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Occupational Safety and Health Standards Board
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FINAL STATEMENT OF REASONS

CALIFORNIA CODE OF REGULATIONS

TITLE 8: Sections 3441 and 3449 of the General Safety Orders

Outdoor Agricultural Operations During Hours of Darkness

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

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

Section 3449. Agricultural Operations During Hours of Darkness.

- The title of the section was modified to clarify that the section applies to outdoor agricultural operations.
- Subsection (a) was modified to describe the height at which area lighting shall be measured. The modification was necessary to standardize the method of measuring area lighting.

Board staff realized that the proposal needed to be clarified to make a distinction between area lighting and task lighting. Area lighting is the general lighting provided to employees as they are moving or standing. Task lighting is to illuminate the specific work plane for the specific task the employees are performing.

The proposal was amended to specify that area lighting be measured approximately 30 inches above the floor. This modification answers the question of, "where illumination levels need to be taken when there is no specific task being performed." The word "approximately" is to allow some flexibility for the uneven or sloped terrain where the employee is standing or walking. See commenters no. 1 and no. 16.

- Table 1-Illumination Levels was modified:
 - Add a row for poultry harvesting and catching operations. In response to the comments from the California Poultry Association (commenter no. 8) during the 45 day comment period, Board staff reached out to the California Poultry Association to observe their operations. The President of the California Poultry

Association facilitated a site visit to observe the poultry catching or harvesting operations. For the safety of the harvester or catcher of birds, it is necessary to keep the lighting levels very low in order to keep the birds calm.

For the prescribed illumination levels, the Board relied on a consensus standard published by the American Society of Biological Engineer (ASABE), ASAE EP344.4, Lighting for Agricultural Facilities, Section 8.2, page 17.

- Third row with prescribed illumination level of 5 fc, the task or area description was modified from “general safety during outdoor agricultural operations” to “general movement throughout the space during outdoor agricultural operations”. The term “general safety” is vague and does not adequately describe an area or task. “General movement throughout the space during agricultural operation” provides a better description of the intent of the proposal. This modification is in response to commenters no. 3.

The Board relied on ANSI-IES RP-7, Industrial Lighting-page 26, Table 9 (shown below). The activities/movement during agricultural operations is best categorized under the high activity and “high” hazards requiring visual detection.

Hazards requiring visual detection	Slight		High ²	
	Low	High	Low	High
Normal activity level ¹	Low	High	Low	High
Illuminance values				
Lux	5.4	11	22	54
Foot candles	0.5	1	2	5

*Minimum illuminance for safety of people, absolute minimum at any time and at any location on any plane where safety is related to seeing conditions.

¹ Special conditions may require different illuminance values. In some cases higher levels may be required as for example where security is a factor, or where certain colors must be identified. In some other cases, greatly reduced levels, including total darkness, may be necessary, specifically in situations involving manufacturing, handling, use or processing of light-sensitive materials (notable in connection with photographic products). In these situations alternate methods of insuring safe operations must be relied upon.

Note: See specific application reports of the IES for guidelines to minimum illuminances for safety by area.

² An obstacle in the path of egress should be considered a high hazard.

- Fourth row with prescribed illumination level of 10 fc, the task or area description was modified to state “Task lighting for active agricultural operations...” instead of “Active agricultural operations...” in order to clarify that the 10 fc is the level of lighting directed to the task that is being performed, measured in the plane of where the task or work is taking place. This modification is in response to commenters no. 3.

The Board relied on ANSI IESNA- RP7-01, Recommended Practice for Lighting Industrial Facilities – page 2, Figure 1(b) (shown below) to support the proposal.

<i>Orientation and simple visual tasks.</i> Visual performance is largely unimportant. These task are found in public spaces where reading and visual inspection are only occasionally performed. Higher levels are recommended for tasks where visual performance is occasionally important.		
A	Public Spaces	30 lx (3 fc)
B	Simple orientation for short visits	50 lx (5 fc)
C	Working spaces where simple visual tasks are performed	100 lx (10 fc)
<i>Common visual tasks.</i> Visual performance is important. These tasks are found in commercial, industrial and residential applications. Recommended illuminance levels differ because of the characteristics of visual task being illuminated. Higher levels are recommended for tasks with critical elements of low contrast or small size.		
D	Performance of visual tasks of high contrast and large size	300 lx (30 fc)
E	Performance of visual tasks of high contrast and small size, or visual tasks of low contrast and large size	500 lx (50 fc)
F	Performance of visual tasks of low contrast and small size	1000 lx (100 fc)
<i>Special visual tasks.</i> Visual performance is of critical importance. These tasks are very specialized, including those with very small or very low contrast critical elements. Recommended illuminance levels should be achieved with supplementary task lighting. Higher recommended levels are often achieved by moving the light source closer to the task.		
G	Performance of visual tasks near threshold	3000-10,000 lx (300-1000 fc)

- Fifth row with prescribed illumination level of 20 fc, the task or area description was modified to state “Task lighting for maintenance work on equipment” instead of “Maintenance work on equipment” in order to clarify that the prescribe 20 fc lighting is the level of lighting directed to the task that is being performed, measured in the plane of where the task or work is taking place. This modification is in response to commenters no. 3.

The Board relied on NCHRP Report 498, Illumination Guidelines for Nighttime Highway Work – page 2-15, Table 7 (shown below) to support the proposal.

Table 7 Recommended minimum illuminance levels and categories for nighttime highway construction and maintenance

Category	Minimum Illuminance level lx (fc)	Area of Illumination	Type of Activity	Examples of Areas and Activities to be Illuminated
I	54 (5 fc)	general illumination throughout spaces	performance of visual task of large size; or medium contrast;	<ul style="list-style-type: none"> • Excavation • Sweeping and cleanup

			or low desired accuracy; or for general safety requirements	<ul style="list-style-type: none"> • Movement area in the work zone • Movement between two tasks
II	108 (10 fc)	general illumination of tasks and around equipment	performance of visual task of medium sizes; or low to medium contrast; or medium desired accuracy; or for safety on and around equipment	<ul style="list-style-type: none"> • Paving • Milling • Concrete work • Around paver, miller, and other construction equipment
III	216 (20 fc)	illuminance on task	performance of visual task of small sizes; or low contrast; or desired high accuracy and fine finish	<ul style="list-style-type: none"> • Crack filling • Pot filling • Signalization of similar work requiring extreme caution and attention

Economic Impact Analysis/Assessment

The regulation will affect agriculture sectors that conduct work during hours of darkness. The estimated that the economic impact of this regulation was modified from \$31.6 million to \$7.85 million.

The percentage of business affected was revised from 25% to 10%, resulting in the decrease in the number of businesses affected. Therefore, the number of business affected was amended to 1,640. The 10% assumption is explained below.

Sections 3441 and 3449 will impact an estimated 16,402 establishments in the agricultural sectors covered by the proposal. This figure is obtained from the Employment Development Department for the particular NAICS or industry codes for covered sectors¹. There is no data available on the number of businesses that work at night covered by the proposal. But if we assume 10% of the 16,402 establishments covered by the proposal will have employees working at night at some point during the year, we estimate 1,640 (16,402 x .10) establishments may be impacted by the proposal’s requirements. We use establishments as a proxy for businesses,

¹ Labor Market Information Database (LMID - Quarterly Census of Employment and Wages Data Search Tool: http://www.labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Data.html Tables 2A and 2B for Q3 2017 data); with 16,402 establishments, corresponding to employment of 473,554.

although we recognize this may be a higher estimate than the actual number because some businesses have multiple establishments.

California Government Code section 11346.3 defines small businesses as businesses that are independently owned and operated, not dominant in their field of operation, and have fewer than 100 employees. The California Employment Development Department (EDD) reports that 98.4% of the businesses in California’s Agriculture, Forestry, Fishing and Hunting Industry (NAICS 11) had fewer than 100 employees in the third quarter of 2017². Calculations assume that a similar percentage of small businesses in the agricultural sectors covered by this proposal will be impacted, resulting in an estimated 1,614 small businesses and 26 typical businesses used for this analysis.

The cost of the power generator was revised from \$6,000 to \$3,000 due to reduction in the estimated number of months an average employer would perform agricultural operations during hours of darkness from 6 months to 3 months. This reduction in the number of months led to the decrease in the on-going cost.

It is important to note that while a power generator solution was used to estimate “typical” costs, the proposed standard is a combination of prescribed and performance based standard. The illumination criteria is prescribed, but the employer has the flexibility to choose the power source, light source, light fixture and configure the work environment/equipment in a manner that suits their operation. To comply with this proposal the employer will have to evaluate their operations and make a determination, where overhead area lighting is appropriate and where hands free portable lighting is appropriate, how to augment lighting to illuminate tasks that require more visual acuity.

To comply with the safety requirements of the proposal, employers must use appropriate lighting and personal protective equipment (PPE) to aid visibility of workers at night. The costs associated with meeting these requirements are listed in Table 1.

Table 1. Costs associated with items required for proposal compliance.

Item	Cost	Reference
Rechargeable battery headlamp	\$24.50	https://www.walmart.com/search/?query=rechargeable%20battery%20headlamp&cat_id=0
AA rechargeable batteries	\$1.50	https://www.walmart.com/search/?query=rechargeable%20aa%20batteries&cat_id=0
High-visibility vest	\$10.00	https://www.walmart.com/ip/2XL-Surveyor-Orange-Two-Tones-Safety-Vest-ANSI-ISEA-107-2015/122387872
Rechargeable portable generator	\$200.00	https://www.alibaba.com/showroom/rechargeable-generator-portable.html (we assume 50% will need to purchase equipment to comply with the proposal)

²Available at: http://www.labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Data.html, Table 2A, Q3 2017 data.

Bulldog Power Tower portable lighting	\$1,300.00	http://catalog.lightingspecialties.com/viewitems/bulldog/bulldog-power-tower (we assume 50% will need to purchase equipment to comply with the proposal)
Power for generator	\$3,000.00	Assumption based on seasonal harvest, \$1000/month for 3 months of the year ³ [NOTE: Ongoing cost of compliance]

According to the National Institute for Occupational Safety and Health website, almost 15 million workers in the U.S. work full time on evening shift, night shift, rotating shifts, or other employer arranged irregular schedules.^{4, 5} DIR applied this ratio of workers (10%) to 2017 EDD Market Data to estimate the percentage of California’s agricultural workforce that works at night.⁶ There is no data available on the number of establishments that work at night covered by the proposal. But if we assume 10% of the 16,402 establishments covered by the proposal will have employees working at night at some point during the year, the estimated industry cost for compliance with the proposal’s requirements is [\$36 per worker x 473,554 ag workers x 10% share that work at night] + [\$3,750 initial per-establishment costs x 1,640 establishments] = \$7,854,780 initial estimated compliance costs. Ongoing costs are tied to power for the generator [\$3,000 x 1,640 establishments] = \$4,920,600.

Table 2. Estimated costs of compliance.

Description	Total
Cost per worker	\$36
# CA night time agricultural workers (473,554 x 10%)	47,355
Cost of worker equipment (\$36 x 47,355)	\$1,704,780
Cost per establishment for lighting equipment/power (((\$200 + \$1,300) x 50%) + \$3,000)	\$3,750
Establishments with employees who work at night (16,402 x 10%)	1,640

- a. Initial costs for a small business = \$4,114, ongoing costs = \$3,000 (power for generator)

³ Farm employment fluctuates during the year with peak employment during the harvest season. The increased need for labor is provided by intermittent workers provide by farm labor contractors. While equipment costs are sunk/fixed, the increased cost of powering additional lighting is not a year round cost. The cost estimates are for periods of peak employment, estimated to be three months for the average employer. Discussion from Field Operations Night Harvest: <http://www.johndeerefurrow.com/2018/09/21/night-harvest/>; 3 month harvest assumption provided by Advisory Committee comment on this proposal: https://www.dir.ca.gov/oshsb/documents/Agricultural_operations_between_sunset_to_sunrise_illumination_AC_minutes.pdf

⁴ NIOSH. *Work schedules: shift work and long hours*. References BLS data from 2004. Accessed 2/14/18: <https://www.cdc.gov/niosh/topics/workschedules/default.html>

⁵ According to the United States Labor Force Statistics, there were approximately 150 million workers (Seasonally Adjusted) for the same year. The share of workers affected is estimated to be approximately 10%. Accessed 2/14/18: <http://www.dlt.ri.gov/lmi/laus/us/usadj.htm>. See also BLS documentation for agriculture work during hours of darkness on page 12 (Table 7), accessed 3/18/19: <https://www.bls.gov/opub/mlr/2007/12/art1full.pdf>

⁶ Number of agricultural workers in Q3 2017: <http://www.labormarketinfo.edd.ca.gov/data/ca-agriculture.html> Table 2B

To compute the cost for each **small** business, apply the 34.5%⁷ share of employment in small business to the relevant cost per employee portion of the formula, divided by the number of small businesses covered by the proposal (1,614). Then add the fixed cost per business for lighting/power (\$3,750). $[\$36 \times 47,355 \times 34.5\%] / 1,614 + [\$3,750] = \$4,114$.

- b. Initial costs for a typical business = \$46,697, ongoing costs = \$3,000 (power for generator). Similarly, to compute the cost for each **typical** business, apply the balance (100 - 34.5%) share of employment in small business to the relevant cost per employee portion of the formula, divided by the number of typical businesses covered by the proposal (26). Then add the fixed cost per business for lighting/power (\$3,750). $[\$36 \times 47,355 \times (100 - 34.5\%)] / 26 + [\$3,750] = \$46,697$.

Benefits of the Proposed Action

Using available sources of data on occupational injuries and costs of California workers' compensation claims, we estimated the number and associated cost of injuries that occur in the agricultural sector. Using supplementary data from occupational injury survey sources, we estimated the number of injuries that occur after dark. We then provided a range of estimates to assess potential savings that could come about from interventions or requirements that would prevent these injuries from occurring.

We conducted multiple analyses to develop estimates about nighttime injuries in agriculture that could potentially be prevented through additional safety measures in the proposal.

Analysis of Workers' Compensation Information System (WCIS) data to estimate the number of injury cases that would be covered by the proposal. Based on workers' compensation claims with dates of injury between 2012 and 2016, there were an average of 20,800 injuries per year for workers in the agricultural sector.

Analysis of Survey of Occupational Injuries and Illnesses (SOII) data to identify the portion of injuries occurring "at night." Using [SOII data](#) from 2012 to 2015, we identified the annual number of Days Away From Work (DAFW) injury cases per year for the agriculture sector. Most of the cases (75%-80%) include the time of day of injury based on 4-hour blocks of time, and these data suggest that, based on the five year average, 17% of agricultural sector injuries occur between 8 pm and 8 am.⁸ Because a significant portion of agricultural sector work occurs during summer months when daylight extends beyond 8 pm and before 8 am, we adjusted the estimate of injuries that occur "at night" to 10% of cases.

We derived estimates of the proposal's potential impact using WCIS claims data qualified by the likelihood of injury occurrence at night provided in SOII data.

⁷ Estimated using NAICS 11 ratio of average of average estimated employment based on size category to proxy small business employment <100 to total estimated employment. Source: EDD LMI Table 2A: Third Quarterly 2017 Payroll and Number of Businesses by Size Category.

⁸ Source: SOII data for California, accessed November 13, 2017. DIR-BLS Survey of Occupational Injuries and Illnesses. <https://www.dir.ca.gov/oprl/nonfatal.htm>

$$\begin{array}{rcl} 20,800 & \text{Average number of injuries per year in the agricultural sector} & \\ \times 10\% & \text{Adjusted percentage of injuries occurring during nighttime hours} & \\ \hline = 2,080 & \text{Estimated annual number of injuries occurring during nighttime hours in} & \\ & \text{the agricultural sector.} & \end{array}$$

Data from the Workers' Compensation Insurance Rating Bureau (WCIRB) were used to estimate the costs associated with injury claims filed for workers in the agricultural sector.⁹ WCIRB data provide the ratio of total indemnity and medical costs in recent years to the total number of claims. For agricultural sector classifications that will be covered by the proposal, the estimated cost (using 2013 and 2014 data cost estimates available from WCIRB) is \$17,622 per claim.¹⁰

DIR estimated the costs of nighttime agricultural claims based on available data sources and used these as a proxy to measure the possible benefits associated with preventing such injuries in the future as a result of the proposal. This measurement is used with the caveat that there may be injuries that occur at night for reasons other than those addressed by the safety provisions of the proposal.

The estimated benefits are a function of the 2,080 injury cases per year during nighttime hours multiplied by \$17,622, the average workers' compensation medical and indemnity cost of agricultural injury claims. Based on historical data, if half (50%) of the nighttime injuries in the agricultural sector were prevented by the requirements in the proposal going forward, the estimated benefits are \$18.3 million per year.

This estimate may be conservative because there may be unquantifiable additional costs imposed by the health consequences arising from these injuries for workers, employers, and society. Therefore, the benefits could be greater than estimated due to the additional implications of related injuries.

ADDITIONAL DOCUMENTS RELIED UPON FOR THE ECONOMIC IMPACT ANALYSIS/ASSESSMENT

1. Employment Development Department - Labor Market Information Database Search Tool - Quarterly Census of Employment and Wages Data - Tables 2A and 2B Quarter 3-2017 data: http://www.labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Data.html.
2. Walmart pricing for Headlamps:
https://www.walmart.com/search/?query=rechargeable%20battery%20headlamp&cat_id=0.

⁹ Claim costs associated with uninsured employers were not included in this study.

¹⁰ Source: WCIRB January 2018 Regulatory Filing. The total number of claims reported to WCIRB for each agricultural class in policy years 2013 and 2014 includes claims categorized as *serious*, *nonserious* and *medical only*. WCIRB collects total indemnity and medical costs for those claims and calculates the cost per claim for each class and for the group as a whole. Accessed 10/12/17:
https://www.wcirb.com/sites/default/files/documents/01012018_reg_filing_parta_section_c_approved_review_sheet.s.pdf

3. Walmart pricing for Rechargeable batteries:
https://www.walmart.com/search/?query=rechargeable%20aa%20batteries&cat_id=0.
4. Walmart pricing for High visibility vests:
<https://www.walmart.com/ip/2XL-Surveyor-Orange-Two-Tones-Safety-Vest-ANSI-ISEA-107-2015/122387872>.
5. Alibaba pricing for Rechargeable portable generator:
<https://www.alibaba.com/showroom/rechargeable-generator-portable.html>.
6. Lighting Specialties-Bulldog pricing for Tower lighting:
<http://catalog.lightingspecialties.com/viewitems/bulldog/bulldog-power-tower>.
7. Employment Development Department - Labor Market Information Database Search Tool - Quarterly Census for the Size of Agricultural Businesses - Tables 2A and 2B Quarter 3- 2017 data:
http://www.labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Data.html.
8. Night Harvest, September 21, 2018: <http://www.johndeerefurrow.com/2018/09/21/night-harvest/>.
9. The National Institute for Occupational Safety and Health (NIOSH), *Work schedules: shift work and long hours*. References BLS data from 2004.
<https://www.cdc.gov/niosh/topics/workschedules/default.html>.
10. United States Labor Force Statistics Seasonally Adjusted (in thousands) 1978 - Present: <http://www.dlt.ri.gov/lmi/laus/us/usadj.htm>.
11. Bureau of Labor Statics, Monthly Labor Review, Shift Work and Flexible Schedules, Table 7, page 12: <https://www.bls.gov/opub/mlr/2007/12/art1full.pdf>.
12. Employment Development Department - Labor Market Information Database Search Tool - Quarterly Census for the Number of Agricultural Workers - Table 2B -Quarter 3- 2017 data:
<http://www.labormarketinfo.edd.ca.gov/data/ca-agriculture.html>.
13. Employment Development Department - Labor Market Information Database Search Tool - Quarterly Census for the Percentage of Small Business - Table 2A Quarter 3- 2017 data: http://www.labormarketinfo.edd.ca.gov/LMID/Size_of_Business_Data.html.

**ADDITIONAL DOCUMENTS RELIED UPON
FOR BENEFITS OF PROPOSED ACTION**

1. California Survey of Occupational Injuries and Illnesses, Nonfatal Occupational Injuries and Illnesses data for California: <https://www.dir.ca.gov/oprl/nonfatal.htm>.

2. Workers' Compensation Insurance Rating Bureau of California, January 2018 Regulatory Filing:

https://www.wcirb.com/sites/default/files/documents/01012018_reg_filing_parta_section_c_approved_review_sheets.pdf.

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.

SUMMARIES OF AND RESPONSES TO WRITTEN AND ORAL COMMENTS:

I. Written Comments:

1. Ms. Amber Rose, Area Director, OSHA, by letter dated March 5, 2019

Comment:

Ms. Rose stated that the proposal appears to be commensurate with the federal standard.

Response:

The Board thanks Ms. Rose for her comments and participation in the Board's rulemaking process.

2. Mr. Paul Burnett, by e-mail dated March 8, 2019 and March 9, 2019

Comment:

Mr. Burnett commented that the proposal needs to clarify the reference to "sunset to sunrise" in Section 3449. He stated that the official time of sunset and sunrise varies daily. He said there is a difference between the official time of sunset and sunrise versus the actual setting and rising of the sun. The time of sunrise and sunset can be determined by looking up the information from forecasted local weather service. Mr. Burnett also provided definitions of sunset and sunrise.

Response:

The proposal is meant to address the time period when natural lighting is limited. The Board disagrees with the need to define the terms sunset and sunrise, but thanks Mr. Burnett for his comment and participation in the Board's rulemaking process.

3. Mr. Bryan Little, Director, Employment Policy, California Farm Bureau Federation, Agricultural Council of California, California Association of Winegrape Growers, California Chamber of Commerce, California Farm Bureau Federation, California Farm Labor Contractors Association, California Fresh Fruit Association, California League of Food Processors, California Poultry Federation, Grower-Shipper Association of Central California, Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties, Imperial County Vegetable Growers Association, Lodi District Grape Growers

Association, Ventura County Agricultural Association, Western Growers Association, Wine Institute, by e-mail dated April 9, 2019

Comment:

Mr. Little and the associations expressed concern about the illumination levels prescribed in Table 1 of Section 3449. They stated that agricultural employees move throughout the fields and the constant movement of people, machinery, and changing landscapes would leave agricultural employers with specific work that would be in and out of compliance. In addition, the presence of foliage and other obstacles to propagation of light would prove to be problematic in vineyard and orchards.

The commenters state that reliance on hands-free illumination sources would be problematic should an employee’s light drop or slip off.

The commenters referenced field surveys conducted in 2015, by Mr. Bryan Little of California Farm Bureau Federation.

Mr. Little noted the following light levels:

Illumination Level	Description of Operations or Area	Comments
4.8 foot candles	Bin-marshalling yard where forklifts loaded bins in vehicles	Lighting was sufficient, but was less than the 5 foot candles prescribed in proposed Table 1.
0.2 to 0.5 foot candles	Side of the harvesting equipment	Noted no difficulty in seeing moving equipment.
3.8 foot candles	15 feet from rear left quarter of an overhead wine grape machine harvesting machine	Noted no difficulty in seeing equipment.
3.8 foot candles	15 feet ahead of a tractor towing a gondola for the harvester to load harvested wine grapes	Noted no difficulty in seeing equipment.

Response:

The Board acknowledges the challenges in providing uniform lighting throughout the outdoor workspace. Hence, Section 3449, subsection (a)(1) allows the use of portable personal lighting to achieve proposed illumination levels listed in Table 1. The Board reviewed and relied on consensus standards and other publications as listed in the Notice.

Board staff considered the comments by advisory committee members and compared them with published consensus standards and documents. Board staff would like to highlight portions of the documents relied upon on to prescribe illumination levels:

1. ANSI-IES RP-7-1991, Industrial Lighting – page 26, Table 9 to support the proposal.

Table 9 – Illuminance levels for safety*

Hazards requiring visual detection	Slight		High ²	
	Low	High	Low	High
Normal activity level ¹	Low	High	Low	High
Illuminance values				
Lux	5.4	11	22	54
Foot candles	0.5	1	2	5
<p>*Minimum illuminance for safety of people, absolute minimum at any time and at any location on any plane where safety is related to seeing conditions.</p> <p>¹ Special conditions may require different illuminance values. In some cases higher levels may be required as for example where security is a factor, or where certain colors must be identified. In some other cases, greatly reduced levels, including total darkness, may be necessary, specifically in situations involving manufacturing, handling, use or processing of light-sensitive materials (notable in connection with photographic products). In these situations alternate methods of insuring safe operations must be relied upon.</p> <p><i>Note:</i> See specific application reports of the IES for guidelines to minimum illuminances for safety by area.</p> <p>² An obstacle in the path of egress should be considered a high hazard.</p>				

2. ANSI IESNA- RP7-01, Recommended Practice for Lighting Industrial Facilities – page 2, Figure 1(b) to support the proposal.

Figure 1(b) Determination of Illuminance Categories.

<p><i>Orientation and simple visual tasks.</i> Visual performance is largely unimportant. These tasks are found in public spaces where reading and visual inspection are only occasionally performed. Higher levels are recommended for tasks where visual performance is occasionally important.</p>		
A	Public Spaces	30 lx (3 fc)
B	Simple orientation for short visits	50 lx (5 fc)
C	Working spaces where simple visual tasks are performed	100 lx (10 fc)
<p><i>Common visual tasks.</i> Visual performance is important. These tasks are found in commercial, industrial and residential applications. Recommended illuminance levels differ because of the characteristics of visual task being illuminated. Higher levels are recommended for tasks with critical elements of low contrast or small size.</p>		
D	Performance of visual tasks of high contrast and large size	300 lx (30 fc)
E	Performance of visual tasks of high contrast and small size, or visual tasks of low contrast and large size	500 lx (50 fc)
F	Performance of visual tasks of low contrast and small size	1000 lx (100 fc)
<p><i>Special visual tasks.</i> Visual performance is of critical importance. These tasks are very specialized, including those with very small or very low contrast critical elements. Recommended illuminance levels should be achieved with supplementary task lighting. Higher recommended levels are often achieved by moving the light source closer to the task.</p>		
G	Performance of visual tasks near threshold	3000-10,000 lx (300-1000 fc)

*To account for both uncertainty in photometric measurements and uncertainty in space reflections, measured illuminance should be within ± 10 percent of the recommended value. It should be noted, however, that the final illuminance may deviate from these recommended values due to other lighting design criteria.

3. NCHRP Report 498, Illumination Guidelines for Nighttime Highway Work – page 2-15, Table 7 to support the proposal.

The transportation industry has extensive experience in providing outdoor lighting during hours of darkness. Board staff relied on the rationale used in prescribing illumination levels based on the type of activity.

Table 7 Recommended minimum illuminance levels and categories for nighttime highway construction and maintenance

Category	Minimum Illuminance level lx (fc)	Area of Illumination	Type of Activity	Examples of Areas and Activities to be Illuminated
I	54 (5 fc)	general illumination throughout spaces	performance of visual task of large size; or medium contrast; or low desired accuracy; or for general safety requirements	<ul style="list-style-type: none"> • Excavation • Sweeping and cleanup • Movement area in the work zone • Movement between two tasks
II	108 (10 fc)	general illumination of tasks and around equipment	performance of visual task of medium sizes; or low to medium contrast; or medium desired accuracy; or for safety on and around equipment	<ul style="list-style-type: none"> • Paving • Milling • Concrete work • Around paver, miller, and other construction equipment
III	216 (20 fc)	illuminance on task	performance of visual task of small sizes; or low contrast; or desired high accuracy and fine finish	<ul style="list-style-type: none"> • Crack filling • Pot filling • Signalization of similar work requiring extreme caution and attention

The Board thanks Mr. Little and the associations for their comments and participation in the Board's rulemaking process.

4. Mr. Eric Berg, Deputy Chief of the Research and Standards Unit, Division of Occupational Safety and Health, by letter dated April 11, 2019

Comment:

The Division fully supports the proposal to protect employees who work at night from many hazards. He stated that adequate fixed or portable hands-free lighting is necessary for employees to see the hazards in their tasks and their environments, as well as make employees visible to operators of mobile equipment and drivers of vehicles.

Response:

The Board thanks Mr. Berg for his comments in support of the proposal and participation in the Board's rulemaking process.

5. Mr. Roger Isom, President/CEO of California Cotton Ginner & Growers Association, African American Farmers of California, American Pistachio Growers, California Citrus Mutual, California Fresh Fruit Association, Milk Producers Council, Nisei Farm League, Western Agricultural Processors Association, by letter April 12, 2019

Comment:

The coalition of organizations listed above oppose the proposal for the following reasons:

- Current regulations are sufficient to protect agricultural workers during nighttime operations.
- The lighting requirements for active agricultural operations for harvesting and irrigation work of 10 foot candles is highly restrictive and impossible to achieve without robust lighting provided by substantial lighting towers.
- The cost figures provided are woefully inadequate and inappropriate for the task identified.
- They disagree with the rating of the "rechargeable generator".

In conclusion the coalition states, if the Board sees the need to address the hazards of working during hours of darkness, the proposed changes should be limited to the requirement for reflective vests in Section 3449, subsection (c).

Response:

Please see the Board's responses to comments from Mr. Little (See No. 3).

The proposal does not require the employer to use a portable generator. For some employers, the lighting provided by mobile agricultural equipment and portable lighting is sufficient. If the employer needs additional lighting powered by generator to comply, the employer can purchase or rent the generator that suits their needs.

The Board in consultation with the Department of Finance is submitting a revised 399 stating the estimated cost businesses and individuals may incur to comply with this regulation over its lifetime are \$7.85 million in the first year and ongoing annual costs of \$4.92 million. The reduction in cost is due to the decrease in the number of months night time work is estimated to occur.

The Board thanks Mr. Isom and the organizations for their comments and participation in the Board's rulemaking process.

6. Ms. Amber Baur, Executive Director, United Food and Commercial Workers (UFCW) Union, Western States Council, by letter dated April 15, 2019

Comment #1:

The UFCW Western States Council supports the adoption of the proposed regulation for Outdoor Agricultural Operations During the Hours of Darkness for the following reasons:

- They have locals that represent workers who harvest crops from 10pm to 7am.
- Night time harvesting of certain crops has become common.
- General safety regulations don't specify minimum levels of lighting to allow for safe outdoor agricultural work at night.
- Lack of adequate light exposes workers to hazards.
- Inadequate lighting of bathroom, break and parking areas put workers at risk of workplace violence.

Response #1:

The Board thanks Ms. Baur for her comments in support of the proposal.

Comment #2:

Ms. Baur suggested the following modifications to improve the proposed regulation:

- Add a requirement for lighting the parking areas.
- Make the requirement to select and position lighting to prevent glare enforceable.
- Add a requirement for night safety plan includes a system for accounting for location of workers and hazards specific to night work.

Response #2:

There was no finding of necessity to light parking areas while employees are working in the agricultural fields. Employees typically park in the same area and leave at the end of their shift at the same time. The provision to provide high visibility vest and portable hands free lighting appear to be sufficient to allow employees to see and be seen walking back to and from their vehicles.

The issue of glare was discussed during the advisory committee meeting. Glare is position sensitive. What could be causing glare to one person can be lighting the work for another employee. For example if you are facing the headlights of the vehicle, it could be causing glare to a pedestrian, but headlights illuminate the road for the driver.

There was no finding of necessity to provide a system to account for the location of their workers.

The Board is not persuaded to add additional requirements but thanks Ms. Baur for her comments and participation in the Board's rulemaking process.

7. Mr. Shane Gusman and Mr. Matt Broad, Broad and Gusman, on behalf of the California Teamsters Public Affairs Council by letter dated April 15, 2019

Comments:

Mr. Gusman and Mr. Broad share the same comments as Ms. Baur of UFCW (See No. 6).

Response:

Please see the Board's responses to Ms. Baur's comments (See No. 6).

The Board thanks Mr. Gusman and Mr. Broad for their comments in support of the proposal and participation in the Board's rulemaking process.

8. Mr. Bill Mattos, President, California Poultry Federation, by letter dated April 16, 2019

Comment 1:

Mr. Mattos recommended excluding poultry agricultural operations or changing the wording so as not to require the constant use of lighting based on 3441(g) and excluding poultry agricultural operations from 3449(a) and the subsequent lighting table.

Response 1:

The Board is not persuaded to add an exemption.

Comment 2:

Mr. Mattos opposes the need for the regulation stating the proposal would cause major animal welfare injury in birds, thus affecting workers who must deal with agitated birds in lighting that does not meet our nation and state animal welfare standards.

Animal welfare standards require catching at night to minimize the birds' fear reaction and aid in the human catching of animals. Calm animals also protect employees from injury caused by animals flapping or running and greatly reduces the ergonomic risks to employees when handling animals.

The normal operation inside the houses and catching machinery operate at less than 1 foot candle with nominal house lighting at less than 0.5 foot candle. The Moffet illuminates the module inside the house for loading at less than 2.5 foot candle at 5 feet and less than 1.5 foot candle at less than 15 feet to prevent disturbing the animals leaving the nominal housing lighting at less than 0.5 foot candle.

Outside areas are not lit when animals are loaded into modules outside the house for the same reasons they are caught in low light inside the houses. Since employees must catch in low light

situations, their scotopic vision is paramount to safe operations. If the light were increased to the proposed level, employees would experience dramatic decreases in their visual acuity cause by the continual transition from dark to light. Mr. Mattos also expressed concern about lighting that could affect residences and roadways.

Response 2:

The Board is persuaded by Mr. Mattos comments and will modify the proposal to address poultry harvesting or catching operations.

The Board is not persuaded by the comment regarding unintended consequences, because of the level of lighting required by the proposal and there is no requirement that additional lighting must reach 50 feet. While the agricultural equipment is traveling on the road, including private country roads, the agricultural equipment is not required to turn on additional lighting beyond the headlights and other lights required by the Department of Transportation. Furthermore, if the employer does experience complaints from the City then, the employer can apply for a variance from the Board.

The Board thanks Mr. Mattos for his comments and participation in the Board's rulemaking process.

9. Mr. Doug Parker, Executive Director*, Worksafe, by letter dated April 17, 2019

Comments:

Mr. Parker has the same comments as Ms. Baur of UFCW (See No. 6).

Response:

Please see the Board's response to Ms. Baur's comments (See No. 6).

The Board thanks Mr. Parker for his comments in support of the proposal and participation in the Board's rulemaking process.

*As of August 16, 2019, Doug Parker stepped down from policy work with Worksafe and is now the Chief of the Division of Occupational Safety and Health.

10. Ms. Marielena Puente, by letter dated April 17, 2019

Comment:

Ms. Puente shared from her experience and that of her sister and brother, stating:

- Snakes are difficult to see at night due to low lights and the protective eyewear makes it even more difficult to see.
- Better lighting would make it easier to get off moving equipment and use the restrooms. The location of the restrooms are sometimes a distance from the employees. It depends on where and when the moving equipment stops so employees can take a break.
- We need appropriate vests to be seen at night because we are not visible at night in our plain clothes.

- We need headlamps and helmets with light in order to see and avoid snakes and bee hives.
- It is difficult to carry both a lamp and water pipe, causing you to walk in the dark. A helmet equipped with lights would be practical for us to use and perform our work.
- My brother Jose Luis did not see a beehive and was attacked by bees. He was taken to the emergency room and was hospitalized as he was allergic to stings.

In summary, it is very important for this regulation to pass. Good lighting would facilitate our work. Many accidents and deaths can be avoided. These regulations are for the safety and health of any farm worker who works at night. Ms. Puente provided photographs.

Response:

The Board thanks Ms. Puente for her comments in support of the proposal and participation in the Board's rulemaking process.

12. Ms. Irena Asmundson, Chief Economist, California Department of Finance, by letter dated April 18, 2019

Comment:

Ms. Asmundson and the Department of Finance (Finance) staff identified additional labor data from the Bureau of Labor Statistics that indicates Board overestimates the number of impacted establishments and workers. As a result, the original Board estimates for total economic cost and benefits were also overestimated and a SRIA was improperly indicated.

Ms. Asmundson offered Finance's assistance with applying corrected methodologies for a revised economic impact assessment. If after the correct methodology is applied to the proposed regulation and it does not meet the major regulations threshold of \$50 million, a new economic impact assessment should be included in a follow-up public comment period.

Should the Board staff choose not to revise the economic impact assessment, Finance offered, if possible, to expedite the review of the subsequent SRIA so the regulatory process can proceed.

Response:

The Board is persuaded by Finance staff to review the economic cost and benefits of the proposed regulation.

In this matter, Board staff is not persuaded that the smaller number of establishments indicated by labor data from the federal Bureau of Labor Statistics should replace the data from the California EDD Labor Market Information Division (LMID) originally used to estimate the number of impacted establishments and workers. The LMID data used reflects detailed and specific industry information for the State of California, which in this case may more accurately indicate the estimated total economic costs and benefits of the proposed regulation.

As discussed with Finance subsequent to the submittal of their public comment letter, a review of public comments from Labor and Management stakeholders show that Board staff overestimated the number of months that night time work is likely to occur for establishments. Originally,

Board estimates showed 6 months for typical crop harvests, where labor and management stakeholder comments reflect 3 months as typical for crop harvests.

The Board, in consultation with the Department of Finance, is submitting a revised 399 stating the estimated cost businesses and individuals may incur to comply with this regulation over its lifetime are \$7.85 million in the first year with ongoing annual costs of \$4.92 million. The reduction in cost is due to the decrease in the number of months night time work is estimated to occur.

The Board thanks Ms. Asmundson for her comments and participation in the Board's rulemaking process.

13. Mr. Juvenal Solano, Community Organizer, Mixteco/Indigena Community Organizing Project, by letter dated April 18, 2019

Comment:

Mr. Solano has the same comments as Ms. Baur of UFCW (See No. 6).

Response:

Please see the Board's responses to Ms. Baur's comments (See No. 6).

The Board thanks Mr. Solano for his comments in support of the proposal and participation in the Board's rulemaking process.

14. Ms. Anne Katten, Pesticide and Work Safety Project Director, California Rural Legal Assistance (CRLA) Foundation, Ms. Esmeralda Zendejas, Regional Director of Advocacy, Migrant Unit, CRLA, Inc., Mr. Blaz Gutierrez, Director of Coachella Migrant Unit Office, CRLA, Inc., by letter dated April 18, 2019

Comment #1:

The letter was submitted in support of the proposal but requested the following revisions:

- Section 3449(a) Table 1 should add "parking areas" where 3 foot candle levels are required.
- Section 3449 (a)(1) should be changed to read:
 - When ~~needed to comply with subsection (a)~~ the employer demonstrates that it is infeasible to meet the illumination levels required by subsection (a) with area lighting, the employer shall provide and maintain hands free portable personal lighting in addition to area lighting in order to achieve illumination levels listed in Table 1.
 - Minimum quality and lighting requirements for hands free portable lighting should be specified.
 - Add a requirement for prevention of glare, rather than a note.
- Add the requirement for the employer to provide gaiters appropriate for protection from snake bites for night work in desert areas.

- Require employers to have a “night safety plan” that identifies emergency medical facilities that are available at night, high traffic areas, nearby bodies of water, and a system for accounting for the location of workers.
- Require employers to create a traffic plan.

Comment #2

CRLA is of the opinion that the economic impact analysis/assessment was overestimated, stating that:

- Estimates essentially assume that work is currently performed in the dark and do not take into account amount of money spent on lighting that is already being supplied.
- Most night harvest activities last only 2 to 3 months, not 6 months a year.
- Many labor intensive crops including table grapes, raisins, strawberries, citrus and fresh market stone fruit are rarely or never harvested at night.
- The 25% of work estimate is based on an extrapolation of night work performed in other industries that operate on a 12 month basis and includes the service industry and other industries that operate on a 24 hour basis. That is not the case for agriculture.

Furthermore CRLA offered supplemental information for the Initial Statement of Reasons affecting the cost, such as:

- The types of crops that are transplanted and harvested at night.
- Farm labor contractor is a category of employer, not an agricultural job.
- The estimate of 10% of the agricultural workforce working at night and 25% of California agricultural establishments being impacted may be high.

In addition, CRLA provided declarations and photos from CRLA staff and farmworkers which provide detailed first-hand observations of night-time agricultural work.

Response #1:

There was no finding of necessity to light parking areas while employees are working in the agricultural fields. Employees typically park in the same area and leave at the end of their shift at the same time. The provision to provide high visibility vest and portable hands free lighting appear to be sufficient to allow employees to walk back to their vehicles. The Board will not add additional requirements.

Response #2:

The Board in consultation with the Department of Finance is submitting a revised 399 stating the estimated cost businesses and individuals may incur to comply with this regulation over its lifetime are \$7.85 million in the first year and ongoing annual costs of \$4.92 million. The reduction in cost is due to the decrease in the number of months night time work is estimated to occur.

The Board thanks Ms. Katten, Ms. Zendejas, and Mr. Gutierrez, for their comments in support of the proposal and participation in the Board’s rulemaking process.

15. Mr. Craig Ledbetter, Vice President/Partner Vino Farms, LLC, by letter dated April 18, 2019

Comment:

Vino Farms is urging the Board to revise proposed Section 3449 to delete its subsection (a) and Table 1. Vino Farms is of the opinion that the proposed lighting requirements would weaken their current safe practices. Their Injury and Illness Prevention Program includes effective safe night work practices as shown by their low injury rate. They currently provide pre-shift training, personal hands-free lighting, field and equipment lighting, bathroom lighting and high-visibility clothing which are effective in preventing workplace injuries in their operations.

They disagree with the estimated cost of the proposal stating that additional costs were not accounted for such as, personal hand-held flashlights, front and rear lighting from harvesters, and the cost of lighting the inside and outside of portable restrooms. Vino Farms also disagrees with cost for generator, tower lights, and the cost to power a generator.

Vino Farms believes that increased lighting does not necessarily improve safety security the amount of light proposed will create safety related risks such as:

- Glare,
- Shadows,
- Depth perception,
- Eye sensitivity,
- Attracting insects.

Response:

Please see the Board's response to comments from Mr. Little (See No. 3). As stated in the notice of rulemaking, the proposal is intended to improve visibility by providing adequate lighting and employers have the responsibility to set-up their lighting to reduce or prevent glare to the extent possible.

The proposal does not require the employer to use a portable generator. For some employers, the lighting provided by mobile agricultural equipment and portable lighting is sufficient. If the employer needs additional lighting powered by generator to comply, the employer can purchase or rent the generator that suits their needs.

The Board in consultation with the Department of Finance is submitting a revised 399 stating the estimated cost businesses and individuals may incur to comply with this regulation over its lifetime are \$7.85 million in the first year and ongoing annual costs of \$4.92 million. The reduction in cost is due to the decrease in the number of months night time work is estimated to occur.

The Board thanks Mr. Ledbetter for his comments and participation in the Board's rulemaking process.

16. Duff Bevill, Managing Partner, Bevill Vineyard Management LLC, by letter dated April 18, 2019

Comment #1:

Mr. Bevill urges the Board to revise proposed Section 3449 by deleting subsection (a) and Table 1. Mr. Bevill stated that there is no established need for this proposal because there is no data to support that there are increased issues of workplace safety by vineyard workers working at night. The Injury and Illness Prevention Plans already include provisions for nighttime safety. He supports the requirements for hands-free personal lighting to meet minimum illumination standards and for providing high visibility clothing to employees working at night.

He expressed concerns the levels of night illumination in working areas keyed to specific task types in proposed Section 3449(a) will be impossible to obtain and maintain as the agricultural workplace changes during a work shift. Due to changes in terrain, heights of vines, and curves in rows of vines, for some vineyards to comply with this regulation, there would need to be several towers of lights, lighting up the vineyard like a football field. Additionally, those lights would be powered by several generators. This is more light than is needed, and may put the grower out of compliance with local regulations dealing with light pollution, noise, and air emissions.

He also stated that it would be virtually impossible to comply with this proposed regulation while also complying with local ordinances and air emissions standards at the same time. Foot candles and lux are not the proper metric for determining how bright a task/working surface area will be.

Mr. Bevill also commented on the 2015, field surveys conducted by the California Farm Bureau Federation. (Please refer to the comments from Mr. Little (See No. 3).

Comment #2

Mr. Bevill believes that the cost of the proposal is greatly underestimated:

- The cost estimate does not include labor costs for moving generators, lighting towers, refueling generators, or maintenance of generators and lighting towers and does not include the future cost of replacement.
- The cost estimate seems to indicate the need for only one generator.
- The costs of the generators themselves are understated in the estimate.
- The cost estimate seems to indicate the need for only one tower.
- The cost estimate of the towers themselves are understated in the estimate.
- The cost estimate appears to be based on the most inexpensive generators and light towers on the market.

Mr. Bevill questions the estimated benefits of the proposal, because of the limited data available to estimate the benefits.

Response #1:

Employers are not required to light up the entire field. Employers are required to provide lighting in areas where there is employee exposure, areas where employees are working. The proposal does not prescribe the type of lamp and how the employer elects to set-up lights.

Board staff had an opportunity to observe lighting conditions in a vineyard while employees were hand harvesting. In this operation, portable headlamps were critical in supplementing the overhead fluorescent light mounted on industrial trucks and light fixture mounted on the gondola. Board staff is of the opinion that it is feasible to achieve 5 foot candles for hand harvesting of grapes.

Lux and foot-candles are the units for recommended light level. These units are used in multiple consensus standards such as the American Society of Biological Engineers (ASABE), ASAE EP344.4, Lighting Systems for Agricultural Facilities, USDA Lighting Improvement Code 370, and ANSI IESNA- RP7-01, Recommended Practice for Lighting Industrial Facilities.

Please see the Board's response to comments from Mr. Little (See No. 3).

Response #2

The proposal does not require the employer to use a portable generator. For some employers, the lighting provided by mobile agricultural equipment and portable lighting is sufficient. If the employer needs additional lighting powered by generator to comply, the employer can purchase or rent the generator that suits their needs.

The Board in consultation with the Department of Finance is submitting a revised 399 stating the estimated cost businesses and individuals may incur to comply with this regulation over its lifetime are \$7.85 million in the first year and ongoing annual costs of \$4.92 million. The reduction in cost is due to the decrease in the number of months night time work is estimated to occur.

The Board thanks Mr. Bevill for his comments and participation in the Board's rulemaking process.

17. Michael Müller, Director of Government Relations, California Association of Wine Grape Growers (CAWG), by letter dated April 18, 2019

Mr. Müller expressed the same concerns brought up by Mr. Bevill (See No. 16).

Response:

Please see the Board's responses to comments from Mr. Bevill (See No.16).

The Board thanks Mr. Müller for his comments and participation in the Board's rulemaking process.

II. Oral Comments:

Oral comments received at the April 18, 2019, Public Hearing in Sacramento, California.

1. Anne Katten, (CRLA)

Comment:

Ms. Katten's oral comments were similar to her written comments. (See Written Comment No. 14).

Ms. Katten stated the proposal was needed to specify minimum levels of lighting needed for the following reasons:

- Workers to be seen by machine operators and truck drivers;
- Safe worker use of tools such as clippers and knives;
- Avoid tripping on uneven ground or slippery plant material;
- Avoid falling into ditches;
- Avoid dangerous insects, spiders and snakes.

Ms. Katten stated that her organization supports this proposal, and she hopes that the Board will also support this proposal and consider the revisions that her organization is recommending.

Response:

Please see the Board's response to written comments from Ms. Katten (Written Comments No. 14).

The Board thanks Ms. Katten for her comments in support of the proposal and participation in the Board's rulemaking process.

2. Jora Trang, Worksafe

Comment:

Ms. Trang stated the Worksafe is in agreement with the comments of Ms. Katten. Furthermore, she stated that there are several reports and studies that show many agricultural workers who work at night are sexually assaulted and experience workplace violence. She said that it is very important that this proposal contain language to require adequate lighting in the parking areas, as well as a night safety plan that accounts for the location of workers and hazards specific to night work.

Response:

Please see the Board's response to written comments from Ms. Katten (Written Comments No. 14).

The Board thanks Ms. Trang for her comments in support of the proposal and participation in the Board's rulemaking process.

3. Bill Mattos, California Poultry Federation

Comment:

Mr. Mattos's oral comments were similar to his written comments. (See Written Comment No. 8).

California Poultry Federation is very concerned about how this proposal will affect their operations when it comes to moving their poultry from the barn to the conveyor that loads them into the truck. He recommended excluding poultry and egg operations from the regulation, or changing the wording regarding the use of constant lighting in Section 3441(g) and excluding poultry agricultural operations from 3449(a) and the subsequent lighting table.

He stated that his organization is happy to provide the Board staff with further information if needed.

Response:

Please see the Board's response to Mr. Mattos written comments. (Written Comments No. 8)

The Board thanks Mr. Mattos for his comments and participation in the Board's rulemaking process.

4. Roger Isom, CA Cotton Ginners and Growers Association and the Western Agricultural Processors Association

Comment:

Mr. Isom's oral comments were similar to his written comments. (See Written Comment No. 5). Mr. Isom stated that CA Cotton Ginners and Growers Association and the Western Agricultural Processors Association do not see a need for this regulation. He said that the accidents that the Division cited during the advisory committee process happened over 15 years ago, and one occurred because there were riders on the equipment, which is illegal.

He stated that the cost estimate in the proposal completely underestimates what is necessary to achieve the lighting levels required, and the lighting standards require employers to provide more lighting than they usually do.

He said that in order to achieve the lighting levels required in the proposal, employers would have to use diesel fire generator-type lighting that is similar to what CalTrans uses. He stated that some folks in his organizations tried bringing those types of lights to some of their operations to measure the lighting and find out what the levels would be, but they found out that doing so creates other issues.

He said that they were informed that in order to bring that type of lighting to a permanent facility, the employer must get a permit. They also found that the engines in these lights did not meet the latest tier, which would be another violation. He stated that these things are far more expensive than the few hundred dollars mentioned in the cost estimate. He said that his

organizations do agree that it is important for employers to provide their employees with reflective clothing.

Response:

The proposal does not require the employer to use a portable generator. For some employers, the lighting provided by mobile agricultural equipment and portable lighting is sufficient. If the employer needs additional lighting powered by generator to comply, the employer can purchase or rent the generator that suits their needs.

Please see the Board's response to Mr. Isom's written comments. (Written Comment No. 5)

The Board in consultation with the Department of Finance is submitting a revised 399 stating the estimated cost businesses and individuals may incur to comply with this regulation over its lifetime are \$7.85 million in the first year and ongoing annual costs of \$4.92 million. The reduction in cost is due to the decrease in the number of months night time work is estimated to occur.

The Board thanks Mr. Isom for his comments and participation in the Board's rulemaking process.

5. Marielena Puente, farmworker

Comment:

Ms. Anne Katten and Ms. Juanita Antiveros, (CRLA) read a letter into the record from Marielena Puente, who is a farm worker. Ms Puente's comments were similar to her written comments. (See Written Comment No. 10).

Response:

Please see the Board's response to Ms. Puente's written comments. (Written Comment No. 10)

The Board thanks Ms. Puente for her comments in support of the proposal and participation in the Board's rulemaking process.

6. Carl Borden, CA Farm Bureau Federation

Mr. Borden stated that most of the provisions in the proposal are reasonable and acceptable, including:

- Requiring employees to wear high visibility clothing.
- Employees should be informed of the location of things at the worksite, such as rest areas and water hazards, prior to starting their shift.
- Requiring certain types of lighting to be used on agricultural machines.

However, he was concerned about the general area lighting requirement to provide area lighting instead of portable, hands-free lighting that can be worn by employees. He stated that there are instances where area lighting is not reasonable. For example, trellised crops such as grapes, can block light. He stated that in cases like this, the proposal does allow the employer to supplement

using portable personal lighting, but his organization is still concerned that this proposal provides a one-size-fits-all approach for providing area lighting.

He also made a comparison between construction and agriculture. He stated that unlike surface areas where construction workers use large area lights during their night work, agricultural fields are vast places that can have soft surface areas on which it would be difficult to put this type of lighting. He also stated that employees working in the fields are moving over a number of acres, and when they move, the lighting will have to be repositioned.

Aside from his concerns regarding the lighting requirement, he believes the cost estimate in the proposal is grossly underestimated. The cost estimate assumes that an employer will only need one \$1,200 Bulldog light and one rechargeable generator. One light will not be enough, even if it is for a small work area, because the employer will need at least one additional light and generator to use as a backup in case the first one malfunctions. He stated that the lowest cost generator that he could find was \$500, not \$200 like it was stated in the cost estimate.

He also stated that a rechargeable generator would not work with a Bulldog light because it has metal halide lights. He stated that metal halide lights are brighter than LED lights, but they use more power and are less expensive. He stated that an internal combustion engine would be required to operate the generator that would work with the Bulldog lights.

He recommends that the standard be performance-based where enough light is provided for employees to do their work safely in a safe environment. Providing personal portable lighting, in addition to high visibility clothing, will help improve the visibility of employees to operators. He also stated that the table of mandated lighting levels should be removed or moved to a non-mandatory section to provide guidance to employers as to what the aspirational levels of illumination should be.

Response:

Please see the Board's response to written comments from Mr. Little (Written Comments No. 3) and Board's response to oral comments from Mr. Isom. (Oral Comments No. 4).

The Board in consultation with the Department of Finance is submitting a revised 399 stating the estimated cost businesses and individuals may incur to comply with this regulation over its lifetime are \$7.85 million in the first year and ongoing annual costs of \$4.92 million. The reduction in cost is due to the decrease in the number of months night time work is estimated to occur.

The Board thanks Mr. Borden for his comments and for his participation in the rulemaking process.

7. Michael Miiller, CA Association of Winegrape Growers

Mr. Miiller stated that this proposal will have a tremendous effect on winegrape growers because it will make it impossible for them to harvest grapes at night. He stated that there is no established or demonstrated need for this regulation, and vineyards are already providing

adequate lighting for their workers to do their jobs. There is not a large number of injuries that have occurred due to nighttime work.

Mr. Miiller stated that the Board staff's estimate of the costs associated with this regulation are grossly understated. He said that towers and generators are the biggest cost for employers because these lights must light up an area the length of a football field to comply, and employers will have to buy high grade equipment that complies with the flux and lumens measurements in the proposal with pinpoint accuracy. He stated that generators will need to have the lowest emissions possible in order to comply with local air emissions requirements. He also said that this proposal will create a lot of bleed-over light. Mr. Miiller stated that many vineyards are located near neighborhoods that do not want bleed-over light and in counties that have ordinances regarding light pollution that the vineyards must comply with. This proposal will make it impossible for them to comply with these regulations.

He also stated that the benefits of the regulation are overstated and manufactured, and his organization feels that the Board staff has not done an adequate job looking at alternatives to the regulation. He said that the best way to address these issues is to take a look at the IIPP requirements and make sure that there is a plan in place to deal with local vineyard issues relative to nighttime harvesting and light issues.

Mr. Miiller also stated that this proposal requires a measure of the light being produced by foot candles, lumens, and flux. He said that this is not the proper method for determining how bright a surface area will be. It will only determine how much total light the specific instrument or fixture is producing at a specific moment in time, and when several instruments are combined, they affect the brightness of the working area.

Mr. Miiller stated that this proposal would require vineyards to put up a row of tower lights that reach every inch of the vineyard, even though employees may only be in one spot for just a few minutes, and it is not practical to constantly move the towers of light to meet the standard.

Response:

Please see the Board's response to written comments from Mr. Little (Written Comments No. 3) and Board's response to Mr. Isom's oral comments (Oral Comments No. 4).

The Board in consultation with the Department of Finance is submitting a revised 399 stating the estimated cost businesses and individuals may incur to comply with this regulation over its lifetime are \$7.85 million in the first year and ongoing annual costs of \$4.92 million. The reduction in cost is due to the decrease in the number of months night time work is estimated to occur.

The Board thanks Mr. Miiller for his comments and participation in the Board's rulemaking process.

MODIFICATIONS AND RESPONSE TO COMMENTS RESULTING FROM
THE FIRST 15-DAY NOTICE OF PROPOSED MODIFICATIONS

As a result of written comments to the proposed modifications contained in the 15-Day Notice of Proposed Modifications mailed/e-mailed on October 3, 2019, the following substantive, nonsubstantive or sufficiently related modifications have been made to the Informative Digest published in the California Regulatory Notice Register dated March 1, 2019.

Section 3449. Outdoor Agricultural Operations During Hours of Darkness.

Subsection (a):

- First sentence was modified to correct a grammatical error by replacing “on Table 1” with “in Table 1”.
- Second sentence was modified to add “task lighting” after “illumination levels for” to be consistent with predicate of the sentence and improve readability.
- Third sentence was modified to add “Illumination levels for” in front of the sentence and before “area lighting shall be...”. The modification was added to improve sentence structure.
- Third sentence was modified to add “or other horizontal, vertical, or sloped surface on or through which the employee walks, works or gains access to a work area” after “30 inches above the floor”. The modification was in response to multiple comments regarding the lack of clarity in the use of the word “floor”. See commenters no. 1 through no. 29, commenter no. 68, and commenters no. 74 through no. 85.

Note:

- Note was added for guidance to inform that the reader that the illumination levels can come from various light sources. The light meter does not distinguish where the light sources is coming from.

Subsection (a)(1)

- The originally proposed (a)(1) was deleted, replaced, and relocated above Table 1. The new (a)(1) requires that the employer provide and maintain hands-free portable personal lighting or area lighting or both to employees. The modification was necessary to clarify that the employer is required to provide and maintain the light source: personal lighting or area lighting or both. The modification was in response to commenters no. 1 through no. 29, commenter no. 63, and commenters no. 74 through no. 85.

Table 1:

- Replace “General movement throughout the space during outdoor agricultural operations” with “Outdoor agricultural operations except otherwise specified in this table”. The modification was in response to commenters no. 74 to no. 85. This language describes where lighting is required and provides continuity. It also eliminates the need to provide an exhaustive list of tasks or areas where 5 fc is appropriate. “Areas within 25 feet of equipment where workers are present” would no longer be needed, (therefore proposed to be deleted) because the default illumination level is 5 fc unless otherwise specified.

- Replace “task lighting for active agricultural operations ie, harvesting and irrigation work” with “Task lighting for agricultural operations that involve the use of tools that can potentially cause cuts, lacerations, or punctures”. The modified text was necessary because the reason for the heightened illumination level from 5 fc to 10 fc is the added risk from tasks that involve the use of tools that can cause cuts, lacerations, or punctures. The use of tools to perform work requires greater visual acuity therefore more light is needed at the plane of work.

ADDITIONAL DOCUMENTS RELIED UPON

- American Society of Agricultural and Biological Engineers (ASABE), ASAE EP344.4 Jan 2014, Lighting Systems for Agricultural Facilities, Section 8.2, page 17.
- American National Standard, ANSI IESNA- RP7-01, Recommended Practice for Lighting Industrial Facilities, Section 2.0, page 2.
- See Footnotes under the Economic Impact Analysis/Assessment and Benefits of Proposed Action.

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.

ADDITIONAL DOCUMENTS INCORPORATED BY REFERENCE

None.

SUMMARIES OF AND RESPONSES TO WRITTEN AND ORAL COMMENTS:

I. Written Comments:

Commenters:

1. Ramsey Aswad, by e-mail dated October 8, 2019
2. Ken Barr, by e-mail dated October 9, 2019
3. Warren Bogle, by e-mail dated October 9, 2019
4. Gay Callan, by e-mail dated October 10, 2019
5. Natalie Collins, by e-mail dated October 9, 2019
6. Cindy DeVries, by e-mail dated October 10, 2019
7. Erik Dodd, by e-mail dated October 10, 2019
8. Bruce Fry, by e-mail dated October 10, 2019
9. Brad Goehring, by e-mail dated October 11, 2019
10. Clay Green, by e-mail dated October 12, 2019
11. Bill Jackson, by e-mail dated October 15, 2019
12. Stanton Lange, by e-mail dated October 12, 2019
13. Kyle Lerner, by e-mail dated October 10, 2019
14. Christopher Lynch, by e-mail dated October 15, 2019
15. Joel Maring, by e-mail dated October 10, 2019
16. Steve Martin, by e-mail dated October 11, 2019

- 17. Nicholas Miller, by e-mail dated October 11, 2019**
- 18. Kenneth Nerlove, by e-mail dated October 11, 2019**
- 19. Colby Pereira, by e-mail dated October 11, 2019**
- 20. Joe Plummer, by e-mail dated October 9, 2019**
- 21. Joseph Ramazzotti, by e-mail dated October 18, 2019**
- 22. Taylor Serres, by e-mail dated October 10, 2019**
- 23. Aaron Shinn, by e-mail dated October 13, 2019**
- 24. Thomas Slater, by e-mail dated October 9, 2019**
- 25. Jason Smith, by e-mail dated October 11, 2019**
- 26. Brian Talley, by e-mail dated October 9, 2019**
- 27. Joe Valente, by e-mail dated October 9, 2019**
- 28. Colleen West, by e-mail dated October 16, 2019**
- 29. Jonathan Wetmore, by e-mail dated October 9, 2019**

Comment #1:

The regulation must clearly state that it applies when workers are present and at the time and in the plane in which the task is actively being performed.

Response #1:

The Division of Occupational Safety and Health (Division) has jurisdiction over almost every workplace in California and is the agency responsible for enforcing Title 8 safety and health regulations.

When enforcing regulations, the Division has to demonstrate exposure in the form of actual exposure, exposure by operational necessity, or exposure to the zone of danger while performing work related duties, personal comfort activities while on the job or normal access and egress to their assigned workplaces. See <https://www.dir.ca.gov/DOSHPol/P&pc-1B1.pdf>

Comment #2:

The regulation must clearly state that to comply with the regulation meant that the employer shall provide and maintain hands-free portable lighting or area lighting, or both.

Response #2:

In response to comments, the proposal was amended by adding a Note stating that the employer may use one or more light sources to provide area or task lighting that meet the illumination requirements specified in Table 1. Section 3449(a)(1) was added stating that the employer shall provide and maintain hands-free personal lighting or area lighting or both.

Comment #3:

The commenters stated that the required lighting exceeds what is needed in order to perform the job safely. Providing such lighting would be very costly and have unintended consequence of creating air pollution and light pollution to the detriment of nocturnal species in the community.

Response #3:

Please see response to commenter No. 3 of the responses to comments to the 45 day Notice. Board staff disagrees with the statement regarding light pollution. The illumination levels are necessary for employee safety.

Regarding the issue of air pollution, please see response to commenter No. 6 of the responses to comments to the 45 day Notice. The statement regarding nocturnal species is vague.

Comment #4:

The requirements for area lighting contradicted the requirements for task lighting. The provision that area lighting shall be measured 30 inches from the floor was confusing, because “floor” is undefined.

Response #4:

Area lighting and task lighting are complimentary and do not negate or contradict each other. For example, a dental office will have the typical overhead lighting and the dentist has a separate light fixture that can be adjusted to focus the light on the task at hand.

In an outdoor agriculture setting, area lighting is the overall lighting of the space where the employee moves (i.e. walks, bends, reaches). Task lighting is designed to provide sufficient lighting for the finer visual tasks that need to be performed. Personal portable lighting sources can supplement and provide area and/or task lighting.

In response to comments, the Board will amend the proposal by further clarifying where the area lighting measurements should be taken. The proposed amendment clarifies further where to take like measurements. Area lighting shall be measured at approximately 30 inches above the floor, or other horizontal, sloped, or vertical surface on or through which the employee walks, works or gains access to a work area. Absent this measurement, illumination levels would need to be measured at the very bottom of any surface an employee stands on. The proposed clarification is consistent with federal OSHA language in describing walking working surfaces. The proposed clarification is consistent with federal OSHA language in describing walking working surfaces.

Comment #5:

The commenters do not agree with the revised economic cost assessment, which decreased the number of months for night time work. Commenters are of the opinion that the reduction in number of months was wrong, therefore the costs were underestimated.

Response #5:

In response to the commenters’ judgement that the proposal has inaccurately reduced the number of months of night time work is likely to occur from six to three, OSHSB points to the comments in the May 6, 2014 Advisory Committee meeting and comment letters written by the California Rural Legal Assistance Foundation and Vino Farms which state that that the typical harvest season runs two to three months (from August to October). The reduction of the number of months lead to the decreased economic costs.

The Board thanks the commenters for their comments and participation in the Board's rulemaking process.

Commenter:

30. Carmine Indindoli, by e-mail dated October 8, 2019

Comment:

Mr. Indindoli recommended that state agencies purchase all the soon to be obsolete lighting equipment currently used by agricultural businesses and send them to China or India.

Response:

The comment is unrelated and outside the scope of the 15 day Notice of Modifications, therefore the comment will not be considered.

The Board thanks Mr. Indindoli for his comment and participation in the Board's rulemaking process

Commenters:

- 31. Kurt Ammann, General Manager of Melville Winery and Chad Melville , by e-mail dated October 16, 2019**
- 32. Steve Arrowood, by e-mail dated October 14, 2019**
- 33. Becky Barieau, Co-Owner of Foxen Vineyard, by e-mail dated October 15, 2019**
- 34. Armand de Maigret, Estate Manager of the Hilt Estate and Jonata, by e-mail dated October 18, 2019**
- 35. Steven G. Dutton, President of Dutton Ranch Corp, by e-mail dated October 18, 2019**
- 36. Steven Easterby, Monterey Pacific, by e-mail dated October 16, 2019**
- 37. Nick Francioni, by e-mail dated October 17, 2019**
- 38. Tom Francioni, Francioni Farms, by e-mail dated October 16, 2019**
- 39. Callie Gleason, Partner of Gleason Family Vineyards, by e-mail dated October 16 ,2019**
- 40. Max Gleason, General Manager of Gleason Family Vineyards, by e-mail dated October 15, 2019**
- 41. Henry Gonzales, Agricultural Commissioner, County of Monterey, by e-mail dated October 16, 2019**
- 42. Michael Manna, Owner of Manna Ranch (and other concerned growers: Joe Cataldo; Gary Cusumano; John Lakso; Matt Manna), by e-mail dated October 14, 2019**
- 43. Colin Miller, by e-mail dated October 15, 2019**
- 44. Keith Roberts, Director of Vineyard Operations for Wentz Family Estates, by e-mail dated October 16, 2019**
- 45. Alex Russan, Metrick Wines, by e-mail dated October 15, 2019**
- 46. Harvey Saarloos, Owner of Los Olivos, by e-mail dated October 15, 2019**
- 47. Keith Saarloos, Saarloos and Sons, by e-mail dated October 15, 2019**
- 48. Larry Saarloos, Saarloos and Sons, by e-mail dated October 15, 2019**
- 49. Dan Schuler-Jones, Winemaker for Vincent Vineyards, by e-mail dated October 15, 2019**
- 50. John Shinn, Managing Member of Shinn & Son Vineyard Management and Owner of J&J Shinn Ranch, by e-mail dated October 14, 2019**

- 51. Riley Slack, Business Operations Assistant of Foxen Vineyard and Winery, by email dated October 15, 2019**
- 52. Jason Smith, President of Valley Farm Management, by e-mail dated October 17, 2019**
- 53. Tim Snider, President of Fess Parker Winery & Vineyard, by e-mail dated October 15, 2019**
- 54. Andrew Solt, Rancho Boa Vista Vineyards & Olives, by e-mail dated October 15, 2019**
- 55. Kim Stemler, Executive Director of Monterey County & Growers Association, by e-mail dated October 16, 2019**
- 56. John Terlato, Terlato Wine Group, by e-mail dated October 15, 2019**
- 57. Tyler Thomas, Star Lane and Dierberg Vineyards, by e-mail dated October 15, 2019**
- 58. Niki Wente, Viticulture Manager of Wente Family Estates, by e-mail dated October 17, 2019**
- 59. Drake Whitcraft, Owner of Whitcraft Winery, by e-mail dated October 14, 2019**
- 60. Peter and Rebecca Work, Ampelos Vineyard and Cellars, by e-mail dated October 18, 2019**
- 61. Rebecca Work, by e-mail dated October 15, 2019**

Commenters expressed the following concerns:

Comment #1:

The proposal would require excessive night time lighting in vineyards due to the requirement to measure illumination levels using a light meter 30 inches above the floor.

Response #1:

Regarding proposed illumination levels, please see response to commenter No. 3 of the responses to comments to the 45 day Notice.

The requirement to measure 30 inches from the floor unless otherwise specified is industry practice when measuring area lighting. The proposal was amended to state that area lighting shall be measured at approximately 30 inches above the floor or other horizontal, sloped, or vertical surface on or through which the employee walks, works or gains access to a work area.

Comment #2:

The regulation lacks clarity and regulators may enforce the regulation by requiring the vineyards to be lit up like a football field.

Response #2:

When there is a football game, the field is lit because players are expected to safely and precisely execute plays and utilize the entire field as they play the sport. The current NFL lighting standards are for 250 fc on the field, college football requires 150 fc, and high school football requires 50 fc. The highest illumination level that is required in this proposal is 20 fc for task lighting for maintenance work on equipment, so that the mechanic can see what they are doing.

This proposal provides no expectation that lighting be provided in areas or fields not being worked on or accessed. There is the expectation that when an employee leaves the group for personal comfort or work related errands, that they are provided adequate personal lighting that

provides 5 fc measured 30 inches from the surface the employee walks upon in order to safely light up their path.

Comment #3:

Added lighting does not protect worker, but rather puts them at risk due to glare.

Comment #4:

Added lighting would create problems with air emissions, noise, cause excessive lighting, and affect nocturnal species.

Responses #3 and #4:

The issue with the glare, noise, light pollution and emissions were responded to in the responses to 45 day comment period, see response to commenters No. 6 and 16. The comment regarding nocturnal species is vague.

Lighting is required in areas where employees are present and in locations where they are reasonably expected to move to. Employees move through the field and go to different rows as they work. The proposed lighting requirements will allow the employee to safely move through the space as they walk, bend or reach. It is proposed that area lighting will be measured approximately 30 inches from the vertical, horizontal or sloped surface where the employee walks, works or gains access. Task lighting of a higher intensity than area lighting is required for more detailed visual tasks. It is proposed that task lighting as specified in Table 1 will be measured at the plane of work.

Comment #5:

The regulation would end night harvest.

Response #5:

The Board disagrees that the proposal would end night harvest. There are many employers already successfully providing the required illumination levels.

Comment #6:

The regulation must clearly state that it applies when workers are present and at the plane of work.

Response #6:

Please see responses No. 1 and No. 4 to commenters 1-29. The proposal already states that task lighting shall be measured in the plane of work.

Comment #7:

The regulations should state that compliance can be achieved by use of personal lighting, area lighting, or both.

Response #7:

The proposal was amended to state that different sources of lighting can be used to meet the illumination levels specified in Table 1. This includes personal lighting, area lighting or both.

The Board thanks the commenters for their comments and participation in the Board's rulemaking process.

Commenter:

62. Wesley Hagen, Miller Family Wine Company, by e-mail dated October 15, 2019

Comment:

Tractor lighting can be 30 inches high easy, but we like the workers to have personal headlights so when the tractor drops off fruits, the workers can still safely see the fruit, the clippers and their fingers. Without personal lighting, we will be forced to rent extra tractors or light up the vineyard like a football field.

Response:

To ensure adequate area lighting, area lighting is to be measured approximately 30 inches from the surface the employee walks, works or gains access. Performance standards allow employers to provide lighting in a manner that suits their operations or working environment. The employer can use personal lighting, area lighting or both, provided that the illumination level meets Table 1. Personal lighting and tractor lighting as stated above are sources of lighting that will help you achieve the illumination level of 5 fc for area lighting for outdoor agricultural operations. When the employee steps away from the group, the personal lighting functions as area lighting to light the pathway to get to his/her destination. For specific tasks using clippers, the illumination level is required to be 10 fc measured at the plane of work. If you are using headlamps to provide task lighting, then the head lamps must be of a quality that will provide an illumination level of 10 fc measured at the plane of work.

The Board thanks Mr. Hagen for his comments and participation in the Board's rulemaking process.

Commenter:

63. Mark Pisoni, Farmer and Farm Labor Contractor for El Campo Farms, by e-mail dated October 15, 2019

Comment #1:

Mr. Pisoni is requesting the following changes:

- Illumination for the restroom should be amended to 3 fc, which would be the same as the proposed lighting requirement for meal/rest area. He stated that the meal and rest areas are close to the restroom area and it would be easier to comply if the lighting requirement was the same.
- Amend the proposal so that it clearly states that illumination is required when employees are present. In his operations, he uses motion sensor lights on portable toilets. One of them stays dim throughout the night so workers can spot the bathrooms from a distance. Another is activated when workers get within 16 feet of the restroom.

Response #1:

Meal and rest areas require a lower illumination because it based on the assumption that rest and meal areas would be a relatively low activity area. Employees would be resting, therefore a higher intensity lighting is not required.

Regarding the comment to amend the proposal to clearly state that illumination is required when employees are present, please see response No. 1 to commenters 1 to 29.

Comment #2:

Returning to the proposed Table 1, Mr. Pisoni noticed that active agricultural operations (i.e. harvesting and irrigation work) is now crossed out. This used to be in 10 fc row. He asked if that means that now all outdoor agricultural operations are 5 fc.

Response #2:

The illumination requirement for 5 fc was amended to state “Outdoor agricultural operations except otherwise specified in this table”. The 10 fc requirement was further clarified to state that task lighting is required for agricultural operations that involve the use of tools that can potentially cause cuts, lacerations or punctures.

Comment #3:

We would appreciate clarifying language, which states that to comply with the subsection, we can provide and maintain hands free portable personal lighting, or area lighting, or both.

Response #3:

The proposal was amended. Please see the revised proposal.

The Board thanks Mr. Pisoni for his comments and participation in the Board’s rulemaking process.

Commenter:

64. Karen Steinwach, Winemaker of Buttonwood Farm Winery & Vineyard, by e-mail dated October 15, 2019

Comment:

The rule is unnecessary and does not protect workers. The LED lights on our tractors illuminate vine rows, the area behind the tractor, the trailer with the picking bins and the area in front of the tractor. Each worker also has a personal head lamp, and follow one person per vine. This work practice provides enough illumination

Response:

The Board thanks you for being a model employer by providing adequate lighting to your employees. It appears to the Board that improved illumination is needed and achievable by virtue of your actions. The Board commends your efforts and you need only to confirm that these efforts are commensurate with the proposal.

The Board thanks Ms. Steinwach for her comments and participation in the Board's rulemaking process.

Commenter:

65. Jack Galante, President, by e-mail dated October 16, 2019

Comment #1:

I am concerned because the recently proposed changes would require nighttime area lighting in vineyard that would be measured by regulation using light meters approximately 30 inches from the floor. In our remote region in upper Carmel Valley, this would present a devastating and unmanageable economic impact to our small farming operations.

Response #1:

Yes, area lighting is proposed to be measured 30 inches above the floor, or other horizontal, vertical or sloped surface on or through which the employee walks, works or gain access to a work area and task lighting is to be measured in the plane of work.

Comment #2:

Regulators could require vineyards to be lit up like a football field.

Response#2:

Regarding the comment about lighting the agricultural field like a football field, please see response No. 2 to commenters 31 to 61.

Comment #3:

The proposal is vaguely written and could require vineyards to be lit up like a football field. Monterey County ordinance (Chapter 21.24 Regulations for Agricultural Zoning Districts) prohibit this kind of lighting and would create a significant impact to our surrounding neighbors.

Response #3:

Board staff did not find the specific ordinance prohibiting the employer to provide lighting of a certain illumination level to allow the employee to safely work during hours of darkness. Board staff did note that temporary exterior lighting for harvesting operations is permitted. 21.24.070(F)1, which denotes lighting requirement for the referenced Monterey County Ordinance provides an exemption for 21.63.020.D.

21.24.070- Site development standards

F. Lighting Requirements

1. For any new development that included exterior lighting, all exterior lighting shall be consistent with the Design Guidelines for Exterior Lighting adopted by the Board of Supervisors pursuant to Section 21.63.020, unless exempt under Section 21.63.020.D

21.63.020 –Design Guidelines for Exterior Lighting

D. The following lighting are exempt from Subsection C above:

4. Temporary lighting for activities of a limited duration such as emergency activities, construction, and agricultural harvesting.

Comment #4:

The regulation should state that lighting requirements should apply only when the worker is present and at the plane of work.

Response #4:

Please see response No. 1 to commenters 1 to 29.

Comment #5:

The regulation should also state that personal lighting, area lighting, or both can be used to comply.

Response #5:

The proposal was amended and a Note was added to clarify the various sources of lighting that can be used to reach the required illumination levels in Table 1. Section 3449(a)(1) was added stating that the employer shall provide and maintain hands-free personal lighting or area lighting or both.

The Board thanks Mr. Galante for his comments and participation in the Board's rulemaking process.

Commenter:

66. Blair Pence, Pence Investment Group, by e-mail dated October 16, 2019

Comment:

The regulation should provide lighting requirements to apply only when the worker is present and at the plane of work that is being done. The regulation should also clearly state that the compliance can be achieved by the use of personal lighting, area lighting or both.

Response:

Please see response No. 1 to commenters 1-29. Section 3449(a)(1) was added stating that the employer shall provide and maintain hands-free personal lighting or area lighting or both.

The Board thanks Mr. Pence for his comments and participation in the Board's rulemaking process.

Commenters:

67. Matt Broad, Legislative Advocate, California Teamsters Public Affairs Council, by e-mail dated October 16, 2019

68. Anne Katten, Pesticide and Work Safety Project Director, CRLAF & Amber Baur, Executive Director of United Food and Commercial Workers Union, Western States Council, by e-mail on October 18, 2019

The commenters expressed concerns with changes in the proposed text and the Board's response to commenters.

Comment #1:

Recommend that area lighting be measured approximately 30 inches from the ground, at the bottom of a furrow in a furrowed field.

Response #1:

The proposal was amended to state that:

Area lighting measurements shall be taken 30 inches from the floor, or other horizontal, vertical, or sloped surface on or through the employee walks, works, or gains access to a work area. A Note to subsection (a) was amended to clarify that various sources of lighting may be used to achieve the illumination level in Table 1.

Comment #2:

Oppose replacing "general safety" with "general movement through the space". For example, a worker needs lighting when inside a restroom or accessing storage space though they are not in motion.

Comment #3:

Oppose the addition of "task lighting for" in front of active agricultural operations and maintenance work on equipment.

Response #2 and #3:

Subsection (a)(1) was added to require employers to provide and maintain personal portable hands free lighting, or area lighting, or both.

Table 1 was amended to require:

- 5 fc for outdoor agricultural operations except otherwise specified in the table. This made the requirement to provide 5 fc in areas within 25 feet of agricultural equipment where workers are present" unnecessary and redundant.
- 10 fc task lighting for task that involve the use of tools that could potentially cause cuts, punctures or lacerations. Task lighting is meant to complement area lighting when necessary for specific tasks that require finer visual detail.

The proposed illumination level requirements apply regardless of whether the employee is in motion or not.

Comment #4:

Recommended revising 3449 (a)(1) to read:

When the employer demonstrates that it is infeasible to meet the illumination levels required by subsection (a) with area lighting, the employer shall provide and maintain hands free portable lighting in addition to area lighting in order to achieve illumination levels listed in Table 1.

Response #4:

A Note to subsection (a) was amended to clarify that various sources of lighting may be used to achieve the illumination level in Table 1.

Comment #5:

Amend the proposal to provide minimum quality and lighting requirements for hands free portable lighting.

Response #5:

Table 1 serves as the minimum quality of light requirement. Light sources by itself or in combination with other light sources can be used in order to meet the illumination requirements of Table 1.

Comment #6:

Concern with Board staff's opinion that it is feasible to provide 5 fc for hand harvesting of grapes.

Response #6:

The proposed changes in the Table 1 clarifies Board staff's opinion regarding hand harvesting.

Comment #7:

Disagrees that there was no finding of necessity to light parking areas or have a system for accounting for the location of workers.

Response #7:

The Board convened two advisory committee meetings: May 6, 2014 and March 27, 2015. The meeting concluded with no finding of necessity or proposed text to provide lighting to parking areas and have a system for accounting for the location of workers. Instead, the meeting concluded with the requirement to conduct a safety meeting at the beginning of each shift to inform employees of the location of restrooms, drinking water, designated break areas, nearby bodies of water, and high traffic areas.

The Board thanks the commenters for their comments and participation in the Board's rulemaking process.

Commenter:

69. Eric Berg, Deputy Chief, Research and Standards Unit, Division of Occupational Safety and Health, by e-mail memo dated October 16, 2019

Comment #1:

For improved clarity, the Division recommends changing "general movement throughout the space" (which is overly vague) to "outdoor agricultural operations except where otherwise specified in the table."

Response #1:

The proposal modified Table 1 to replace “general movement throughout the space” with “outdoor agricultural operations except where otherwise specified in the table.”

Comment #2:

Also, the addition of “task light for” is not necessary, because personal lighting is already allowed to supplement area lighting.

Response #2:

The Board disagrees and believes that it is necessary to clarify that the lighting requirement at 10 fc and 20 fc is for task lighting. For example, if equipment breaks down in the field, the area where the equipment is located where agricultural operation is taking place is required to be illuminated at 5 fc, but the specific portion of the equipment the mechanic is working on is required to be illuminated at 20 fc. Thus, if you are only providing 5 fc, then that specific portion of the equipment that the mechanic is working on would need additional lighting. The light source may come from portable lighting or any type of light source the employer can apply or develop, provided that it provides 20 fc at the plane of work.

The Board thanks Mr. Berg for his comments and participation in the Board’s rulemaking process.

Commenter:

70. Roger Isom, on behalf of African American Farmers of California, American Pistachio Growers, California Citrus Mutual, California Cotton Ginners and Growers Association, Milk Producers Council, Nisei Farmers League and Western Agricultural Processors Association, by e-mail date October 16, 2019

Comment:

Supplemental lighting would be needed in order to comply with 5 fc of lighting within 25 feet of the agricultural equipment when workers are present.

The proposed change requiring 5 fc throughout the space lacks clarity.

Response:

Yes, supplemental lighting may be necessary in order to meet the illumination levels in Table 1. The 5 fc requirement in Table 1 was amended for clarity. “General movement throughout the space during agricultural operations” is proposed to be deleted and replaced with “Outdoor agricultural operation except otherwise specified in this table”. This made the requirement to provide 5 fc in areas within 25 feet of agricultural equipment where workers are present unnecessary and redundant, therefore is proposed to be deleted.

The Board thanks the organizations for their comments and participation in the Board’s rulemaking process.

Commenter:

71. Steve Dutton, President of SAVE, by e-mail dated October 17, 2019

Comment #1:

There is no compelling data to suggest that nighttime harvest as being conducted by growers today is leading to safety issues. Therefore, we ask that the regulation not be advanced unless there is clear evidence that worker safety risks are higher at night than during the day.

Response #1:

This rulemaking is intended to address hazards related to performing outdoor agricultural work during hours of darkness (sunset to sunrise), when illumination or visibility is limited. The decreased natural lighting during hours of darkness affects the employees' ability to perceive and move about their environment. In addition, employees are less visible to others. Adequate lighting will enable employees to avoid visible and recognizable hazards. The increased visibility of employees will help operators of mobile agriculture equipment keep a safe distance away from employees.

Comment #2:

The regulation does not recognize the worker safety advantages of harvesting at night when temperatures are much cooler than for daytime harvesting.

Comment #3:

The regulation does not recognize the benefit to the condition of fruit arriving at wineries at lower temperature therefore requiring less refrigeration and lower power demand.

Response #2 and #3:

We acknowledge that working during hours of darkness provides benefits to agricultural industries. It saves the employer the energy cost for cooling down the crop to hold optimum temperature. It allows the employer to harvest at a time that assures them the best quality of crops possible, i.e., minimized bruising, optimum sugar and/or moisture content. In addition, working during hours of darkness usually equates to cooler temperatures, greatly diminishing the risk for heat illness. Cooler temperature increases employee comfort, which improves the productivity of workers. The proposal helps to provide a safe environment for employees when working during hours of darkness by addressing the hazards presented by limited ambient lighting.

The Board estimates benefits would be about \$36.7 million per year due to prevented accidents. The estimated benefits are based on 2,080 injury cases multiplied by \$17,622, the average workers' compensation medical and indemnity cost of agricultural injury claims in 2013 and 2014.

This estimate is conservative because there are unquantifiable additional costs imposed by the health consequences arising from these injuries for workers, employers, and society. Therefore, the benefits may be much greater than estimated due to the additional implications of related injuries.

Comment #4:

The regulation requires the use of light meters to measure light illumination levels 30 inches from the ground. The proposal is crafted so vaguely that regulators could require vineyard to be lit up like a football field. This will create problems such as air emissions, noise, excessive lighting, and affect nocturnal species.

Response #4:

Please see responses to commenters 31 to 61.

The Board thanks Mr. Dutton for his comments and participation in the Board's rulemaking process.

Commenter:

72. Gary Francioni, Gary Francioni Inc., by e-mail dated October 18, 2019

Comment:

Mr. Francioni had the same concerns as Mr. Pisoni, commenter No. 63.

Response:

Please see responses to commenter 63.

The Board thanks Mr. Francioni for his comments and participation in the Board's rulemaking process.

Commenter:

73. Mike Testa on behalf of Coastal Vineyards Care Associates, by e-mail dated October 18, 2019

Comment #1:

The recent modification to the regulation to provide area lighting that shall be measured at approximately 30 inches from the floor makes it clear that tower lights must be provided.

Comment #2:

This level of lighting far exceeds what is needed to safely perform the job.

Comment #3:

The lighting requirements would also create lighting pollution, noise, and air pollution.

Response #1, #2, and #3:

Please see responses to commenters 31 to 61.

Comment #4:

Outside of harvest, there are other tasks, which are done throughout the year at night. The most significant is spraying. If we had to spray during the day time, it would increase the risk to our neighbors and employees.

Response #4:

Limited lighting during hours of darkness is a recognized hazard. In order to perform night time tasks throughout the year safely, adequate lighting must be provided. Pesticide application is regulated by the California Department of Pesticide Regulation. Title 3, Section 6740 requires that artificial lighting is provided in order to allow the employees to read the label and work in a safe manner.

The Board thanks the Coastal Vineyards Care Associates for their comments and participation in the Board's rulemaking process.

Commenters:

Coalition Letter (signed by individuals listed below), by e-mail dated October 18, 2019

- 74. Michael Müller, Director of Government Relations for California Association of Winegrape Growers**
- 75. Bryan Little, Director of Employment Policy for California Farm Bureau Federation**
- 76. Tim Schmelzer, Vice President of California State Relations for Wine Institute**
- 77. Pete Downs, President of Family Winemakers of California**
- 78. Rob Neenan, President of California League of Food Producers**
- 79. Matthew Allen, Director of California Government Affairs for Western Growers Association**
- 80. Tricia Geringer, President of Government Affairs for Agricultural Council of California**
- 81. Rob Moutrie, Policy Advocate for the California Chamber of Commerce**
- 82. Chris Zanobini, Executive Director of Olive Oil Commission of California**
- 83. Guadalupe (Lupe) Sandoval, Executive Director of California Farm Labor Contractor Association**
- 84. Kim Stemler, Executive Director of Monterey County Vintners & Growers Association**
- 85. Amy Blagg, Executive Director of Lodi District Grape Growers Association**

The coalition letter was separated into three different headings:

1. Concern with the rulemaking file:

Comment #1:

Provide detail of how Board members consider the results of the modification.

Response #1:

Contrary to the letter's characterization, the Board has carefully complied with the Bagley Keene Open Meeting Act (Open Meeting Act), and the Administrative Procedure Act (APA), with respect to this pending Title 8, General Industry Safety Order (Nighttime Ag Illumination) proposal

In addition, Board staff has invested considerable effort in both employer and labor stakeholder outreach and engagement. This public engagement has included formal advisory committee

meetings, site visits, and many forms of outreach and inquiry to potential public stakeholders. Indeed, numerous among those lending their name to the comment letter, were invited, and some did participate to the degree they chose, in the advisory, outreach, and impact survey processes undertaken by the Board.

Comment #2:

Board members should not consider this matter until Board staff makes the file available to the public for inspection and copying.

Response #2:

In full compliance with the Open Meeting Act, the Board had not considered this rulemaking proposal outside the APA prescribed public comment and hearing process. Criticism of some proposal verbiage being written in the past tense, allegedly suggesting the Board had already considered and decided the matter prior to adoption, is a mischaracterization of how such documentation of proposals, being prepared for consideration of adoption, are quite commonly written. It is a convention of such rulemaking proposals to couch some of the verbiage in prospective terms of what the agency will have done, if the proposal ends up being adopted. Such language appears within documents expressly identified, and repeatedly referred to as a *proposal*, within the context of their being scheduled for future consideration of adoption by the Board.

Comment #3:

All the documents relied upon by Board staff should be posted on the internet or remove all material from the rulemaking file that cannot be posted on the internet.

Response #3:

Regarding rights of fully and prompt access to “Documents Relied Upon” material within the rulemaking file—that is exactly what the visitors the letter mentions received upon visiting the Board office on October 10, 2019. It is true that instead of being made a copy of the entire consensus standard publications contained therein using State equipment and supplies, they were allowed to read through and study each as long as they liked, and given a copy of the title, edition, and table of content pages to facilitate accurate sourcing of a full volume copy from the publisher or other authorized source. This was in keeping with sound agency practice balancing rights of public access with copyright restrictions asserted by the industry associations issuing such consensus standards. Also, it may bear noting, the visitors did not request to copy any particular excerpts of interest, or note other impediments.

Comment #4:

Revised 399 was not available for public inspection.

Response #4:

The Board also has made full and timely public disclosure of economic impact information, including analysis, calculations and data sources, as called for under the APA. (It is the same information compiled by way of “Form 399” for standardized interagency review.) As is the Board’s practice, prominent public disclosure of such economic impact information occurred in this instance by direct incorporation into the California Regulatory Notice Register, Proposed

Action on Regulations, formally published, and also distributed to subscribing stakeholders, at the onset of the formal rulemaking process. When the economic impact analysis underwent modification, as it did here, in response to (45 day) public comments, the substance of those modifications had already been publicly posted and made directly available to all before the beginning of the proposal modification (15 day) comment period. Thus, no impingement of public participation rights under the APA occurred, when within a week of being requested (and prior to close of the first 15 day comment period) Board staff was able to provide a finalized Amended Form 399 incorporating modifications to the economic impact analysis already disclosed in substance by way of the formal public notice of rulemaking proposal moderation. It would be incorrect to assume such a form would have been returned to the office of the Board and added to the rulemaking file on the same date of it having been signed at the office of another agency located apart from the Board.

2. Concerns with the regulatory process:

Comment #5:

The requirements lack clarity.

Response #5:

The rulemaking process has not concluded. The modifications will add clarity to the proposed requirements.

Comment #6:

Authority and need for the standard was not demonstrated.

Response #6:

Labor Code 142.3(a)(1) states that the Board, by an affirmative vote of at least four members, may adopt, amend or repeal occupational safety and health standards and orders. The Board shall be the only agency in the state authorized to adopt occupational safety and health standards. In addition, the initial statement of reasons details the necessity for the rule.

Comment #7:

Total cost of the proposed regulation was underestimated and cost concerns were not addressed.

Response #7:

In response to the commenters' judgement that the proposal has inaccurately reduced the number of months night time work is likely to occur from six to three, OSHSB points to the comments in the May 6, 2014 Advisory Committee meeting and comment letters written by the California Rural Legal Assistance Foundation and Vino Farms which state that that the typical harvest season runs two to three months. The reduction of the number of months lead to the decreased economic costs.

Comment #8:

The proposed rule is not in harmony with rules from other government agencies.

Response #8:

The Standards Board is the only body in the State authorized to adopt regulations that protect workers' occupational safety and health. That said, we always strive for "reasonable and enforceable" regulations. While the concern has been raised, no actual regulation has been identified that would conflict with the proposal.

The proposal is striving to be consistent with the requirement to provide minimum lighting levels for safety in workplaces. Section 3317 specifies lighting requirements for general industry, but the Section does not adequately address lighting for outdoor agricultural operations. Section 1523 addresses illumination requirements for the construction industry. In both Sections, the required illumination levels were in a table format detailing a foot-candles illumination level requirement for a specific area or operation.

Comment #9:

Reasonable alternatives were not addressed.

Response #9:

It is evident that alternative language is being considered with the proposed modifications after the 45 comment period and further proposed modifications after the 15 day period. Furthermore, the original proposal was developed through an advisory committee process that engaged with stakeholders including growers and labor interests.

Comment #10:

Policy concerns raised in public comments were not addressed:

- a. Measuring above the floor vs measuring at the task/working surface.
- b. Amount of area lighting required exceeds the light needed to perform the work safely.
- c. The regulation could bring an end to night time agricultural operations.
- d. Board staff has not allowed the public to copy the American National Standards Institute (ANSI) reports, which are part of the rulemaking.

Response #10:

- a. Lighting is required in areas where employees are present and in locations where they are reasonably expected to move to. Employees move through the field and go to different rows as they work. The proposed lighting requirements will allow the employee to safely move through the space as they walk, bend or reach. It is proposed that area lighting be measured 30 inches above the floor, or other horizontal, vertical or sloped surface on or through which the employee walks, works or gain access to a work area. Task lighting of a higher intensity than area lighting is required for more detailed visual tasks. It is proposed that task lighting as specified in Table 1 will be measured at the plane of work.
- b. Regarding proposed illumination levels, please see response to commenter No. 3 of the responses to comments to the 45 day Notice.
- c. The Board disagrees that the proposal would end night harvest. There are many employers already successfully providing the required illumination levels.
- d. Rulemaking bodies rely on national consensus standards such as ANSI, American Society of Mechanical Engineers (ASME), National Fire Protection Association (NFPA) etc. for rulemakings because consensus standards drafted by these organizations represent

the best industry practice as written by the experts and leaders of their respective fields.
Please see response No. 3 to this letter.

3. Summary:

Comment #11:

Make it clear that Table 1 applies when and where employees are present and that light shall be measured at task/working surface at the time and in the plane in which the task is actively being performed.

Response #11:

See changes to the proposed text.

The measurement criteria for area lighting was clarified. Area lighting shall be measured at approximately 30 inches above the floor, or other horizontal, vertical or sloped surface on or through which the employee walks, works or gains access to a work area. The requirement to measure 30 inches from the floor unless otherwise specified is industry practice when measuring area lighting. Absent this measurement, illumination levels would need to be measured at the very bottom of any surface an employee stands on.

Comment #12:

Move paragraph (1) to the top of Table 1 and clarify that compliance can be achieved via hands free portable lighting or area lighting or both.

Response #12:

See changes to the proposed text.

A Note was added to clarify that the illumination levels required in Table 1 may be provided by one or more light source (e.g. lamp mounted on equipment, vehicles, or personal hands free portable lighting) or a combination of methods.

Comment #13:

Resolve overlap and confusion in Table 1:

- a. Active agricultural operations i.e. harvesting and irrigation work.
- b. Areas within 25 feet of agricultural equipment where workers are present.
- c. Requiring 10 fc for work that involves machinery, 20 fc for maintenance of machinery and 5 fc for hand harvesting.

Response #13:

See changes to the proposed text:

- a. "General movement throughout the space during outdoor agricultural operations" was replaced with "Outdoor agricultural operation except otherwise specified in this table".
- b. "Areas within 25 feet of agricultural equipment where workers are present" was deleted.
- c. "Task lighting for active agricultural operations i.e. harvesting and irrigation work" was replaced with "Task lighting for agricultural operations that involve the use of tools that can potentially cause cuts, lacerations, or punctures".

The Board thanks the Coalition organizations for their comments and participation in the Board's rulemaking process.

Commenter:

86. Jeff Carlton, President of Sonoma County Farm Bureau, by e-mail on October 18, 2019

Comment #1:

The proposal needs to be based on facts and have substantial evidentiary support.

Response #1:

Please see response to comment No. 3 of the responses to the 45 day comment period.

Comment #2:

The proposal needs to clearly state that its light-level requirements apply when employees are present and at the time and in the plane in which the tack is actively being performed.

Comment #3:

The proposal needs to clearly state that to comply with light-level requirements, employers shall provide and maintain hands free portable personal lighting or area lighting or both.

Comment #4:

The cost estimations associated with the compliance is grossly underestimated.

Response #2, #3 and #4:

Please see response to commenters No. 1 to 29.

Comment #5:

Potential overlap of more localized lighting and air quality regulations.

Response to #5:

The comment regarding the overlap of more localized lighting and air quality regulations is vague and did not cite specific municipal codes that the employer will violate by providing prescribed illumination levels.

Comment #6:

The regulations would be detrimental to night harvesting.

Response to #6:

In addition to safety, added lighting can benefit growers if the lighting is of sufficient intensity, uniformity and color balance to assist the employees in selecting the crop to pick. Employees that can adequately see their work environment will feel more secure in their movements and are more likely work faster.

The Board thanks Mr. Carlton for his comments and participation in the Board's rulemaking process.

II. Oral Comments:

There were no oral comments received at the October 17, 2019 Public Meeting in San Diego, California.

MODIFICATIONS AND RESPONSE TO COMMENTS RESULTING FROM THE SECOND 15-DAY NOTICE OF PROPOSED FURTHER MODIFICATIONS

No further modifications to the information contained in the Informative Digest are proposed as a result of the second 15-day Notice of Proposed Modifications mailed on December 3, 2019.

FURTHER ADDITIONAL DOCUMENTS RELIED UPON

- Monterey County, Code of Ordinances, Chapter 21.24.070 – “Site Development Standards.”
https://library.municode.com/ca/monterey_county/codes/code_of_ordinances?nodeId=TI_T21ZO_CH21.24REAGINZODIAIDI_21.24.070SIDEST
- Monterey County, Code of Ordinances, Chapter 21.63.020 – “Design Guidelines for Exterior Lighting.”
https://library.municode.com/ca/monterey_county/codes/code_of_ordinances?nodeId=TI_T21ZO_CH21.63DEGU .
- American National Standard, Illuminating Engineering Society, ANSI/IES RP-16-17, Nomenclature and Definitions for Illuminating Engineering -
<https://www.ies.org/definitions/work-plane/>

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.

FURTHER ADDITIONAL DOCUMENTS INCORPORATED BY REFERENCE

None.

SUMMARIES OF AND RESPONSES TO WRITTEN COMMENTS

I. Written Comments:

Commenter:

1. Mr. Eric Berg, Deputy Chief of Research and Standards Unit, Division of Occupational Safety and Health, by e-mail dated December 13, 2019

Comment #1:

The Board staff proposed the following modification to section 3449(a)(1):

* * * *

~~(1) When needed to comply with subsection (a), the employer shall provide and maintain hands-free portable personal lighting in addition to area lighting in order to achieve illumination levels listed in Table 1.~~

(1) The employer shall provide and maintain hands-free portable personal lighting or area lighting or both to employees.

* * * *

The Division recommends that the original strikeout language, which required area lighting, be retained rather than the new underlined language. A hierarchy of lighting should be required based on its effectiveness. Area lighting provides superior visibility and enhanced safety compared to personal lighting because area lighting is much less likely to cause blinding glare and dark shadows that obscure hazards.

Response to #1:

Area lighting and hands-free portable lighting have a role in providing illuminating, with advantages and disadvantages. The proposal provides the employer non-prescriptive flexibility to determine appropriate type of lighting, depending on their operations, that will provide and maintain the required safe illumination.

Comment #2:

In Table 1, the Division recommends deleting the phrase “*that can potentially cause cuts, lacerations, or punctures.*” 10 foot-candles should be required for tool use regardless of the type of injury that could be caused by the tool. It is incorrect to specify only certain types of injuries be considered. This automatically excludes from consideration all other types of injuries, which is contrary to the purpose of Title 8.

Response to #2:

The lighting requirements in Table 1 increases depending on the hazards and visual tasks involved. 5 fc is required for most outdoor agricultural operations, but is increased to 10 fc for work that involves the use of tools that can cause cuts, laceration, or punctures. This is consistent with the lighting requirement to illuminate point of operation and moving parts of machinery. While the proposal is tailored to help prevent workplace injuries of all types, it is reasonable to provide higher illumination in specific situation such as worker use of a tool that can cause cuts, laceration, or punctures, where a higher minimum level of visual acuity is necessary to prevent injury from that proximate hazard.

The Board thanks Mr. Berg for his comments and participation in the Board’s rulemaking process.

Commenters:

2. Mr. Matt Broad, Legislative Advocate, California Teamsters Public Affairs Council, by e-mail dated December 16, 2019.
3. Ms. Amber Baur, Executive Director, United Farm Workers Western State Council, by e-mail dated December 18, 2019.

4. Ms. Nicole Marquez-Baker, Senior Staff Attorney, Worksafe, by email dated December 18, 2019.

Comment:

Each of the commenters urged the Board to vote to adopt the proposal in spite of the recent modifications. Lighting in agricultural work is crucial for preventing injuries from collisions with vehicles, slips, falls, cuts, snake and spider bites, and bee stings, eye strain and fatigue.

They expressed disappointment with the recent revisions, most significantly, the reduction in lighting requirements for irrigation and other work that do not involve the use of sharp tools.

However, each commenter stated that as revised, the proposal will still greatly improve safety of night-time agricultural work.

Response:

Please see response No. 2 to commenter No. 1 of the second 15-day Notice. The Board thanks Mr. Broad, Ms. Baur, and Ms. Marquez-Baker for their comments and participation in the Board's rulemaking process.

Commenters:

5. Ms. Anne Katten, Pesticide and Work Safety Project Director, California Rural Legal Assistance Foundation (CRLAF), and Ms. Cynthia Rice, Director of Litigation, Advocacy & Training, California Rural Legal Assistance, Inc. (CRLA) by email dated December 19, 2019.

Comment:

The commenters urged the Board to vote to adopt the proposal in spite of the recent modifications.

CRLAF and CRLA support the clarification that 5 fc requirement applies to outdoor operations except where otherwise specified in Table 1, but oppose the following modifications:

1. Elimination of the hierarchy of lighting choices;
2. Elimination of the requirement to provide 5 fc in areas within 25 feet of agricultural equipment when workers are present; and
3. Reduction in required illumination levels for agricultural operation that do not involve the use of tools that can cause cuts, lacerations or punctures.
4. The commenters also wanted it clarified that 30 inches above the plane is the location where a measurement must be taken when an employee is walking in or through a furrow.

Response:

Please see responses to commenter No. 1. of the Second 15 Day Notice.

1. The intent of proposal is to make clear that employers are required to provide adequate lighting and Table 1 is a reference or benchmark for determining the adequate

illumination level for the areas or tasks. There was no intent to create a hierarchy or a strict hierarchy.

In the ISOR Section 3449 it stated:

Subsection (a) requires that the employer provide lighting to illuminate the outdoor work environment. The employer is responsible for determining the combination of lighting: type of lamps, the number of light fixtures, type of fixtures (portable, portable personal hand-free and/or fixed lighting) and the setup needed in order to meet the illumination levels detailed in Table 1. The illumination level is to be measured at the task/working surface, in the plane in which the task/work surface is present. The table provides measurable criteria to determine adequate illumination.

2. Table 1 was amended to require 5 fc for outdoor agricultural operations except where otherwise specified in the table. Therefore there was no need to specify 5 fc for areas within 25 feet of agricultural equipment because 5 fc is required in all areas where employees are performing outdoor agricultural operation.
3. The lighting requirements in proposed Table 1 increases depending on the hazards and visual tasks involved. Five (5) fc is required for most outdoor agricultural operations, but is increased to 10 fc for work that involves the use of tools that can cause cuts, laceration, or punctures. This is consistent with the lighting requirement to illuminate points of operation and moving parts of machinery. While the proposal is tailored to help prevent workplace injuries of all types, it is reasonable to provide higher illumination in specific situation such as a worker's use of a tool that can cause cuts, laceration, or punctures, where a higher minimum level of visual acuity is necessary to prevent injury from that proximate hazard.
4. Regarding the request for clarification for when an employee is walking in or through a furrow, lighting measurement shall be taken 30 inches from the surface on which the employee is standing. If the employee is standing on the furrow, then you measure from the furrow.

The Board thanks CRLAF and CRLA for their comments and their participation in the Board's rulemaking process.

Commenter:

6. Bruce Fry, Vice President, Mohr-Fry Ranches, by email dated December 20, 2019.

Comment:

Mr. Fry believes that there is no need to have safety meetings at the beginning of each shift and opines that Table 1 with the required illumination levels is not needed. He suggested that the State conduct a marketing/educational campaign instead of creating new rules.

He recommended that the Board start simple with requiring employers to provide employees with flashlights, headlamps and high visibility vests.

Response:

The Board disagrees with Mr. Fry's assertion that there is no need for the proposed regulation. Agricultural workers need adequate lighting to have a safe and healthful work environment. See the Initial Statement of Reasons for further details.

Although Mr. Fry's comments regarding the proposal to conduct a safety meeting is beyond the scope of the Second 15 day notice, the Board is responding. The Injury and Illness Prevention Program (IIPP) requires the employer to communicate new processes and procedures, or whenever the employer becomes aware of a new or previously unrecognized hazard. Given that work locations for agricultural workers change, the requirement for the employers to communicate the location of the restrooms, drinking water, designated break areas, nearby bodies of water, and high traffic areas are reasonable subjects to be discussed.

Regarding the suggestion to start with flashlights, headlamps, and high visibility vests, the proposal contains a provision for high visibility clothing and is performance-based, allowing employers to meet the requirements of Table 1 in the manner best suited to their specific worksite. The illumination criteria is prescribed, but the employer has the flexibility to choose the power source, light source, light fixture and configure the work environment/equipment in a manner that suits their operation.

The Board believes there is established recognition by the safety community that failure to provide adequate lighting levels for employees who: 1) perform tasks involving the use of equipment and machinery capable of inflicting injury, 2) perform tasks that require visual acuity, and 3) perform tasks that require safely ambulating from point to point in the field during hours of darkness, increases the likelihood of serious injury and possibly compromises the quality and quantity of the work product.

The Board is confident that inadequate lighting levels threaten employee safety and notes that employers are already required under the Title 8 IIPP standards to recognize hazards and implement methods to mitigate such hazards. In the case of outdoor agricultural work during hours of darkness, the solution is adequate lighting. Therefore, it is the Board's view that the proposal and existing Title 8 IIPP standards work in complimentary fashion to enhance employers' ability to address such hazards and clarify the employer's duty to safeguard their employees for this issue as stipulated by the California Labor Code.

The Board thanks Mr. Fry for his comments and participation in the Board's rulemaking process.

Commenters:

Coalition letter (signed by individuals listed below), by e-mail date December 19, 2019.

- 7. Michael Müller, Director of Government Relations for California Association of Winegrape Growers**
- 8. Matthew Allen, Director of CA Government Affairs for Western Growers Association**
- 9. Bryan Little, Director of Employment Policy for California Farm Bureau**
- 10. Tricia Geringer, Vice President of Government Affairs, Agricultural Council of California**
- 11. Tim Schmelzer, Vice President of California State Relations for Wine Institute**

- 12. Rob Moutrie, Policy Advocate, California Chamber of Commerce**
- 13. Pete Downs, President of Family Winemakers of California**
- 14. Chriz Zanobini, Executive Director for Olive Oil Commission of California**
- 15. Rob Neeman, President/CEO for California League of Food Producers**
- 16. Guadalupe (Lupe) Sandoval, Executive Direction, California Farm Labor Contractor Association.**
- 17. Kim Stemler, Executive Director for Monterey County Vintners & Growers**
- 18. Amy Blagg, Executive Director for Lodi District Grape Growers Association**
- 19. Claire Wineman, President for Grower-Shipper Association of Santa Barbara and San Luis Obispo Counties**

Comment #1:

The Coalition supports the stated intent of the regulation. They stated that they appreciate the most recent revision to the proposed regulation, which addresses most of the concerns raised in their prior letter; however the provision in Section 3349(a) related to the measurement of the area lighting is still confusing and should be clarified.

The Coalition proposed:

(a) Illumination. Outdoor agricultural operations taking place between sunset and sunrise shall be illuminated at levels no less than the levels stated in Table 1. Illumination levels for task lighting, including illumination levels of area lighting provided for task lighting, shall be measured at the task/working surface, in the plane in which the task/working surface is present. Illumination levels for area lighting provided for purposes other than task lighting shall be measured at approximately 30 inches above the floor or other horizontal, vertical or sloped surface on or through which the employee walks, works or gains access to a work area.

Response to #1:

The Board disagrees with the proposed amendments and believes that the proposal is understandable. The light meter measures light regardless of the source, including moonlight.

Comment #2:

The Coalition believes that a Standardized Regulatory Impact Assessment (SRIA) must be completed for this proposed regulation. This is because the staff estimate is factually wrong in making the following three assumptions:

- Only 1,640 businesses are impacted by the regulations;
- Applies to only 2 months of the year (during harvest); and
- Applies only to harvest.

The Coalition believes the total economic cost or benefits are well in excess of \$50 million and this regulation meets the threshold for a major regulation.

The Coalition cited the following data to support their position that the cost is underestimated:

- The wine grower industry alone are more than 1,640 businesses. There are 5,900 winegrape growers and wine grapes are typically harvested at night, therefore this regulation applies to most if not all of these growers.

Additionally, the number of employees affected are underestimated. According to *Hired Workers on California Farms*, “over the course of a year, some 35,000 of the state’s 750,000 employers hire a total 800,000 individuals to work on the state farms”. Most of these employers will be doing night work at some point in the year.

- Year round harvest is widely practiced, and growing food may involve constant nightwork. In a March 2019 article titled *Night Work: A Growing Trend in Western Agriculture?* UC Davis Western Center for Agricultural Health and Safety reported the following: “A variety of crops are harvested at night, such as winegrapes, tomatoes, onions, garlic, and corn.” Additionally, CRLA stated in its comments on this regulation that winegrapes, corn, broccoli and nine other commodities may be harvested at night.

According to the University of California:

- Winegrapes are harvested from late July through late October or early November.
 - Corn is harvested in May through early June and November through early December.
 - Broccoli is harvested from early December through mid-March. Broccoli is grown year-round in the coastal valleys.
- Operations such as harvest, equipment transportation, set up, and maintenance as well as field prep, repairs, irrigation work, and pesticide application are activities that are done at night.

CRLA stated that agricultural work conducted frequently during hours of darkness include planting of strawberry, bell pepper, broccoli and transplanting of eggplants, canning tomatoes, cultivation of soil and laying of plastic mulch.

Response to #2:

The 15 day notice period for comments is restricted only to items that have been modified. The cost estimate did not change in the Second 15 day notice and no modifications to the proposal arising from cost impact determinations were ever made to the proposal.

The Board notes that the Coalition did not provide a cost estimate to support their conclusion that the proposal warrants a SRIA. OSHSB solicited cost information from members of the advisory committee meeting. A representative from the Farm Bureau was present during advisory committee meetings on May 6, 2014 and March 17, 2015 and did not provide meaningful assistance to OSHSB to determine cost. A representative of the California Association of Winegrape Growers attended the May 6, 2014 advisory committee meeting, but did not attend the March 17, 2015 meeting. Representatives from the Wine Institute and Western Growers Association were invited to the May 6, 2014 and March 27, 2015 advisory committee meetings, but were not in attendance. Additionally, in an attempt to capture costs directly from the agricultural industry, OSHSB released an online cost survey on November 2017 and did not receive a statistically significant response. It should be noted that none of the organizations mentioned in this paragraph responded to the survey.

In response to your concerns regarding the information used to generate the economic impact analysis.

Number of employers affected:

The 5,900 winegrape growers claiming to be affected may not all be employers. For detailed discussion regarding the reduction of the number of employees affected, see Economic Impact Analysis/Assessment under the Modifications and Response To Comments Resulting From the 45-Day Public Comment Period.

Number of employees affected:

The economic impact analysis used the statistics from the peak harvest season which is the highest employment numbers for 2017. The cost estimated that 10% of the 473,554 agricultural workers would be affected. See Economic Impact Analysis/Assessment under the Modifications and Response To Comments Resulting From the 45-Day Public Comment Period.

The Coalition cited 800,000 farm workers were hired throughout the year, but farm employment fluctuates throughout the year. A considerable number of agricultural workers are hired and let go as needed. The Coalition quoted “Over the course of a year, some 35,000 of the state’s 750,000 employers hire a total 800,000,” but did not quote the following information from the same article they were referencing. “Agriculture is a seasonal industry, hiring a peak 455,000 workers in September 2002 and a low of 288,000 in February.”

Applies to only 2 months of the year (during harvest) and applies only to harvest:

The cost estimates are for periods of peak employment, estimated to be three months for the average employer. The Board has responded to previous comments regarding the concept of what is a typical harvest and as stated in the response to commenter No. 12 in the First 15-day Notice.

Year round harvest refers to the variety of crops that are harvested at different times of the year for the industry as a whole. The number of months an average farmer would be affected depends on the crops that is grown by individual farmer that perform operations during hours of darkness.

The Coalition statement that year round harvest is widely practiced and that growing food may involve constant night work demonstrates importance and highlights the urgency of the proposal to address the hazards of working during hours of darkness. It shows the urgency of providing adequate lighting.

The Board believes no further modifications to the proposal are required that arise from the previous cost impacts estimates.

The Board thanks the Coalition members for their comments and their participation in the Board’s rulemaking process.

II. Oral Comments:

Oral comments received at the December 19, 2019 Public Meeting in Rancho Cordova, California.

1. Bryan Little, Director of Employment Policy, California Farm Bureau.

Comment:

The revised proposed regulation is a vast improvement. The revisions makes it easier to explain the proposed regulation to their members. The regulation still needs some clarification with respect how to measure area lighting and task lighting.

The Farm Bureau has concerns about the cost analysis and questions why the cost applies only to about 1,600 and only for 2 months out of the year. There are other farms that do night work sometime during the year.

The scope and impact of the proposed regulation is considerably larger. We urge the Board to submit the cost analysis Standard Regulator Impact Analysis (SRIA).

Response:

See responses to the Coalition letter dated December 19, 2019.

The Board thanks Mr. Little for his comments and his participation in the Board's rulemaking process.

2. Michael Müller, Director of Government Relations, California Association of Winegrape Growers (CAWG).

Comment:

Mr. Müller would like to associate his comments with Mr. Little. CAWG will submit written comments. He stated that there are about 6,000 wine grape growers that will be affected. The work during hours of darkness is more than just harvest. There is cultivation, frost management (monitor and put out the fans), pesticide application, etc. An economic impact assessment needs to be done. In addition, there is a need for further clarification regarding area and task lighting need minor clarification.

Response:

See response to the Coalition letter December 19, 2019. The Board thanks Mr. Müller for his comments and his participation in the Board's rulemaking process.

3. Anne Katten, Pesticide and Work Safety Project Director, California Rural Legal Assistance Foundation (CRLAF).

Ms. Katten urged the Board to adopt the regulation when it comes for a vote. Lighting is necessary to see and be seen. Adequate lighting is critical prevent injuries, collisions, slips and

fall, fall cuts, bites from venous animals, fatigue, eye strain, and reduce work place violence risks.

Ms. Katten expressed disappointment with the recent revisions because it will decrease the level of the safety of the proposal. The most significant changes to the proposal are the elimination of the hierarchy requiring consideration of area lighting options over personal lighting and reduction of the lighting requirements for work that does not involve sharp tools, such as sorting tomatoes and sorting and wrapping of lettuce.

The hierarchy of controls requiring area lighting should have been retained because headlamps illuminate a narrow beam of light. It makes it hard for the workers to see far enough in front of them and on the sides, and it makes it hard for them to be seen in the absence of area lighting. Headlamps sometime fall off after working at a fast pace.

As revised, the proposed regulation will improve safety of agricultural workers working at night. There is no time to make additional revisions to the proposal.

She added that the economic analysis is fair and complete. Although there may be work outside harvest operations, there are generally fewer employees outside of harvest.

Response:

See written response to comment No. 5 under the Summaries and Responses to Written Comments as a result of the Second-15 day Notice.

The Board thanks Ms. Katten for her comments and her participation in the Board's rulemaking process.

4. Nicole Marquez-Baker, Senior Staff Attorney, Worksafe.

Comment:

Ms. Marquez-Baker stated that she strongly supports the comments made by Anne Katten with respect to night operations during hours of darkness in agricultural settings.

Response:

The Board thanks Ms. Marquez-Baker for her comments and her participation in the Board's rulemaking process.

MODIFICATIONS
RESULTING FROM OFFICE OF ADMINISTRATIVE LAW REVIEW

The modifications to the information contained in the Informative Digest are the result of the review by the Office of Administrative Law.

§3441. Operation of Agricultural Equipment.

The sentence structure of the first sentence was amended to add *or truck*. Since the first half of the sentence reads as “All tractors, self-propelled farm equipment, and trucks used between sunset and sunrise shall be equipped with at least one headlight...” the second half of the sentence must be amended to read “...which shall be used to illuminate the area in front of the equipment *or truck* at least 50 feet.”

DETERMINATION OF MANDATE

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

ALTERNATIVES CONSIDERED

The Board invited interested persons to present statements or arguments with respect to alternatives to the proposed standard. The Board considered alternative language provided during the comment period and revised the proposal accordingly.