

3. High pressure-exhaust air from the pneumatic hammer that is rested on a thigh that, according to the Petitioner, can force dirt and other particles into the bloodstream through the skin.
4. Accidental electrocution, in that, according to the Petitioner, the thigh/leg protection would prevent direct contact with the thigh/leg should the pneumatic hammer come into contact with an unexpected electrical power source.

The Petitioner recommended that language similar to the following be added to Title 8, CSO:

When workers are required to handle a pneumatic hammer and likely to rest the hammer on the operator's thigh, protective wear must be worn to prevent exposure to vigorous vibrations, high pressure exhaust air, superficial injuries such as: bruising, pinching, chaffing, clothing damage; and possible electrocution.

DIVISION'S EVALUATION

The Division staff is of the opinion that the need for protection described in the petition is not evidenced by the injury and illness data available to the Division. The Division can find no incident record to validate the assertion of risk of particulate matter being forced through the skin into a person's blood stream. The proper use of the tool will direct exhaust air from the tool away from the worker. While there has been discussion of the hazard of air embolism injury caused by compressed air forced through the skin and entering a blood vessel, the Division asserts that it has not found even a single record of such an event in the literature of available injury and illness records for workforces in the United States, Canada or Europe. The Division also states that the hazard of electrocution as a result of contact with buried conductors is very well recognized and the Division successfully petitioned for amendment of CSO Section 1518 to address this problem.

Therefore, the Division's evaluation report dated December 9, 2008, states the Division does not support Petition No. 506 by Mr. Nicholas Garcia and recommends that the petition be denied.

STAFF'S EVALUATION

The CSO do not specifically address the use of PPE for employees operating pneumatic hammers. Thus, the Petitioner is correct in his comments that CSO Section 1522 "Body Protection" and Section 1707(b) "Pneumatic Power Tools" and the High Voltage Electrical Safety Orders, Section 2940.6 "Tools and Protective Equipment" do not call out specific PPE requirements when operating a jackhammer. However, there are performance based Title 8 standards that require PPE for the body and legs for many exposures, such as the use of pneumatic hammers.

CSO Section 1509(a) requires compliance with the General Industry Safety Orders (GISO), Section 3203 "Injury and Illness Prevention Program" which among a number of provisions, requires employee training, instruction and compliance with safe work practices. CSO Section 1510(a) permits only qualified persons to operate equipment and machinery. Section 1522 requires appropriate body protection from exposure to injurious materials.

The manufacturer's recommendations for machinery and equipment such as pneumatic hammers typically include recommendations for the use of appropriate PPE to prevent injuries. The need for thigh or upper leg protection was not mentioned in several pneumatic jackhammer manuals reviewed by staff, although one manual mentioned an "apron" in its list of possible PPE. Typical PPE recommended by the manufacturers, depending on the exposures, included dust masks, safety glasses or face protection, hearing protection, gloves and helmets. Consequently, Board staff reasons that manufacturers are not receiving reports of thigh area bruising type injuries to the extent that warrants addressing this concern in their safe operation instructions and recommendations for PPE.

Board staff contacted a number of stakeholders that would have knowledge of the hazards and/or injuries and operator complaints associated with the use of pneumatic hammers in the heavier 60 to 95 pound weight range. Stakeholders contacted were not aware of thigh/leg injuries as described by the Petitioner. Consequently, there was no support from stakeholders as to the necessity to proceed with a rulemaking related to the issues, concerns and recommendations discussed in the petition.

However, in discussions with stakeholders, Board staff concludes that the type of PPE and procedures for the safe operation of pneumatic hammers should include, but are not limited to, the following:

- The use of steel-toed boots or toe guards for foot protection.
- The use of gloves including specialized vibration reducing gloves to mitigate the effects from tool vibration on the hands and arms.
- The use of eye and hearing protection.
- Work procedures that instruct the operator to use proper lifting techniques and grip the tool with the hands keeping the pneumatic hammer away from contact with the body and lower extremities during tool operation and to ensure that the tool air exhaust opening is not resting on the legs or thigh.
- Following safe work procedures and standards in the Construction and Electrical Safety Orders to avoid contact with energized conductors.
- Following the manufacturer's recommendations for safe operation and the use of PPE.

The Petitioner's recommended language states that wearing thigh/leg protection when operating a pneumatic hammer would provide protection from electrocution. In the event of accidental contact with energized conductors with a pneumatic hammer, electrical current could enter the body through the hands, feet or stomach/mid-section resting on the handle or other part of the tool. Therefore, a provision that would only require insulating thigh/leg protection would not be suitable protection from electrical shock.

Board staff is of the opinion that workers might be lulled into a false sense of security with regard to electrical hazards and the need to determine whether the location they intend to use the jackhammer is free of electrical hazards as required by Section 1541 when they wear lower body pads that, according to the Petitioner, provide protection from electrocution. The use of PPE as a

reliable or sole method of protection from electrocution while using a pneumatic hammer is not recommended.

Rather, existing standards in the CSO Sections 1518 “Protection from Electric Shock” and Section 1541(b) “Subsurface Installations” already require the employer to identify underground electrical hazards to employees and require the employer to take the necessary action such as deenergizing circuits or other protective measures to ensure that contact with energized conductors is avoided.

The Division’s research analyst advised Board staff that Division accident records for a five-year period from years 2003 to 2008 do not reflect a history of injuries to the leg or thigh area from the operation of pneumatic hammers. Board staff also searched the federal OSHA nationwide accident reports with similar findings regarding bruising or physical contact injuries to the thigh areas of operators. A number of injuries can be identified, including electrocutions from operator contact with energized conductors/circuits while using a jackhammer. However, for the reasons in the preceding paragraphs, Board staff does not believe that the wearing of a thigh pad, even if insulated, would be suitable to address electrical hazards to pneumatic hammer operators.

The stakeholders contacted indicate that the types of bruising conditions noted by the Petitioner could be mitigated through proper training and instruction that is already required by the provisions in CSO Section 1509 and its reference to GISO Section 3203 “Injury and Illness Prevention Program.” Additionally, Board staff notes that Title 8 standards are minimum standards only and would not prevent the employer from providing thigh/upper leg PPE such as the Hammer Guard product.

Therefore, for the reasons stated above, Board staff believes that the necessity for standards that would require the use of PPE for the thigh area when operating pneumatic hammers is not established and recommends that the petition request be denied.

CONCLUSION AND ORDER

The Occupational Safety and Health Standards Board has considered the petition of Nicholas Garcia (Petitioner), to make recommended changes to the Construction Safety Orders, that would address personal protective equipment provisions for the employees who use pneumatic hammers (e.g., jackhammers, manually operated paving breakers, and similar pneumatic tools). The Board has also considered the recommendations of the Division and Board staff. For reasons stated in the preceding discussion, the Petition is hereby DENIED.