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Attachment No. 2

**INITIAL STATEMENT OF REASONS****CALIFORNIA CODE OF REGULATIONS**

TITLE 8: Chapter 4, Subchapter 7, Article 121, Sections 5355, 5356, 5357, and 5358 and New Sections 5349, 5350, 5351, 5352, 5353, 5354, and 5355.1, of the General Industry Safety Orders

**Snow Avalanche Blasting****SUMMARY**

The Occupational Safety and Health Standards Board (Board) initiates this rulemaking as the result of a Board Decision regarding OSHSB Petition File No. 476, dated March, 16, 2006. In the Petition, the Petitioner (Mr. C. Duane Niesen), representing the California Ski Industry Association, requested that the Board amend Title 8, California Code of Regulations (CCR), Sections 5357 and 5358 of the General Industry Safety Orders (GISO), concerning arming and placing of explosive charges, and the management of misfired charges used in the control of avalanche danger.

In his September 29, 2005, letter to the Board, the Petitioner stated that the Division of Occupational Safety and Health (Division) interpretation of existing avalanche control standards is unclear with regard to Sections 5357 and 5358. The Petitioner stated that avalanche control methods similar to the proposed amendments have been successfully used in California, other states, and provinces in Canada for three decades without accidents attributable to the proposed practices.

In addition to the proposed amendments to Sections 5357 and 5358 by Mr. Niesen, Board staff recommends developing a comprehensive vertical standard for avalanche blasting operations because of its unique objectives, work conditions and related hazards. Additionally, the work force to carry out blasting operations is usually involved with other responsibilities and duties associated with the operation of ski resorts, and commonly are ski patrollers that work seasonally as part time blasters. For this reason, Board staff recommends the creation of a separate, comprehensive standard for avalanche control blasting highlights those standards that are of greatest significance, even when similar blasting standards are listed else where in the GISO. The proposed avalanche control-blasting standard provides clarity and reflects current industry wide practices related to the training, blasting crew makeup, explosives, detonating systems, explosives storage, arming of charges, transportation, avalanche blasting and the management of misfires.

Currently, Title 8, Article 121 does not address the issues of 1) arming at the bottom of the slope, 2) transporting the armed handcharges via the ski lift to the top of the slope, 3) disarming of misfired handcharges before they have been deployed and 4) deploying handcharges from ski

lifts. As asserted by Mr. Niesen, the lack of these specific standards has led to confusion regarding the avalanche control procedures allowed in California. Without specific avalanche control standards, the ski industry is subject to the blasting standards in Group 18 of the GISO, which prohibit many of the practices commonly used during avalanche blasting activities in California and the nation. As determined during the advisory committee meetings, there are resorts in compliance with current blasting standards and who arm the charges at or near the deployment site and do not transport armed charges on ski lifts. Each of the individuals representing these resorts supports the proposal.

The proposal is the result of a collaborative effort by the ski industry representatives, the ski patrol community, Caltrans staff, manufacturer's representatives, avalanche blasting experts, Board staff and Division staff to develop a standard that provides the necessary safe practices, clarity and reasonable standards to benefit the employees, the ski industry and the public. The proposed consensus standard was developed by Board staff with the assistance of an advisory committee during two committee meetings convened on May 16 and May 31, 2006. The advisory committee members consisted of representatives from the California Ski Resort Association, ski resort avalanche blasting managers, ski patrollers/avalanche blasters, Caltrans staff, representatives from the offices of State Assemblyman Tim Leslie, and State Senator Dave Cox, and Division staff, and were selected on the basis of developing a balance between representatives from labor and management, and included blasting industry experts identified by the Division. In addition to the two advisory committee meetings, a December 1, 2005, meeting was convened in Truckee, California, by the Division and chaired by Board staff. The December 2005 meeting was attended by representatives from the California Ski Resort Association, ski resort avalanche blasting managers, ski patrollers (avalanche blasters), Caltrans staff, representatives from the offices of State Assemblyman Tim Leslie and State Senator Dave Cox, and Division and Board staff, in which the petitioner's recommendations, the petition and rulemaking process were discussed.

#### SPECIFIC PURPOSE AND FACTUAL BASIS OF PROPOSED ACTION

The proposed rulemaking consists of a comprehensive avalanche-blasting standard that adds new and amends existing sections in Article 121 regarding avalanche control blasting practices. This proposal is necessary to provide clear performance standards for what currently are blasting activities that are generally outside the scope of blasting standards in the GISO. The proposal will provide avalanche control standards as an alternative to practices consistent with the general blasting standards in Group 18, for the abatement of avalanche danger.

#### Article 121. Snow Avalanche Blasting

This proposal would add avalanche control blasting standards by adding new Sections 5349, 5350, 5351, 5352, 5353, 5354, 5355.1 and amending Sections 5355, 5356, 5357, and 5358. The proposal is necessary in order to provide clarity and additional methods and processes associated with avalanche control blasting that are consistent with current industry wide practices and are based on principles of safe practices to protect the employee. The proposed amendments will provide a concise set of blasting standards specific to avalanche control.

#### Section 5349. Scope.

Existing Section 5355, titled “Scope” is proposed for transfer to new Section 5349, titled “Scope.” The proposed new Section 5349 contains the scope of Article 121 as activities associated with avalanche control.

It is proposed to add the phrase “shall only pertain to avalanche control operations, and shall” to language in the new Section 5349 to be consistent with language in other scope sections in Title 8. This proposal is necessary to provide a clear scope of the operations regulated by Article 121. The proposal is nonsubstantive, and therefore will have no effect on the regulated public as this proposal is editorial in nature.

#### Section 5350. Training.

Currently, Article 121 does not contain specific training requirements for employees involved in avalanche control blasting operations. The proposal adds a new Section 5350, titled “Training” mandating training for employees who are involved in avalanche blasting activities including the arming, transportation, and deployment of charges. These requirements are consistent with Section 3203 training requirements under the Injury and Illness Prevention Program.

The proposed new Section 5350 prescribes both classroom instruction and practical training for affected employees and requires competence and knowledge regarding explosives characteristics, assembling, arming, transportation, deployment and disarming of charges, work stoppage due to lightning storms and rescue procedures for avalanche control operations. The requirement to provide a copy of the snow avalanche blasting standards to the blasters ensures that they have the standard available for reference. Additionally, the proposal to require training for employees indirectly involved with avalanche control ensures that the employees have the necessary information on the issues related to working with high explosives for avalanche control. The proposal is necessary to ensure employees directly or indirectly involved with blasting develop the necessary knowledge and competence to safely perform their duties, and in the event of an emergency are able to participate appropriately with emergency operations and rescue.

#### Section 5351. Snow Avalanche Blasting Crew.

Currently, Article 121 does not contain specific requirements for avalanche blasting crews. The proposal adds a new Section 5351, titled “Snow Avalanche Blasting Crew” that mandates minimum organizational and qualification requirements for avalanche blasting crews.

Proposed new Section 5351 contains requirements addressing (1) supervision of the avalanche blasting crew by an avalanche control coordinator who is a licensed blaster, (2) use of a licensed blaster in charge to oversee the activities of blasting crews, (3) responsibilities of the blaster in charge, (4) minimum number of licensed blasters per blasting crew, physical and mental requirements for blasting crewmembers, (5) blasting crew communication and (6) line of sight to ensure awareness of the presence of blasting crewmembers. The proposed requirements are necessary to ensure the blasting crew is physically and mentally competent to perform its avalanche control duties safely which include, but are not limited to: transporting and deploying explosives, disarming explosives and implementing emergency operations.

### Section 5352. Explosives.

Currently, Article 121 does not contain specific requirements for explosives used for avalanche blasting. The proposal adds a new Section 5352, titled “Explosives” that establishes minimum requirements for explosives used for avalanche blasting operations.

New Section 5352 would require that the explosives to be used in avalanche control must retain its properties for at least one season while in storage and when exposed to weather conditions routinely encountered during avalanche control operations. Proposed subsection (a) is necessary to ensure that the explosives for avalanche blasting will remain viable and stable during storage. Proposed subsection (b) is necessary to ensure that the explosives for avalanche blasting will remain viable and stable when exposed to low temperatures and moisture encountered during avalanche blasting operations. This language is consistent with that in Section 5241, requiring the use of explosives that will not freeze at temperatures that may reasonably be expected at avalanche prone sites.

### Section 5353. Detonating Systems.

Currently, Section 5356 contains requirements for detonating systems that utilize safety fuses and fuse igniters during avalanche blasting. The proposal transfers these requirements from Section 5356 into a new Section 5353, titled “Detonating Systems.” Additionally, the proposal adds comprehensive detonating system requirements used for avalanche blasting operations.

The proposed new standard would require appropriate detonating systems to be utilized for single and multiple unit handcharges. Additionally, the proposal sets standards for procedures to be followed for the installation and use of the detonation systems. The proposal is necessary to ensure the hazards associated with faulty or inappropriate detonating systems are addressed.

Subsection (a) would require specific detonation systems for single hand placed or hand thrown charges and is necessary to ensure predictable performance and safety when deploying the handcharges.

Subsection (b) would require specific detonation systems for multiple charges and is necessary to ensure predictable performance and safety when deploying the multiple charges.

Subsection (c) would require the use of appropriately sized blasting caps and is necessary to ensure predictable performance, since a small cap may not be sufficient to detonate the charge.

Subsection (d) contains language currently found in Section 5356(a), (b), and (d) containing specific requirements for the safety fuse with the following amendments:

Subsection (d)(1) is transferred without change from Section 5356(a), requiring the use of water resistant safety fuse.

Subsection (d)(2) would require a determination of the safety fuse’s burn rate and would prohibit the use of a fuse with an unpredictable burning rate. This is necessary to ensure that the time from the

lighting of the fuse to the detonation of the charge is predictable and would provide the blaster with an appropriate factor of safety when deploying charges.

Subsection (d)(3) would require a re-determination of the safety fuse's burn rate when using safety fuse that has been stored since its last burn rate determination. This proposal is necessary to ensure that any changes in the fuse's burn rate are taken into account in the determination of the fuse length.

Subsection (d)(4) would require posting the burn rate. This is necessary to ensure the correct burn rate information is clearly communicated and used to determine the fuse length.

Subsection (d)(5) contains proposed language currently found in Section 5356(b), specifying a minimum burn time of 90 seconds from ignition to detonation.

Subsection (d)(6) contains proposed language transferred from current Section 5356(d). The proposed language is necessary to reiterate that the cut ends of fuses must be protected from weather related damage and physical damage.

Subsection (d)(7) would prohibit the use of damaged fuse and is necessary to ensure that a viable fuse is used to ignite the charge. Both proposed subsections (d)(6) and (d)(7) would ensure that the fuse used would provide predictable propagation and would provide the blaster with an appropriate factor of safety when deploying charges.

Subsection (e) would establish three requirements for assembling caps and fuses: 1) in a controlled shelter that is a warm, dry, and well-lighted environment, 2) in a location without flammable, combustible or explosive substances, and 3) using approved, appropriate crimping tools. This standard is necessary to ensure the safety of the blaster by the quality and predictability of the capped fuses used.

Subsection (f) would include some of the specific fuse igniter requirements currently located in Section 5356(c) and (e). The proposal contains the following changes from current language:

Subsection (f)(1) would modify Section 5356(c) by requiring a "fuse igniter, designed for that purpose," be used instead of an "approved fuse lighter." This amendment is necessary because there are no "approved" fuse igniters, pursuant to Section 3206, that are currently available.

In the proposed subsection (f)(2), the term "fuse lighter" would be changed to "fuse igniter" and is necessary to provide consistent terminology within in the avalanche blasting standard.

Subsection (f)(3) contains language transferred from current Section 5356(e) with minor editorial, nonsubstantive changes.

The proposed subsection (g) contains eye protection requirements pursuant to Section 3382, for use when handling or using detonating systems or their components. This proposal is necessary to protect an employee's sight from flying particles and sparks in the event a fuse cap, no-electric shock tube or detonation cord actuates, or when excessive sparking occurs during the burning of a fuse.

#### Section 5354. Storage of Explosives and Handcharges.

Currently, Article 121 does not contain specific requirements for the storage of explosives in the course of avalanche blasting operations. The proposal adds a new Section 5354, titled “Storage of Explosives and Handcharges” that establishes storage standards for explosive materials.

The proposed new Section 5354 mandates storage requirements for explosives used for avalanche control, referencing the general explosive standards. The proposed subsection (a), requiring explosives used in avalanche control to be stored in accordance with Article 114, would clarify that all applicable storage requirements in Article 114 apply to avalanche operations. Article 114 contains the general storage requirements including 1) safety orders for storage facilities and containers, 2) quantity and distance requirements for locating storage facilities near other property improvements, and 3) the construction and use of storage magazines requirements.

The proposed subsection (b), mandating that explosive materials must be stored inside the manufacturers original shipping containers, ensures proper containment of the explosives in appropriate containers. It is a common practice to preassemble large quantities of the capped fuses in advance of blasting operations, resulting in explosive materials (capped fuse assemblies) unable to be stored in either the shipping containers of the caps or the bulk safety fuse. An exception is proposed in subsection (b) to allow fused caps to be stored inside a container with appropriate padding. The proposed storage standards, including the conditions for the exception, are necessary to ensure that explosive materials are stored in a safe and appropriate manner.

#### Section 5355. Arming Explosive Charges.

Currently, Section 5355 titled “Scope,” contains the scope of Article 121. The proposal transfers language regarding the scope from Section 5355 to Section 5349 and replaces it with standards for the arming of explosive charges used for avalanche control. Additionally, the proposal amends the section title to read, “Arming Explosive Charges.” Currently, Article 121 does not contain specific requirements for the arming of explosive charges.

The proposed new Section 5355 would add general arming requirements regarding the location and conditions under which arming of handcharges may take place and establish specific limits regarding arming operations inside buildings.

Subsection (a)(1) would require charges be armed at the point of deployment or in a safe, dry location as close to the deployment area as possible. This proposal is necessary to provide an alternative to deployment site arming to limit the effect that environmental and site conditions have on the blasting operation.

Subsection (a)(2) would prohibit arming of handcharges inside occupied buildings, and is necessary to ensure that building occupants are not inadvertently exposed to explosive hazards associated with the arming of charges.

Subsection (a)(3) would allow charges to be armed at the bottom of the slope inside an arming room and is necessary to limit the effect that environmental and site conditions have on the blasting

operation. The proposal would allow the use of an arming room that can be readily cleared and made accessible during and after snowstorms where there is available snow removal equipment. This option would enhance the quality of arming the charges when otherwise the explosives would be armed in extreme weather conditions. The proposal would address the danger and difficulty of trying to arm explosives in extreme cold and high winds. The proposal is necessary to provide the employer with greater control over the logistics of the blasting operation by allowing options in arming procedures. The proposal would allow the arming of handcharges, snow removal for access, and the readying of the ski lift equipment to be carried out simultaneously. Therefore, the proposal would eliminate the delays associated with arming at the top of the slope, where 1) the blasting crews are required to wait for snow removal at the bottom of the hill to gain access to the explosives in the storage magazine, 2) provide access to, and readying of the ski lift equipment, 3) the transport of explosives components by crewmembers up the ski lift, and 4) clearing deep snow away from any arming structure at the top of the slope, before crewmembers can arm the charges and proceed to the deployment site.

This subsection would provide two alternate methods of arming handcharges, and is necessary to ensure the blaster has the option of arming inside an arming room or another location in the event weather or site conditions make arming at the deployment site difficult or virtually impossible.

Subsection (b) would provide a standard, identified as Method I, for the safe handling of explosives during the arming of handcharges at the site of deployment as follows:

Subsection (b)(1) is necessary to require the capped fuse be inserted in the explosive charge at the deployment site.

Subsection (b)(2) would define the initiation system used in the arming process and assembly as recommended by the manufacture and is necessary to ensure that the components are used as designed.

Subsection (b)(3) would require caps to be attached to correct length fuses before being transported to control routes, is necessary to ensure that the capped fuses used to arm the charges would not be assembled at the deployment site, and would provide 90 second burn time from ignition to detonation.

Subsections (b)(4) and (5) would require the use of non-sparking tools, and are necessary to minimize the possibility of accidental detonation due to static electrical conductivity.

Subsection (b)(6) would require the disbursement of explosives to the different blasting crews to be done outside the storage magazine and require a record be kept pursuant to Section 5251(n). These requirements are necessary to reduce the chance of employee-initiated accidents within the storage magazine by minimizing and controlling employees entering the storage magazine. Additionally, this subsection is necessary to maintain a record of the amount of explosives stored and disbursed to enable accurate tracking of the explosives used.

Subsection (b)(7) would prohibit fuse caps, capped fuses, armed charges and igniters to be inside the magazine where explosives are stored, and is necessary to reduce the possibility of accidental initiation of the stored explosives.

Subsection (c) provides a standard, referred to as Method II, for the safe handling of explosives during the arming of handcharges inside an arming room and incorporates the requirements of proposed subsection (b) in addition to the requirements in the proposed subsections (c)(1) through (4).

Subsection (c)(1) would prohibit the presence of explosive materials during the fuse and cap assembling process, and is necessary to minimize the probability of detonation of the explosives due to the accidental actuation of the primary explosive material inside the fuse caps.

Subsection (c)(2) would restrict the arming of explosives to immediately before they are used, and is necessary to eliminate the need to store and maintain armed charges, minimizing both public and employee exposure to an accidental blast from the armed charge.

Subsection (c)(3) would require, after inserting the cap in the charge, lacing or taping of the capped fuse to the charge, and is necessary to ensure that the fuse is well secured to the explosives charge, reducing the probability of the fuse becoming dislodged from the explosive charge and misfiring.

Subsection (c)(4) would require the armed charges to be placed in an explosives box or avalanche blasting pack, and is necessary to ensure that the charges are appropriately contained and less susceptible to accidental detonation.

#### Section 5355.1 Arming Room.

Currently, Article 121 does not contain specific arming room requirements used in the course of avalanche control operations. The proposal adds a new Section 5355.1, titled, "Arming Room," that mandates arming room requirements specific to avalanche control blasting.

The proposed new Section 5355.1 establishes standards regarding the location, construction, use limits, and housekeeping requirements for arming rooms.

Subsection (a) would set standards as to where the arming room can be located with respect to occupied buildings or structures and is necessary to ensure that during the arming process only essential personnel are and prohibiting public and non-essential personnel presence exposure to explosives hazards during the arming process.

Subsection (b) would set standards as to how the arming room must be constructed, and is necessary to reduce conductivity of the floor and work table surfaces to prevent accidental detonation initiated by static electricity. Additionally, the "construction" requirement in subsection (b) to require the arming room to be well ventilated is necessary to prevent dampening and heating of explosive materials present and minimize airborne dust inside the arming room.

Subsection (c) would set restrictions when operating an arming room, and is necessary to minimize accidental detonation of explosive materials by prohibiting activities, fixtures, appliances, liquids or gasses, and tools that may produce a spark, excessive heat, open flame or primary explosion. Additionally, the restrictions are necessary to minimize accidental detonation caused by untrained employee or unauthorized person's actions. The restriction in subsection (c)(8), prohibiting the storing of explosive materials in the arming room, is necessary to eliminate public and employee

exposure to improperly stored explosives. The to subsection (c)(8), allowing the storage of a maximum of 5,000 caps and capped fuses, is necessary to maintain consistently with the storage requirements in Section 5253.1, and meeting the intent of the restrictions in subsection (c) because the stored caps and capped fuses would be secured in an approved storage magazine.

Subsection (d) would set housekeeping requirements for the arming room and is necessary to prevent or minimize the explosives hazard posed by accumulation of explosive material debris and dust resulting from arming activities by requiring the arming room to be kept clean and orderly.

#### Section 5356. Transporting Explosives and Handcharges.

Currently, Section 5356 contains requirements for detonating systems that utilize safety fuse and fuse igniters during avalanche blasting. The proposal transfers the detonating system requirements from Section 5356 into a new Section 5353, titled “Detonating Systems.” Currently, Article 121 does not contain specific transportation requirements used in the course of avalanche control operations. The proposal adds a new, comprehensive transportation standard, specific to explosive materials used in avalanche blasting operations, into Section 5356. The proposal amends the title of the new Section 5356 to read, “Transporting Explosives and Handcharges.”

The proposed new Section 5356 establishes standards regarding the transportation of explosive materials including armed handcharges.

Subsection (a) is necessary to clarify to employers that the transportation of explosives via public roads and highways during avalanche control activities is subject to United States Department of Transportation (DOT) standards.

Subsection (b) would require that provisions be established to prevent contact with the hot exhaust system while transporting explosives inside a vehicle powered by an internal combustion engine, and is necessary to prevent explosives from being exposed to a source of ignition that could lead to accidental detonation.

Subsection (c) would provide an option of transporting the armed explosive charges (armed at the bottom of the ski slope pursuant to Section 5355) via a ski lift to the top of the ski slope for deployment. Restrictions in proposed subsections (c)(1) through (5) is necessary to limit the employee exposure to accidental detonation.

Subsection (c)(1) would limit riding a ski lift to transport charges and explosives to only the lift operators and deployment crews and is necessary to limit the exposure to explosives only to essential personnel directly involved with avalanche control blasting.

Subsection (c)(2) would prohibit the carrying of more than two persons and 90 pounds of explosives per lift chair and is necessary to limit exposure to explosives and the potential blast zone produced by explosives in the event of an accidental detonation.

Subsection (c)(3) would require separating blasting crews from one another transporting on the ski lift by a minimum of 300 feet and is necessary to limit the crews' exposure to a possible accidental explosion of the explosives carried by another blasting crew also on the ski lift.

Subsection (c)(4) would require direct communication between the lift operator and avalanche crews on the lift at all times and is necessary to ensure the ability to coordinate, control and provide incident notification during the transportation of explosives.

Subsection (c)(5) would prohibit the ski lift and the slopes to be used by the public and nonessential personnel until blasting is completed, and is necessary to limit exposure to explosives and controlled avalanches during avalanche blasting operations.

Subsection (d) would establish container requirements for use during the transportation of explosive materials and is necessary to prevent explosive materials from being accidentally detonated as a result of exposure to physical force or static electricity.

The exception to subsection (d) would allow fuse caps and capped fuses to be transported using "padded shields or equivalent" and is necessary to protect the sensitive fuse caps from accidental detonation, because the original shipping containers for fuse caps are extremely bulky.

Subsection (e) would establish standards for the construction of avalanche blasting packs, which are commonly used to transport handcharges on the backs of the blasters when skiing to the deployment site.

Subsection (e)(1) would require the avalanche blasting pack to be constructed or treated to be water resistant, non-sparking and non-conductive, and is necessary to ensure explosive materials carried in the pack are protected from exposure to moisture or static electrical charge.

Subsection (e)(2) would require that the avalanche packs are constructed with enough compartments to ensure that handcharges, explosive materials, and tools are appropriately separated, and is necessary to prevent the accidental actuation of any of the charges' components.

Subsection (e)(3) would require means to independently close each of the avalanche blasting pack's compartments and is necessary to avoid weather exposure or loss of explosive components.

Subsection (f) would establish standards regarding the use and repair of avalanche blasting pack during the transportation of explosives.

Subsection (f)(1) would require routine inspection of avalanche blasting packs and is necessary to ensure proper containment of the explosive materials and tools when carried in the pack.

Subsection (f)(2) would prohibit tools and other materials to be placed in any blasting pack compartment and is necessary to ensure that the tools and other materials do not make contact with explosive charges in the avalanche blasting pack that could lead to the accidental detonation of the explosive materials.

Subsection (f)(3) would require the igniters to be carried in a completely separate container or pouch and prohibit them from being carried in the pack carrying explosive materials and is necessary to prevent the primary explosive material in the igniter from accidentally detonating the explosive materials carried in the pack.

Subsection (f)(4) would prohibit handcharges or explosive components to be left unattended in avalanche blasting packs and is necessary to ensure that the explosive materials will be managed properly and not expose anyone to the hazard posed by improperly stored explosives.

Subsection (f)(5) would limit the amount of weight of explosive materials carried by the crewmember to no more than forty-five pounds and is necessary to prevent the blaster from carrying too great a load and limit the blast zone.

### Section 5357. Snow Avalanche Control Blasting.

Currently, Section 5357, titled “Placing Explosives Charges” contains requirements for placing explosive charges during avalanche blasting. The proposal would change the title to read, “Snow Avalanche Control Blasting,” and editorially amend the current language and add standards that regulate the final step of deploying the explosive charges to the target area.

The proposed Section 5357 contains general requirements and specific operational sections that include: 1) the deployment of handcharges, 2) the deployment of charges from ski lifts, 3) the deployment of charges from helicopters, 4) the deployment of charges from avalauncher/launchers, and 5) requirements for other types of remote control devices that may be used in the course of avalanche control operations.

Subsection (a) contains the general requirements for avalanche control blasting.

Subsection (a)(1) would require that all avalanche blasting operations are supervised by a competent, licensed blaster certified by the Division and is necessary for the proper and safe utilization of the explosives materials.

Subsection (a)(2) would require the slopes and areas affected by the blasting operation to be cleared of the public and nonessential personnel before blasting operations commence until the work is completed and is necessary prevent injury or death due to accidental entrapment in a controlled avalanche.

Subsection (a)(3) would require at least one inch to be cut from the fuse end before attaching the igniter and is necessary to minimize the possibility of the misfiring of charges due to a wet and fouled fuse end.

Subsection (a)(4) contains language currently found in subsection 5357(a), which is transferred with clarifying nonsubstantive changes and is necessary to ensure that the blasters are in a safe position when deploying charges. In addition, the section would specifically identify methods of deployment to include deployment from a ski lift, helicopter, avalauncher and other remote control devices accepted by the Division.

Subsection (a)(5) would prohibit routine nighttime deployment of charges and is necessary to enhance safety by optimizing the blaster's ability to see the target area, protective barriers, terrain hazards and other blasting crewmembers. The proposal would allow emergency, nighttime avalanche blasting operations and is necessary to protect the public.

Subsection (b) addresses the hand deployment of charges and contains both existing language currently found in subsections (a) and (b) and additional provisions specified as follows:

Subsection (b)(1) would limit the blaster to work with one handcharge at a time and is necessary to ensure the safety of the blaster and the blasting crewmembers.

Subsections (b)(2) and (3) contain language currently found in subsection (a)(2) and (1) respectively, and are relocated with clarifying, nonsubstantive changes.

Subsection (b)(4) would establish requirements before attaching the igniter and is necessary to ensure the safety of crewmembers and other personnel in the effected area.

Subsection (b)(5) would require that the blaster throw the handcharge within 20 seconds after sliding the igniter on the fuse and is necessary to ensure a sufficient safety factor when lighting the fuse. The proposed 20-second deployment requirement safety factor takes into account the remote possibility the fuse igniter malfunctions and ignites the fuse by merely sliding onto the fuse. It also provides the blaster with the appropriate factor of safety.

Subsection (b)(6), containing language currently found in subsection (b), has clarifying changes to meet the intent of the current standard.

Subsection (b)(7) would require unused handcharges to be deployed or disarmed at the end of the route and is necessary to eliminate the hazard posed by armed charges when they are no longer needed.

An exception to subsection (b)(7) is necessary to allow armed charges to be deployed to other routes at the completion of one route rather than having to disarm, then immediately rearm the charge at the other avalanche control route.

New subsection (c) would set standards for the deployment of charges from ski lifts or trams and is necessary to minimize the blasters' and ski lift operators' exposure to unique hazards posed by ski lift deployment and is necessary to ensure that the ski lift operators are aware of the blasting operation and are able to provide communication with the blasting crew. In the event of a blasting accident, the operators are able to carry out emergency ski lift operations and evacuation procedures to aid in the blasting crew recovery and medical evacuation operations. Subsection (c) is necessary to ensure safe blasting practices that minimize the hazards to the blasting crew and prevent damaging the ski lift equipment.

New subsection (d) addresses the deployment of charges from helicopters.

Subsection (d)(1) would require helicopter based blasting operation to be in compliance with helicopter operation requirements outlined in Article 35 of the Construction Safety Orders and is necessary to ensure the safe operation of the helicopter used for avalanche control.

Subsection (d)(2) would require that the avalanche blasting operation is carried out by a licensed blaster and is necessary to ensure public and employee safety during the blasting operation.

Subsection (d)(3) would require the development of a written safety plan before blasting activities and is necessary to ensure that they are planned and organized to minimize the hazards to the blasting crews, and the public, as well as minimizes the probability of damage to helicopter and ground based property.

Subsection (d)(4) would require compliance of the written safety plan and that the plan be provided to the Division as specified and is necessary to ensure appropriate preplanning of the blasting operation and the enforceability of the helicopter operation by requiring that the safety plan be provided to the Division as formal notification of intent to conduct a helicopter based avalanche blasting operation.

New subsection (e) addresses the deployment of charges using avalaunchers/launchers.

Subsections (e)(1) through (3) would require supervision by a licensed blaster, permit only trained and authorized personnel, and a specified crew size and are necessary to ensure a safe and effective avalauncher operation, protecting both the public, and the employees from exposure to the hazards posed by the unsafe operation of avalauncher/launcher equipment.

Subsections (e)(4) through (9) would regulate the use, installation, inspections, maintenance, and operation of the launcher and projectiles, including requiring compliance with manufacturer's recommendations. These subsections are necessary to ensure the proper functioning of the equipment and the safe management of the projectiles.

Subsections (e)(10) and (11) would require accountability and record keeping of the misfires and their location and are necessary to enhance the recovery of misfired projectiles.

Subsection (e)(12) would prohibit persons inside the target zone when firing the launcher and is necessary to protect employees from exposure to avalauncher projectile charges.

Subsection (e)(13) would require the equipment to be placed in a nonfunctional condition or locked when not in use and is necessary to prevent unauthorized use of the avalauncher equipment.

#### Section 5358. Management of Misfires.

Currently, Section 5358, titled, "Misfires --- Snow Avalanche Blasting," contains requirements to address when a misfire occurs. The proposal changes the Section 5358 title to read, "Management of Misfires," amends current language both editorially and substantively, and proposes additional standards including methods of disarming.

The proposed Section 5358 would require that explosives be disarmed or rendered harmless in accordance with specified methods as follows:

New subsection (a) would require the blaster to record whether or not the deployed charge detonated and is necessary to ensure that a record is maintained of deployed charges that have misfired to aid with future recovery of the misfired explosives and track misfire frequencies.

New subsection (b) would require misfires to be recovered where possible and is necessary to minimize public and employee exposure to unexploded high explosive materials remaining on the slopes and mountain terrain after avalanche control activities.

Subsection (c) contains language currently found in subsection 5(a), which has clarifying and substantive changes in strikeout/underline format. The proposed subsection (c) would amend the time period from one hour to 30 minutes that the slope must remain closed when a suspected misfire occurs and before a licensed blaster may approach the misfired charge and is necessary to improve the recovery rate of the misfires and minimize public and employee exposure to high explosive materials remaining on the slopes and mountain terrain.

The proposal would delete current subsection (a)(1) as an option to remediate the misfire. This is necessary because of the hazard posed by the unreliable detonating system of the misfired charge.

Proposed subsections (c)(1), (c)(2), and (c)(3) contain language currently in subsections (a)(2) and (3), with new language in subsection (c)(1), allowing the practice of re-priming or re-arming the misfire. Nonsubstantive changes are proposed only in subsection (c)(2), and substantive changes in proposed subsection (c)(3).

Proposed subsection (c)(1) would provide the option of re-priming or re-arming the misfired charge and detonating the misfire. The proposal is necessary to provide an additional, safe method to remediate the hazard posed by the unpredictable misfired charge.

Proposed subsection (c)(2) would require that after 30 minutes has elapsed from the time of the original deployment of a handcharge without a detonation (misfire), another handcharge shall be placed alongside the misfired charge and detonated. The proposal is necessary to ensure that unexploded handcharges would not be discovered later by unauthorized personnel and/or the general public subjecting them to the risk of serious injury or death as a result of deliberate or inadvertent detonation.

Proposed subsection (c)(3) would retain the option to retrieve and disarm misfired handcharges currently in subsection (a)(3) and adds a separate requirement for disarming of avalauncher/launcher charges in accordance with manufacturer's recommendations and instructions. It is necessary because each manufacturer of avalauncher equipment has its own unique recommendations and instructions to be followed. The proposed subsection (c) language is necessary to clearly identify the proper methods available to the blaster to eliminate the hazard posed by an armed charge that has misfired.

New subsection (d) includes nonsubstantive editorial changes from the existing subsection (b) dealing with misfires described in existing subsection (a) in the event the terrain or weather conditions

preclude their use. Amendments are proposed to re-letter existing subsection (b) as new subsection (d) and re-identify (a)(1), (a)(2), and (a)(3) as (c)(1), (c)(2), and (c)(3). The proposed amendments are in part editorial and consistent with other proposed alphanumeric amendments in Section 5358 and deletion of permissive language consistent with Title 8 syntax.

The proposed amendments are necessary to reflect the reorganization of these provisions in the proposal.

The proposed new subsection (e) would require the searchers of misfires to use proper mountaineering techniques to traverse the mountain terrain and is necessary to address the environmental hazards avalanche blasting crews are exposed to, including dangers posed by avalanche prone slopes, icy surfaces, fissures, etc..

The proposed new subsection (f) would require at least an one-hour waiting period before a misfired charge that has ceased emitting flames or smoke can be approached and is necessary to address the hazards associated with such misfires and provide sufficient time for the unpredictable misfire condition to abate.

The proposed new subsection (g) would prohibit the relighting of a charge that does not light at a first attempt and provide for redeployment or disarming. The proposal, allowing immediate disarming before deployment, is necessary to eliminate the need to recover the misfire at a later time and the possibility of losing the misfire on the slope. The proposal to disarm the deployed charge is currently allowed under subsection (a)(3) and in the proposed subsection (c)(2).

The proposed new subsection (h), establishes a safe disarming method for handcharges suspected of not lighting by requiring a maximum time limit of 20 seconds from the time the igniter has been installed on the fuse, before they are deployed. The proposal is necessary to maintain the minimum safety factor of 4.5 when igniting the safety fuse with a fuse length of a minimum 90-second burn time.

The proposed new subsection (i) would require that a specified record be maintained to track the status of misfired charges and is necessary to aid in the recovery and provides accountability for the lost charges.

Proposed new subsection (j) would require posting of warning signs and instructions that notify individuals entering the affected areas that un-detonated charges may be encountered and what to do when such charges are found. The posting requirement is necessary to address the hazards to public and employees posed by unexploded charges by providing the appropriate information regarding the safe and correct action to take.

#### DOCUMENTS RELIED UPON

1. IMAS 10.20, 1<sup>st</sup> edition October 2001. Safety & occupational health- Demining worksite safety. United Nations Mine Action Service (UNMAS), New York, NY 10017.
2. British Columbia, WorkSafeBC. Occupational Safety & Health Regulation, Part 21, Blasting Operations.

3. Colorado State, Division of Oil and Public Safety Explosives Regulations, Chapters 1 through 9.
4. Washington State, Department of Labor and Industries General Explosives Regulations, Chapter 296-52, Avalanche Control Regulation, Chapter 296-52-100.
5. Explosives use in Avalanche Control, National Ski Areas Association Guidelines Revised 11/02, National Ski Areas Association, Lakewood, CO 80228.
6. Petition dated September 29, 2005, submitted by C. Duane Niesen, Explosives Regulation Mine Safety Training.
7. Division Evaluation Report of Petition File No. 476, dated December 7, 2005.
8. Occupational Safety and Health Standards Board Decision dated March 16, 2006, in the matter of Petition File No. 476 by C. Duane Niesen, Explosives Regulation Mine Safety Training.

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 Way, Suite 350, Sacramento, California.

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 or equipment.

## COST ESTIMATES OF PROPOSED ACTION

### 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.

This proposal provides an alternative method to current standards without prohibiting or restricting use of current methods of avalanche control blasting. Therefore, this rulemaking is anticipated to provide a positive impact on California businesses by including the proposed processes and procedures in the General Industry Safety Orders that are currently industry accepted practices and recommended by the regulated public to be included.

### Cost Impact on Private Persons or Businesses

The Board is not aware of any cost impacts 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 standards do 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, these standards do 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.)

These proposed standards do not require local agencies to carry out the governmental function of providing services to the public. Rather, the standards require local agencies to take certain steps to ensure the safety and health of their own employees only. Moreover, these proposed standards do 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.)

These proposed standards do 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 BUSINESSES

The Board has determined that the proposed amendments may affect small businesses. However, no economic impact is anticipated because the proposed changes provide an alternative method to current standards without prohibiting or restricting use of current methods of avalanche blasting.

### ASSESSMENT

The adoption of the proposed amendments to these standards 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.