

**OCCUPATIONAL SAFETY
AND HEALTH STANDARDS BOARD**

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**PETITION DECISION OF THE
OCCUPATIONAL SAFETY AND HEALTH STANDARDS BOARD
(PETITION FILE NO. 549)**

INTRODUCTION

The Occupational Safety and Health Standards Board (Board) received a petition on August 20, 2015, from Mr. Jeff Buchanan (Petitioner). The Petitioner requests the Board amend Title 8, California Code of Regulations, Article 12, [Section 3424] of the General Industry Safety Orders to require tree and brush chippers to have a passive presence sensing device that would interrupt power to the infeed rollers and stop motion before injuring an operator.

Labor Code section 142.2 permits interested persons to propose new or revised regulations concerning occupational safety and health and requires the Board to consider such proposals, and render a decision no later than six months following receipt. Further, as required by Labor Code section 147, any proposed occupational safety or health standard received by the Board from a source other than the Division of Occupational Safety and Health (Division) must be referred to the Division for evaluation, and the Division has 60 days after receipt to submit an evaluation regarding the proposal.

PETITION SUMMARY

The Petitioner states that the current standards governing wood chippers are insufficient to protect employees. The Petitioner compares the existing standard with the Federal guarding requirements within 29 CFR 1910.212 and expresses his concern that the California standard does not achieve the goals set for the Federal standard. The Petitioner asserts his device would afford the protections required under the Federal standard.

In discussions with Board staff during the evaluation period, the Petitioner requested the Board consider rulemaking that would mandate employers in the tree trimming industry install Chipsafe®, a passive detection system, as a means to guard the point of operation of wood chippers. The Petitioner currently co-owns U.S. Patent No. 8,322,259 B2 entitled *Safety System and Method for Cutting Machine*. The device, Chipsafe®, the Petitioner identifies within his petition is a presence sensing device (the Petitioner refers to as "passive detection system") which halts the operations of the infeed rollers of the wood chipper when the accessories supplied by the manufacturer and worn by the affected employees are detected by the detection plates located inside the hopper.

The Petitioner takes the position that the current regulations within Title 8 do not adequately prevent the operator from having any part of their body from reaching areas of the chipper that

would cause injury. The Petitioner promotes his device as a means to ensure that an employee in danger of being pulled into the chipper is able to stop the chipper without conscious intervention.

DIVISION'S EVALUATION

The Division, in their evaluation dated November 4, 2015, recommended that an advisory committee be convened to explore the safety and economic issues of the passive detection system. The Division identified limitations regarding the operation of the Petitioner's device including detection limitations and potential deterioration of the accessories worn by employees which would render the detection system ineffective. Moreover, any employee neglecting to don the accessories would not be detected by the device, and thus not protected. The Division also raised concerns about pursuing a regulation that requires employers to install devices that are subject to intellectual property laws such as patents.

STAFF'S EVALUATION

Wood chippers are mechanical devices that utilize a rotating cutting head to grind brush, branches and other material from trees and shrubs into smaller chips. The treework, maintenance and removal industry utilizes wood chippers to consolidate waste material into transportable volumes for offsite disposal. Chippers can be separated into two classes, chippers with mechanical infeed and chippers without mechanical infeed. Only chippers with a mechanical infeed can be fitted with the Petitioner's device.

Chippers with a mechanical infeed are divided into two categories according to the type of cutting head: 1) rotary drum and 2) rotating disk. For chippers with a mechanical infeed, Sections 3424 and 4299 require protection for only rotating disk chippers. That protection is in the form of a quick stop and reversing device. The quick stopping and reversing device halts the infeed rollers when triggered. The device at the center of the petition is currently integrated as a companion safety device to the quick stop and reversing device.

A demonstration of the Petitioner's device was observed by Board staff. The detection system utilizes rare earth magnets sewn into wearable accessories worn by the employee in conjunction with two detection plates mounted within the hopper. The detection plates (also referred to as antennae) detect the magnetic field as the accessories pass over the plates. One magnet detected by one detection plate is sufficient to activate the quick stop and reversing device. The second plate, diametrically opposed to the first plate, extends the detection field to the opposite side of the hopper. When the detection plates detect the magnet, the control circuitry halts the motion of the infeed rollers. Employees are protected from contacting the cutting heads because the infeed rollers form a barrier to the cutting head. The Petitioner's device will only detect an employee wearing the supplied accessories. Employees not wearing the accessories are not protected.

Quick stop and reversing devices are not required on rotary drum chippers with a mechanical infeed. In fact, none of the requirements within Sections 3424 and 4299 apply to this type of chipper. However, in cases where there is no specific guarding requirement within Title 8, such

as rotary drum chippers with a mechanical infeed, there are general standards, such as Section 4184, that would require that these chippers must still be protected.

The Petitioner references 29 CFR 1910.212 in an attempt to make the case that the California standards regarding chippers do not offer equivalent protection to the Federal standard. However, comparing 29 CFR 1910.212 to Sections 3424 and 4299 appears to be misguided. Federal OSHA's 29 CFR 1910.269(r)(2), entitled *Brush chippers*, is directed toward line clearance tree trimming operations. The *Brush chipper* standards contained within 29 CFR 1910.269(r)(2) require only a fraction of the protective measures contained within Sections 3424 and 4299. Title 8, Section 4184 may be more analogous to 29 CFR 1910.212 than Sections 3424 and 4299. Section 4184 requires employers to protect employees from the hazards of the point of operation of machines such as chippers, but takes a different approach than 29 CFR 1910.212. In fact, it is through application of Section 4184 that an employer may be allowed to utilize presence sensing devices such as those described in Section 4208.

For an employer to utilize Chipsafe®, the Petitioner's device, as their only prescribed means to protect employees, the Chipsafe® device would need to comply with the requirements of Section 4208, including those for presence sensing devices.

One problematic characteristic of field detection systems such as those proposed by the Petitioner is similar to those of Radio Frequency Sensors and Capacitive Proximity Sensors. The distance from the boundaries of the sensing field to the point of operation is not clearly discernible to the operator. The detection distance of field detection systems can only be determined through repeated operation testing by bringing the magnet to the sensors to define an approximate detection range. Adding further variability the radii of the detection fields can vary based on the sensitivity settings.

Given the critical design and performance issues associated with a device of the type proposed, Board staff takes the position that it is inadvisable to require the use of the Petitioner's device without it having been subjected to some type of national consensus testing/reliability criteria.

Board staff recommends that the Petitioner's request be denied. But, it should also be noted that nothing in Title 8 prohibits employers from using the Petitioner's device in addition to the safe work practices within Title 8.

However, apart from denial of the petition, Board staff does see value in staff giving further attention to potential deficiencies in existing Sections 3424 and 4299, particularly guarding requirements for rotary drum chippers with a mechanical infeed.

CONCLUSION AND ORDER

The Occupational Safety and Health Standards Board has considered the petition of Mr. Jeff Buchanan, to make recommended changes to Article 12, [Section 3424] to require tree and brush chippers to have a passive presence sensing device that would interrupt power to the

infeed rollers and stop motion before injuring an operator. Having carefully read and considered the Petition, Division Evaluation, and Board Staff Evaluation, the Petition is GRANTED to the extent that the Division identify and explore the existence of additional passive sensing device technology. If technology is identified, the Board staff will convene an advisory committee meeting to discuss the merits of passive sensing devices.