefore, the Standards Board is proposing to revise the PEL for coal (bituminous) dust to the level of the ACGIH TLV of 0.9 mg/M^3 respirable fraction, which is equivalent to the NIOSH REL.

In response to a Form 9 request for a safety order amendment from a Division industrial hygienist, dated April 2, 2007, an additional amendment is proposed pertinent to measurement of coal dust and a number of other workplace airborne particulate hazards. The Standards Board is proposing to change the parameters of existing footnote (n) for collection of respirable airborne particulate. Footnote (n) is used with a number of substances in Table AC-1 to detail the fraction of airborne particulate on which the PEL is based, that is, the "respirable" fraction. Collection of this "fraction" of particulate requires use of a pre-filtering size selection device. The Standards Board is proposing to amend the size-selection criteria specified in footnote (n) to make it consistent with the current ACGIH criteria which is in accord with the International Organization for Standardization/European Standardization Committee (ISO/CEN) protocols adopted in 1991 and 1992, respectively. This proposal is necessary to clarify that particle size-selective sampling devices based on the ACGIH criteria, which can be much smaller and more convenient than the device mandated for the current criteria, can be used for air sampling for compliance with PELs based on respirable particulate. However, it is important to note that this change would not mandate replacement of the more traditionally used 10 mm nylon "cyclone" size-selective sampling device, as the ACGIH documentation indicates that such devices' size selection behavior sufficiently approximates the proposed amended criteria.

The Permissible Exposure Limit (PEL) for **cyclonite** is proposed to be lowered from 1.5 mg/M^3 as an 8-hour TWA to 0.07 mg/M^3. The proposed limit was recommended by the Committee and differs from the TLV of 0.5 mg/M^3 adopted by the ACGIH in 1997 to prevent respiratory irritation, and the effects on the central nervous system, liver and blood. Cyclonite is an explosive which is used as a rocket propellant. The Committee based its recommendation on the U.S. EPA oral reference dose

(Rfd) detailed in a health effects assessment last revised February 1, 1993 and available publicly on the internet in the EPA Integrated Risk Information System (IRIS) database. The EPA RfD is based on a U.S. Department of Defense feeding study released in 1983. As discussed in the IRIS document, the DoD study found inflammation of the prostate in male rats fed 1.5 mg/kg/day of cyclonite, and no effect at 0.3 mg/kg/day, thus making 0.3 mg/kg/day the No Observed Adverse Effect Level (NOAEL) in that study. The Committee's recommendation of 0.07 mg/M^3 was calculated by multiplying the NOAEL of 0.3 mg/kg/day by 70 kg for standardized human body weight and dividing by 10 M^3 for the standardized 8-hour workshift inhaled air volume, and then dividing the result by factors of 10 for animal to human uncertainty and 3 for interhuman variability, as detailed in the minutes for the discussion of this substance on March 12, 2004.

The Permissible Exposure Limit (PEL) for **p-dioxane** is proposed to be lowered from 25 ppm as an 8-hour TWA to 0.28 ppm (1 mg/M^3). The existing reference to "tech. grade" is proposed to be deleted as it inappropriately limits the scope of the requirement. The proposed limit was recommended by the Committee and differs from the TLV of 20 ppm adopted by the ACGIH in 1999 to prevent respiratory irritation, and the effects on the liver and kidney. p-Dioxane is an organic solvent with a range of industrial applications. The Committee's recommendation is intended to address cancer risk, and is based on the airborne cancer unit risk factor developed by the California Office of Environmental Health Hazard Assessment (OEHHA, 2005) for the Proposition 65 warning determination for p-dioxane derived from animal feeding studies. The combined incidence of hepatocarcinomas and adenomas in females was used to derive the human cancer potency for dioxane of 2.7×10^{-2} $(mg/kg/day)^{-1}$. The airborne unit risk factor for dioxane of 7.7 10^{-6} $(\mu g/M^3)^{-1}$ was calculated by OEHHA assuming a human body weight of 70 kg and an inhalation rate of 20 M^3/day. Based on adjusting the unit risk for occupational exposure, the Committee recommended a value of 0.28 ppm as an 8-hour time-weighted average.

A new Permissible Exposure Limit (PEL) for **glyoxal (1,2 ethanedione)** is proposed as an 8-hour TWA of 0.1 mg/M^3. This is consistent with the ACGIH TLV adopted in 2001 which is expressed in terms of "inhalable fraction and vapor." This is a recently adopted approach of ACGIH for low volatility materials to clarify that the TLV is intended to cover both particulate and vapor forms. To explain the need for a standard that covers both solid and gas phases, the TLV Documentation notes that glyoxal has typically been supplied and used in aqueous solutions with a low vapor pressure. Air sampling to capture both vapor and particulate glyoxal simultaneously can be performed using OSHA Method 64. The proposed limit recommended by the Committee was 0.01 mg/M^3. Glyoxal is used in a wide range of products and applications including textiles, glues, and biocides. The TLV was based on the same rat inhalation study as that cited by the Committee, and the TLV documentation indicates that it was believed that a safety factor of four was sufficient to protect against squamous cell metaplasia found in the study at the next higher dose of 2 mg/M^3 in an aqueous solution. The Committee's recommendation of a lower level was based on its conclusion that a safety factor of only 4 from the identified NOAEL value of 0.4 mg/M^3 in the rat inhalation study was not sufficiently protective of worker health. The TLV documentation notes that in the same study no systemic toxicity was found in the highest dose of 10 mg/M3, thus providing an apparently ample margin of safety against such effects. The Committee also discussed the fact, noted in the TLV documentation as well, that glyoxal has yielded positive results in tests for genotoxicity and mutagenicity. One study identified by ACGIH and the Committee found that ingested glyoxal was a promoter of stomach cancer in rats fed a carcinogenic agent N-methyl-N'-nitro-N-nitrosoguanidine (MNNG). In

conjunction with the May 18, 2005 supplemental public advisory meeting, a comment letter was received, dated May 9, 2005, from Patricia Cruse of BASF, a manufacturer of glyoxal. The letter supported the TLV as being appropriately protective, noting a background presence of glyoxal in the blood plasma of healthy individuals and expressing concern with the possible substitution of formaldedhye for glyoxal if the PEL recommended by the Committee was to be adopted. These comments are of sufficient concern to the Standards Board that it believes it is reasonable at this time to propose the TLV for the PEL rather than the lower value recommended by the Committee. As part of the new TLV for glyoxal, a new footnote (u) is proposed to inform employers that the PEL is to be compared with the sum of the substance measured in both the vapor and particulate states.

The time-weighted average PEL for **methyl n-butyl ketone (2-hexanone)** is proposed to be lowered from 5 ppm (20 mg/M^3) to 1 ppm (4 mg/M^3), with adoption of the TLV-STEL of 10. A minor change is proposed to the name of the substance to include the letter "n-" before the word "butyl" to make it consistent with that listed in the ACGIH book of TLVs. The ACGIH TLV of 5 ppm for this substance dates from 1981. In 1998, ACGIH adopted the Short Term Exposure Limit (STEL) of 10 ppm to provide additional protection against neurotoxic effects and control brief excursions and their potential for causing testicular atrophy. Methyl n-butyl ketone is used in research and analytical laboratories. Occupational exposures can also result from fugitive emissions from wood pulping, coal-gassification, and oil-shale processing. The PEL STEL was recommended by the Committee to be proposed at the level of the TLV adopted by ACGIH. The TLV documentation indicates that the TLV TWA is intended to protect against peripheral neuropathy that can lead to weakness in the hands and feet and loss of coordination. Committee members felt that based upon male reproductive effects found in animals exposed to this substance, a lower PEL TWA was warranted. For example, the TLV documentation cites a study of Katz et al. (1980) reporting that male rats inhaling 700 ppm of methyl n-butyl ketone for 11 weeks developed atrophy of the testes, evidenced by reduced absolute and relative testes weight and histologic degeneration of the germinal epithelium. Committee members also noted the very high rate of absorption of vapors of this substance cited in the TLV documentation as another reason for recommending a PEL lower than the TLV.

A new PEL for **methyl vinyl ketone (MVK)** is proposed at 0.05 ppm (0.14 mg/M^3) as a Ceiling limit, the maximum concentration of an airborne contaminant to which an employee may be exposed. A Skin notation is also proposed. Methyl vinyl ketone is a precursor of styrene-methyl vinyl ketone polymers used in photobiodegradable polymers used in packaging applications. It has also been used as an alkylating agent, as a resin component, and as an intermediate in the synthesis of steroids and Vitamin A. The level recommended by the Committee is below the TLV Ceiling adopted in 1999 of 0.2 ppm. The TLV documentation indicates that it is intended to prevent respiratory irritation. However, the documentation states that the TLV may not protect susceptible workers from possible sensitization and so recommends that exposures be kept as low as possible below the TLV. The Committee's recommendation of 0.05 ppm is based on the results of the study by Morgan et al. (2000) published subsequent to the adoption of the TLV. In the study of Morgan et al., rats were exposed to four concentrations of methyl vinyl ketone for 13 weeks. At the lowest level of exposure, 0.5 ppm, half of the 10 test animals were found to have hyperplasia, or an abnormal increase in the number of cells, in the respiratory epithelium. No animals were found to have this effect in the control group not exposed to MVK. The Committee's recommendation is based on application of a safety factor of 10, for animal to human uncertainty, to the Lowest Observed Adverse Effect Level of 0.5 ppm found in the Morgan et al. study.

Nickel metal, nickel compounds soluble and insoluble, nickel subsulfide

The existing 8-hour time-weighted average Permissible Exposure Limits for **nickel metal, insoluble nickel compounds, and soluble nickel compounds** are proposed to be revised as follows: nickel metal to be reduced from 1 mg/ M^3 to 0.5 mg/ M^3, insoluble nickel compounds to be reduced from 1 mg/ M^3 to 0.1 mg/ M^3, and soluble nickel compounds to be reduced from 0.1 to 0.05 mg/M^3. In addition, a new PEL of 0.05 mg/ M^3 is proposed for **nickel subsulfide**. These values, expressed in terms of "total" airborne nickel particulate, are consistent with the ACGIH TLV Documentation for nickel. The ACGIH TLVs, as detailed in its Documentation are expressed in terms of inhalable particulate, based upon conversion factors from side-by-side comparison air sampling studies. However, the Standards Board, as detailed below, is proposing to base the amended PELs on the existing standard for "total" airborne particulate. The ACGIH TLV Documentation for nickel indicates that these recommended PELs are intended to minimize the potential for increased risk of lung and sinus cancer and the production of inflammatory pulmonary changes.

The Committee had recommended a single PEL of 0.02 mg/M^3 for "total" nickel particulate for all the forms of nickel for which PELs are proposed in this rulemaking. The Committee discussed the question of the form of the standard as total or inhalable particulate, and while not explicitly rejecting an inhalable particulate standard recommended a standard based on "total" particulate. The Committee's recommendation of 0.02 mg/M^3 was based on scientific studies suggesting carcinogenic potential for all of these forms of nickel, although the Committee acknowledged in its discussion the well-recognized differences in apparent cancer risk among the different forms of nickel. Nickel is a metal element widely used in industrial applications. Soluble nickel compounds are widely used in electroplating and other applications. Insoluble nickel can be found as nickel oxide in welding and other operations. Nickel subsulfide is present in nickel refineries. Nickel subsulfide may also be formed in petroleum refining from the use of nickel catalysts.

The Committee's approach of recommending a single standard for inorganic nickel compounds mirrors the Recommended Exposure Level (REL) of NIOSH published in 1977. The NIOSH REL in the 1977 document is 0.015 mg/ M^3 elemental nickel as an 8-hour TWA. There is widespread discussion, as well as disagreement by nickel producers, regarding the validity of regulation of nickel compounds as a single group based upon their hazard potential as substances with a common constituent element. In contrast to the approach of NIOSH and the Committee, ACGIH classifies airborne nickel subsulfide and insoluble nickel compounds as "confirmed human carcinogens," soluble nickel compounds as "not classifiable as a human carcinogen," and nickel metal as "not suspected as a human carcinogen." The ACGIH approach was endorsed by representatives at the May 18, 2005 special advisory meeting from the organization NiPERA, the Nickel Producers Environmental Research Association. These representatives indicated in the meeting that their organization's comments to ACGIH were important in shaping the final form of the TLVs recommended for nickel compounds. Reflecting with greater detail the complexity of the situation suggested by the ACGIH approach, but still concluding that all nickel compounds, other than nickel metal, are carcinogenic to humans, the report of the working group for nickel of the International Agency for Research on Cancer (IARC) states the following in its most recent evaluation update for nickel released in November 1997 (the original assessment was released by IARC in 1990):

> There is sufficient evidence in humans for the carcinogenicity of nickel sulfate, and of the combinations of nickel sulfides and oxides encountered in the nickel refining industry.
>
> There is inadequate evidence in humans for the carcinogenicity of metallic nickel and nickel alloys.
>
> There is sufficient evidence in experimental animals for the carcinogenicity of metallic nickel, nickel monoxides, nickel hydroxides and crystalline nickel sulfides.
>
> There is limited evidence in experimental animals for the carcinogenicity of nickel alloys, nickelocene, nickel carbonyl, nickel salts, nickel arsenides, nickel antimonide, nickel selenides and nickel telluride.
>
> There is inadequate evidence in experimental animals for the carcinogenicity of nickel trioxide, amorphous nickel sulfide and nickel titanate.
>
> The Working Group made the overall evaluation on nickel compounds as a group on the basis of the combined results of epidemiological studies, carcinogenicity studies in experimental animals, and several types of other relevant data supported by the underlying concept that nickel compounds can generate nickel ions at critical sites in their target cells.
>
> **Overall evaluation**
> Nickel compounds are carcinogenic to humans (Group 1).
> Metallic nickel is possibly carcinogenic to humans (Group 2B).

In its 11th Report on Carcinogens (January 2005), the National Toxicology Program in the U.S. Department of Health and Human Services concluded with regard to nickel compounds:

> Nickel compounds are known to be human carcinogens based on sufficient evidence of carcinogenicity from studies in humans, including epidemiological and mechanistic information, which indicates a causal relationship between exposure to nickel compounds and human cancer.

With regard to nickel metal, the NTP 11th Report on Carcinogens concluded the following:

> Metallic nickel is reasonably anticipated to be a human carcinogen based on sufficient evidence of carcinogenicity from studies in experimental animals, which concludes there is an increased incidence of malignant and/or a combination of malignant and benign tumors at multiple tissue sites in multiple species of experimental animals.

The NTP 11th Report on Carcinogens discussing its conclusions and those of IARC states with regard to nickel compounds and metallic nickel:

> The hazard associated with a particular nickel compound largely relates to the propensity for the compound to release ionic nickel in the body. The evidence suggests that the relatively insoluble metallic nickel is less likely to present a carcinogenic hazard than are the nickel compounds that tend to release proportionately more nickel ion. This view agrees with that

> expressed by the International Agency for Research on Cancer (IARC 1990), which based its overall evaluation of the carcinogenicity of nickel compounds as a group on the combined results of human epidemiological studies, carcinogenicity studies in experimental animals, and other data supporting the "underlying concept that nickel compounds can generate nickel ions at critical sites in their target cells." The IARC review group correctly pointed out that the carcinogenicity of nickel compounds depends not solely on their capacity to release ionic nickel, but also on factors that promote localization of high concentrations of nickel ions at critical tissue sites. This conclusion is consistent with evidence from experimental animals indicating that nickel compounds of moderate solubility can, under certain exposure conditions, be more carcinogenic than compounds that are more soluble. Thus, it is difficult to predict with any certainty the relative carcinogenic hazard posed by a particular nickel compound without a full understanding of its ability to release ionic nickel under specific exposure conditions.
>
> The available evidence suggests that metallic nickel has carcinogenic properties because it can slowly dissolve in the body and release ionic nickel, an active genotoxic and carcinogenic form of nickel. No available data suggest that mechanisms by which nickel induces cancer in experimental animals would not also operate in humans.

In a 2004 filing with the U.S. Securities and Exchange Commission, Inco, Ltd. (Vale Inco at the time of preparation of this Initial Statement of Reasons), a nickel producing company, stated in part the following with respect to the National Toxicology Program's 10th Report on Carcinogens (which included the same conclusions as those quoted above from the 11th Report on Carcinogens):

> In December 2002, the National Toxicology Program ("NTP") within the U.S. Department of Health and Human Services released its Tenth Report on Carcinogens ("ROC"). In these bi-annual reports, NTP lists various substances that it concludes are either "known to be human carcinogens" or "reasonably anticipated to be human carcinogens." Previous versions of the ROC listed metallic nickel and "certain nickel compounds" as "reasonably anticipated to be human carcinogens." Metallic nickel remained in that category in the Tenth ROC. However, "nickel compounds" as a class (with no differentiation) were listed as "known to be human carcinogens." That broad listing runs counter to arguments that Inco and other nickel producers had made to NTP over the years, and the Company continues to believe it is not scientifically justified for various types of nickel compounds.

The Standards Board is mindful of nickel producers' contention that different classes of nickel compounds present different levels of hazard and so should have different PELs. However, the Standards Board is also concerned with the view of the Committtee that all forms of inorganic nickel can present a risk of cancer. In addition, the Standards Board sees real benefit to the simplicity of a single occupational exposure standard for all forms of inorganic nickel, particularly in terms of facilitating exposure assessment and determinations of employers' compliance with applicable PELs. With present routine methods of air sample analysis reporting results only for elemental nickel, not specific nickel compounds, the Standards Board is concerned that many employers will not understand which nickel PEL to apply to their workplace. Indeed, with mixed exposures such as from welding fume where the different forms of nickel generally are not quantitated, only the conservative approach of applying the lowest standard for the form of nickel likely to be present would be fully acceptable as an assessment of an employer's compliance with the PELs proposed for nickel compounds.

Unfortunately by contrast, it would be an easy mistake for employers with welding operations with employees exposed to insoluble oxides of nickel, and electroplating operations with employees exposed to soluble nickel compounds, to wrongly apply the much higher PEL for nickel metal to air sampling results for their workplaces, and as a result misjudge their level of compliance and the health risk to which their employees may be exposed.

In correspondence, dated September 10, 2007, NiPERA suggested an approach to compliance with speciated PELs for nickel based on the experience of nickel producing companies in Ontario, Canada operating under an occupational exposure limit identical to the ACGIH TLV and what the Standards Board proposes for the PEL. Noting the need for large sample sizes in order to speciate nickel in air, the NiPERA correspondence suggests that for an operation with mixed nickel exposures, a characterization could be done of the nickel species in the workplace air based on an area sample, and that characterization or "fingerprint" then applied to subsequent results for total airborne nickel. This approach may hold promise for addressing the problem. However, it assumes that the composition of the nickel mixtures would be consistent over time which, for example, could not be assumed for exposures from most welding operations where filler and base materials can over time vary with changes in materials and operational needs. It also assumes that the area sample composition of nickel would mirror the personal breathing zone composition of nickel. The NiPERA correspondence does note that speciation of nickel compounds is not a routine analysis for industrial hygiene laboratories, but it does not fully acknowledge the additional real difficulty this presents to the large number of workplaces that would need to apply it to common operations that can involve nickel exposure such as welding and electroplating. Apparently cognizant of the potential difficulties of nickel speciation, NiPERA notes on page 4 of its correspondence:

> Companies that do not want to undertake speciation of nickel exposures will have to comply with the lowest nickel PEL, while those companies that do speciate their exposures could comply only with the PELs corresponding to the nickel sub-groups present in their workplace.

The Standards Board appreciates NiPERA taking the time to submit informal comments on this matter to the Division in the pre-rulemaking phase of the process.

In recognition of the scientific complexity surrounding the PELs for nickel compounds, their broad significance in the California economy and the associated widespread potential for employee exposure and risk, the Division plans to revisit the matter of PELs for nickel through its advisory committee process after the completion of this rulemaking. This follow-up advisory committee process is intended to revisit the question of a single PEL for all nickel compounds as was originally recommended by the Committee, as well as the question of setting the PELs for nickel compounds based on the ACGIH inhalable particulate sampling approach. Recognizing also, however, the ongoing hazard to workers exposed to nickel compounds, the Standards Board believes it is appropriate, at least as an interim measure, particularly in light of the ten-fold reduction in the PEL for insoluble nickel compounds that would result, that the Standards Board in this rulemaking propose adoption of the ACGIH TLVs for nickel compounds and metal as total particulate.

The PEL for **ozone** is proposed to be changed from 0.1 ppm as an 8-hour TWA, and 0.3 ppm as a 15-minute Short Term Exposure Limit to 0.1 ppm as a Ceiling limit, the maximum concentration of an airborne contaminant to which an employee may be exposed. This level, recommended by the

Committee, is different from the level adopted by ACGIH as a TLV in 1999. That TLV consists of different recommended levels for different levels of work activity: 0.05 ppm 8-hour TWA for heavy work, 0.08 ppm for moderate work, and 0.1 ppm for light work, along with a 2-hour TWA of 0.2 ppm for any work level. Ozone is used as a disinfectant for air and water, for bleaching of textiles, oils and waxes, and in organic synthesis. It can also be generated in welding arcs and electrical corona discharges. Prior to 1999, the TLV was 0.1 ppm Ceiling, on the basis of mild acute respiratory effects being produced at exposures of 0.2 ppm. The documentation for the prior TLV stated in light of these findings: "*Thus, control of exposures should not be based on the concept of cumulative dose as measured by the 8-hour TWA.*" The TLV adopted in 1999 does not appear to be a replacement for the prior TLV so much as a refinement, taking into account the different levels of adverse effects found with different levels of work activity. The Committee believed that a PEL for different levels of work activity was not practical and so did not recommend the 1999 TLV. Committee members said that the study of Horstman et al. (1990) supported a PEL of 0.1 Ceiling. In that study, significant decreases in lung function were measured with human exposures to 0.08, 0.10, and 0.12 ppm of ozone during moderate exercise. A comment received at the May 18, 2005 public advisory meeting noted that the California air quality standard for ozone is 0.09 ppm as a 1-hour average. In light of the fact that ambient levels of ozone at some locations may at times approach or even exceed the PEL being proposed, a new footnote (p) is proposed to Table AC-1 which allows for adjustment of measured exposures of employees to ozone for concentrations of ozone found to a significant extent in the ambient environment during the measurement.

A new Permissible Exposure Limit for **refractory ceramic fiber (RCF)** is proposed at 0.2 fibers per cubic centimeter of air (f/cc) as an 8-hour time-weighted average. The PEL proposed is the same as the TLV, and differs from the Committee's recommendation of 0.1 f/cc. RCF is used as an insulating material in high-temperature industrial applications such as furnaces. The documentation for the TLV and the NIOSH Criteria document, both reflect the view that RCFs are intermediate in hazard with respect to respiratory disease between asbestos and other less hazardous synthetic vitreous fibers such as fibrous glass. In California (and the United States generally under federal OSHA regulations), asbestos has an 8-hour TWA PEL of 0.1 f/cc, a 30-minute "excursion limit" of 1 f/cc, and comprehensive work practice and program requirements, while fibrous glass has a Cal/OSHA PEL of 1 f/cc 8-hour TWA. The PEL Committee discussed recommendations for RCF of 0.2 f/cc and 0.1 f/cc. Representatives of producers of RCF, organized as the Refractory Ceramic Fiber Coalition, participated in the special public advisory meeting held on May 18, 2005. They expressed concern with the cost to their customers in California to comply with the Committee's recommended PEL of 0.1 f/cc or a PEL of 0.2 f/cc. They said that adopting the TLV of 0.2 f/cc as a PEL was unreasonable given the level of risk posed by RCF compared with risk levels associated with other TLVs. The producer representatives described a product stewardship program developed in co-operation with Federal OSHA, which includes a recommended exposure limit of 0.5 f/cc, which they said is based on feasibility of achievement and with which they said most users and producers of RCF could comply. They also noted that RCF is not a substitute for asbestos, as its use is limited by its higher cost primarily to high-temperature industrial applications.

Both ACGIH, in its documentation for the TLV, and NIOSH, in its 2006 Criteria Document, recommend a cautionary approach to minimizing the risk of respiratory disease from employee exposure to RCF. The Standards Board applauds the RCF industry's support of research on the potential hazards of RCF, and the product stewardship efforts of RCF producers. However, in light of

the totality of evidence cited by ACGIH and NIOSH on the potential for RCF to cause or contribute to respiratory disease, the Standards Board believes that a PEL for refractory ceramic fiber of 0.5 f/cc based on feasibility of compliance is unacceptably high. The Board is therefore proposing a PEL of 0.2 f/cc as an 8-hour TWA for refractory ceramic fiber. Related to the proposal to add RFC to Table AC-1, existing footnote (q) is proposed to be modified by deleting the reference to "glass", thus making it generally applicable to any fiber based PEL in which it is referenced. This proposal is necessary to provide a standard method for the measurement of RCF fibers to determine compliance with the proposed PEL.

The PEL for **vinyl bromide** is proposed to be lowered from 5 ppm (20 mg/m^3) to 0.1 ppm (0.44 mg/M^3) as an 8-hour TWA. This level recommended by the Committee is lower than the TLV of 0.5 ppm adopted by ACGIH in 1999. This level was adopted by ACGIH to protect against development of angiosarcoma, a rare tumor of the liver, based on structural analogy and metabolic similarity with vinyl chloride which was viewed by ACGIH as being a less potent carcinogen than vinyl bromide. Vinyl bromide is used in the manufacture of flame retardants, polymers, copolymers, and other products. There was discussion in the Committee whether cancer or non-cancer effects should be used as the basis for the PEL recommendation. For prevention of cancer, the Committee recommended a PEL of 0.1 ppm using a calculation based on the work of Storm and Rozman (1997). The Committee felt that 0.1 ppm would also be appropriate for prevention of non-cancer effects on the liver.

A new PEL for **vinyl fluoride** is proposed at 0.2 ppm (0.38 mg/M^3) as an 8-hour TWA. This level recommended by the Committee is lower than the TLV of 1 ppm adopted by ACGIH in 1999. This level was adopted by ACGIH to protect against development of angiosarcoma, a rare tumor of the liver, based on structural analogy and metabolic similarity with vinyl chloride. Vinyl fluoride is used as the starting material in making polyvinyl fluoride and other fluoropolymers. Polyvinyl fluoride has application in durable coatings, gaskets, seals and other products. Both the Committee and the TLV documentation discuss that there is reason to believe that vinyl fluoride is a less potent carcinogen than vinyl bromide, and possibly vinyl chloride as well. Based on that reasoning, ACGIH assigned a TLV of 1 ppm, twice the TLV of vinyl bromide, and the Committee recommended a PEL twice the PEL that it recommended for vinyl bromide.

DOCUMENTS RELIED UPON

1. ACGIH Documentation for TLVs printed from "TLVs and Occupational Exposure Values-2005" (a compact disk) for the following substances:

a. allyl glycidyl ether
b. 1-bromopropane
c. coal dust
d. cyclonite
e. 1,4-dioxane
f. glyoxal
g. methyl n-butyl ketone
h. methyl vinyl ketone
i. nickel and inorganic compounds, including nickel subsulfide
j. ozone

k. refractory ceramic fiber (in TLV documentation for "synthetic vitreous fibers")
l. vinyl bromide
m. vinyl fluoride

2. Gagnaire, F., et al. Nasal and pulmonary toxicity of allyl glycidyl ether in mice. Toxicology Letters. 39:139-145. 1987.

3. Schaper, M. Development of a database for sensory irritants and its use in establishing occupational exposure limits. American Industrial Hygiene Association Journal. 54(9):488-544. 1993.

4. Health Hazard Alert: 1-Bromopropane (n-Propyl Bromide). Hazard Evaluation System and Information Service (HESIS), California Department of Health Services. July 2003.
http://ww2.cdph.ca.gov/programs/hesis/Documents/bpropane.pdf

5. Office of Environmental Health Hazard Assessment. Toxicity Data Review: 1-Propyl Bromide. Transmitted to California Air Resources Board, Stationary Source Division, Subject: Health Effects of Exposure to Alternative Dry Cleaning Solvents, December 2, 2003.

6. NTP-CERHR Monograph on the Potential Human Reproductive and Developmental Effects of 1-Bromopropane. Center for the Evaluation of Risks to Human Reproduction. National Toxicology Program. U.S. Department of Health and Human Services. NIH Publication No. 04-4479. October 2003.
http://cerhr.niehs.nih.gov/chemicals/bromopropanes/1-bromopropane/1BP_monograph.pdf

7. Criteria for a Recommended Standard. Occupational Exposure to Respirable Coal Mine Dust. U.S. Department of Health and Human Services, National Institute for Occupational Safety and Health. Publication 95-106. September 1995.
http://www.cdc.gov/niosh/95-106.html

8. Industrial Union Department, AFL-CIO v. American Petroleum Institute et al., No. 78-911 Supreme Court of the United States 448 U.S. 607; 100 S. Ct. 2844; 1980 U.S.
http://people.hofstra.edu/vern_r_walker/health_and_safety_course/Benzene.htm

9. Cal/OSHA Form 9 requesting revision of size selective sampling criteria of Footnote (n) in 8 CCR 5155 Table AC-1. April 2, 2007. Submitted by Kelly Howard, Cal/OSHA Consultation Service.

10. American Conference of Governmental Industrial Hygienists. Threshold Limit Values for Chemical Substances. Appendix D: Particle Size-Selective Sampling Criteria for Airborne Particulate Matter. 2008.

11. Hexahydro-1,3,5-trinitro-1,3,5-triazine (RDX) (CASRN 121-82-4). U.S. Environmental Protection Agency Integrated Risk Information System.
http://www.epa.gov/iris/subst/0313.htm#reforal (for cyclonite)

12. Office of Environmental Health Hazards Assessment. Air Toxics Hot Spots Program Risk Assessment Guidelines, Part II. Technical Support Document for Describing Available Cancer

Potency Factors. May 2005, Pages 248-253.
http://www.oehha.ca.gov/air/hot_spots/pdf/May2005Hotspots.pdf (for 1,4 dioxane)

13. OSHA Sampling & Analytical Method 64. Glutaraldehyde. June 1987. Additional data: January 1998.
http://www.osha.gov/dts/sltc/methods/organic/org064/org064.html (for glyoxal)

14. Letter of May 9, 2005. Patricia A. Cruse, BASF Corporation to Bob Barish, Senior Industrial Hygienist, Cal/OSHA Research & Standards Health Unit. (for glyoxal)

15. Katz, G.V., et al., Comparative Neurotoxicity and Metabolism of Ethyl n-Butyl Ketone and Methyl n-Butyl Ketone in Rats. Toxicology and Applied. Pharmacology. 52:153–158 (1980).

16. Morgan, D.L., et al., Upper Respiratory Tract Toxicity of Inhaled Methylvinyl Ketone in F344 Rats and B6C3F1 Mice. Toxicological Sciences. 58:182-194. (2000).
http://toxsci.oxfordjournals.org/cgi/content/full/58/1/182

17. Criteria for a Recommended Standard: Occupational Exposure to Inorganic Nickel. U.S. Department of Health Education and Welfare, Public Health Service, Center for Disease Control, National Institute for Occupational Safety and Health. Publication 77-164. May 1977.
http://www.cdc.gov/niosh/pdfs/77-164a.pdf

18. World Health Organization, International Agency for Research on Cancer, IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Volume 49, Chromium, Nickel and Welding, Summary of Data Reported and Evaluation. Last Updated: 5 November 1997.
http://monographs.iarc.fr/ENG/Monographs/vol49/volume49.pdf

19. National Toxicology Program, U.S. Department of Health and Human Services. 11th Report on Carcinogens (January 2005). Substance Profiles: Nickel Compounds and Metallic Nickel.
http://ntp.niehs.nih.gov/ntp/roc/eleventh/profiles/s118nick.pdf

20. Inco Ltd. Form: 10-K. Filing Date: 3/15/2004.
http://sec.edgar-online.com/2004/03/15/0000909567-04-000367/Section2.asp

21. Information About Several Issues That May be of Interest to Cal-OSHA in Their Deliberations on Proposed Nickel PELs. Comments of the Nickel Producers Environmental Research Association. September 10, 2007.

22. Horstman, D.H.; Folinsbee, L.J.; Ives, P.J.; et al. Ozone Concentration and Pulmonary Response Relationships for 6.6-Hour Exposures with Five Hours of Moderate Exercise to 0.08, 0.10, and 0.12 ppm[1-3] Am. Rev. Respir. Dis. 142:1158-1163. (1990).

23. Asbestos and Other Fibers by Phase Contrast Microscopy (PCM). Analytical Method 7400, Issue 2. NIOSH. Manual of Analytical Methods, Fourth Edition, August 15, 1994.
http://www.cdc.gov/NIOSH/nmam/pdfs/7400.pdf

24. Background on the Refractory Ceramic Fiber Industry and Product Stewardship Program. Refractory Ceramic Fibers Coalition.
http://www.rcfc.net/background.htm http://www.rcfc.net/psphtwdoc.pdf

25. Criteria for a Recommended Standard: Occupational Exposure to Refractory Ceramic Fibers. U.S. Department of Health and Human Services, Centers for Disease Control and Prevention, National Institute for Occupational Safety and Health. Publication 2006-123. May 2006.
http://www.cdc.gov/niosh/docs/2006-123/

26. Technical and Economic Feasibility of a 0.2 f/cc Permissible Exposure Limit for Refractory Ceramic Fiber. Prepared September 27, 2007 for Refractory Ceramic Fibers Coalition by Dr. L. Daniel Maxim, Everest Consulting Associates.

27. Letter of December 7, 2007 from John Allshouse, Everest Consulting, to Bob Barish, Cal/OSHA detailing items included in costs reported in L. Daniel Maxim document of September 27, 2007.

28. Storm, J.E. and Rozman, K.K. Evaluation of Alternative Methods for Establishing Safe Levels of Occupational Exposure to Vinyl Halides. Regulatory Toxicology and Pharmacology. 25: 240-255 (1997).

These documents are available for review Monday through Friday from 8:00 a.m. to 4:30 p.m. at the Standards Board Office located at 2520 Venture Oaks, Suite 350, Sacramento, California. For those documents that are available on the internet, the website links to these documents are listed for your convenience.

DOCUMENTS INCORPORATED BY REFERENCE

None.

REASONABLE ALTERNATIVES THAT WOULD LESSEN ADVERSE ECONOMIC IMPACT ON SMALL BUSINESSES

No reasonable alternatives were identified by the Board and no reasonable alternatives identified by the Board or otherwise brought to its attention would lessen the impact on small businesses.

SPECIFIC TECHNOLOGY OR EQUIPMENT

This proposal will not mandate the use of specific technologies and equipment.

COST ESTIMATES OF PROPOSED ACTION

This rulemaking proposal contains proposed revisions of permissible exposure limits (PELs) for 13 substances in an existing standard whose specific purpose is to specify PELs for a large number of toxic substances to workers may be exposed. The primary users of the substances for which revised

PELS are proposed are in the private industrial and chemical sectors. These proposed new PELS are consistent with the recommendations of the American Conference of Governmental Industrial Hygienists or with scientific findings of which professional health and safety staff and consultants of these entities should be aware. Many of these entities already seek to control employee exposures to these levels in the interest of business continuity, other more general requirements to protect worker health and safety, and minimization of tort and workers' compensation liability.

The Board has received no indication that any of the proposed PEL revisions will have significant cost impacts, with the exception of those for 1-bromopropane and refractory ceramic fiber. With respect to those two, while some indication has been received in the form of comments and information that they may have a cost impact on affected employers, it has been determined after considering the input provided that they, like the other proposed PELs, will not result in significant cost impacts overall. The details of the cost comments provided are described below.

1-bromopropane. A statement was received from the International Brominated Solvents Association indicating this organization's opinion that compliance with the proposed PEL for 1-bromopropane would have an associated cost, but when asked for information on cost, a representative of the organization indicated that they preferred to wait to see the actual rulemaking proposal before responding with such information. The Board remains without any concrete information pointing to a cost impact.

Refractory ceramic fiber (RCF). Cost information regarding the proposed PEL of 0.2 f/cc for RCF was received after the special public advisory meeting of May 18, 2005, from Dr. L. Daniel Maxim of Everest Consulting Associates of Cranbury, New Jersey, who is a longtime technical consultant for the Refractory Ceramic Fibers Coalition (RCFC). In a letter dated September 27, 2007, Dr. Maxim provided information to help explain the annual compliance cost estimate of $4.6 million for 1,263 potentially exposed California workers that had first been offered by RCFC representatives at that advisory meeting.

In response to a request for additional details on this cost estimate, a subsequent letter dated December 7, 2007, was received from Mr. John Allshouse, also of Everest Consulting. The letter details the individual item expenditures forming the basis of the $4.6 million cost estimate provided at the May 18, 2005 meeting and is consistent with Dr. Maxim's letter of September 27, 2007.

However, the details provided by both letters indicate that about 70% of this cost estimate is for items such as a comprehensive air monitoring program, change rooms, shower rooms, lunch rooms and other items required in many comprehensive "vertical" standards e.g., those for asbestos, and lead, but not required by the proposed PEL. The remaining 30% or $1.4 million of the cost items detailed in Mr. Allshouse's letter pertain to items such as HEPA vacuums, engineering controls, respirators, and respirator fit tests, the need for which could result from or be increased by the proposed PEL.

The $1.4 million in estimated compliance cost that remains after removing measures not required by the proposed PEL must be adjusted further downward to account for current worker exposure in the state. Dr. Maxim's letter of September 27, 2007 indicates that only about 35% of airborne exposure measurements of employees of California companies working with RCF were exposed above the

proposed PEL of 0.2 f/cc, and the measurements described in his letter are consistent with other RCFC documents and statements.

If, as Dr. Maxim's letter indicates, only 35% of the 1,263 workers estimated to be working with RCF in California will require exposure reduction measures to comply with the proposed PEL of 0.2 f/cc, then only 35% of the estimated $1.4 million in exposure reduction costs should be considered to be applicable to the cost of compliance. This translates to 442 (35% of 1263) workers requiring exposure reduction measures costing $490,000 (35% of $1.4 million), for a per-worker cost of $1109, assuming the original figure of $4.6 million from Dr. Maxim is accurate. Since employers will likely have only a subset of employees who require these measures, the total per-employee cost for all employees employed by all employers in this industry adds important perspective, and that figure is $490,000 divided by 1263, or $388.

As was stated in the NIOSH Critieria Document (2006) for refractory ceramic fiber:

> Because residual risks of cancer (lung cancer and pleural mesothelioma) and irritation may still exist at the REL [of 0.5 f/cm^3], NIOSH further recommends that all reasonable efforts be made to work toward reducing exposures to less than 0.2 f/cm^3. At this concentration, the risks of lung cancer are estimated to be 0.03 to 0.47 per 1,000 based on extrapolations of risk models from Sciences International [1998], Moolgavkar et al. [1999], and Yu and Oberdörster [2000].

Given the compliance cost analysis provided above, the overall employment cost of maintaining a workforce, the overall cost of doing business, and the positive health impacts likely to result from a reduction in the PEL, the proposed PEL will not have a significant cost impact.

Costs or Savings to State Agencies

No costs or savings to state agencies will result as a consequence of the proposed action.

Impact on Housing Costs

The Board has made an initial determination that this proposal will not significantly affect housing costs.

Impact on Businesses

The Board has made a determination that this proposal will 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.

Cost Impact on Private Persons or Businesses

The Board is not aware of any cost impact that a representative private person or business would necessarily incur in reasonable compliance with the proposed action.

Costs or Savings in Federal Funding to the State

The proposal will not result in costs or savings in federal funding to the state.

Costs or Savings to Local Agencies or School Districts Required to be Reimbursed

No costs to local agencies or school districts are required to be reimbursed. See explanation under "Determination of Mandate."

Other Nondiscretionary Costs or Savings Imposed on Local Agencies

This proposal does not impose nondiscretionary costs or savings on local agencies.

DETERMINATION OF MANDATE

The Occupational Safety and Health Standards Board has determined that the proposed standard does not impose a local mandate. Therefore, reimbursement by the state is not required pursuant to Part 7 (commencing with Section 17500) of Division 4 of the Government Code because the proposed amendments will not require local agencies or school districts to incur additional costs in complying with the proposal. Furthermore, the standard does not constitute a "new program or higher level of service of an existing program within the meaning of Section 6 of Article XIII B of the California Constitution."

The California Supreme Court has established that a "program" within the meaning of Section 6 of Article XIII B of the California Constitution is one which carries out the governmental function of providing services to the public, or which, to implement a state policy, imposes unique requirements on local governments and does not apply generally to all residents and entities in the state. (County of Los Angeles v. State of California (1987) 43 Cal.3d 46.)

The proposed standard does not require local agencies to carry out the governmental function of providing services to the public. Rather, the standard requires local agencies to take certain steps to ensure the safety and health of their own employees only. Moreover, the proposed standard does not in any way require local agencies to administer the California Occupational Safety and Health program. (See City of Anaheim v. State of California (1987) 189 Cal.App.3d 1478.)

The proposed standard does not impose unique requirements on local governments. All state, local and private employers will be required to comply with the prescribed standards.

EFFECT ON SMALL BUSINESS

The Board has determined that the proposed amendments may affect small businesses. However no adverse economic impact is anticipated.

ASSESSMENT

The adoption of the proposed amendments to the standard will neither create nor eliminate jobs in the State of California nor result in the elimination of existing businesses or create or expand businesses in the State of California.

ALTERNATIVES THAT WOULD AFFECT PRIVATE PERSONS

No reasonable alternatives have been identified by the Board or have otherwise been identified and brought to its attention that would be more effective in carrying out the purpose for which the action is proposed or would be as effective and less burdensome to affected private persons than the proposed action.