

**OCCUPATIONAL SAFETY  
AND HEALTH STANDARDS BOARD**

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Attachment No. 2

INITIAL STATEMENT OF REASONS

## CALIFORNIA CODE OF REGULATIONS

Title 8, Chapter 4, Subchapter 7, Article 91, Section 4885;  
Article 93, Section 4924; and Article 98, Section 5004(e)(3)  
of the General Industry Safety Orders

Mobile Crane Load Safety DevicesSUMMARY

Proposed changes to General Industry Safety Orders (GISO) Section 4885, "Definitions" and Section 4924, "Load Safety Devices" and Section 5004, "Crane or Derrick Suspended Personnel Platforms" are in large part the result of the Division of Occupational Safety and Health (Division) Memorandums to the Occupational Safety and Health Standards Board (Board) dated April 23, 2001, modified by the Division's Memorandum dated February 9, 2007. The Division states that it investigated two fatal accidents where the crane's "headache ball" was dropped as the result of a two-blocking condition<sup>1</sup>. When a crane is equipped with a functional anti two-block device or warning feature, the hazards of a crane's load block or any part of the load hitting the crane's boom tip point sheave assembly, which could part the load line and cause the headache ball or load to drop, is greatly mitigated.

The Division indicates that certain mobile crane related safety standards in the GISO are not equivalent to national consensus safety standards for mobile cranes provided in the American Society of Mechanical Engineers (ASME) B30.5 standards. Safety orders in Section 5004 address provisions for preventing accidents/injuries from two-blocking situations when a crane is hoisting a platform with personnel in it and the proposal provides clarity amendments for this section. However, Title 8, GISO crane safety standards do not adequately specify provisions for preventing hazardous two-blocking situations when cranes are used for general lifting service. The proposal addresses these concerns.

Additionally, this rulemaking action proposes amendments related to the requirements for crane load indicating devices, and boom angle indicators. Several new definitions are proposed for clarity in Section 4885. The proposal was developed with the assistance of an advisory committee.

Section 4885. Definitions.

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<sup>1</sup> Two-Blocking is a condition in which the lower load block or hook assembly comes into contact with the upper load block or boom point sheave assembly of a crane.

Section 4885 contains the definitions for standards related to cranes and other hoisting equipment. New definitions are proposed for the following terms; anti two-block device, two-block damage prevention feature, two-block warning feature, and two-blocking. These definitions are consistent with terms provided in the ASME B30.5 national consensus standards for mobile and locomotive cranes and are necessary to provide clarity to crane related safety orders.

#### Section 4924. Load Safety Devices

Section 4924 provides the general requirements for load safety devices for cranes with a rated capacity exceeding one ton.

#### Subsection (a), Exceptions 1 and 2

Subsection (a), Exception 1, states that the exception is applicable for boom-type excavation work and all equipment used exclusively for pile driving or log handling. An amendment is proposed to delete the phrase “used exclusively” and replace it with “when configured.” It is not feasible to equip cranes used in pile driving and log handling operations with the devices required by Section 4924. However, some cranes used in pile driving or log handling operations are occasionally used in general lifting service. Because these cranes are not “used exclusively” for pile driving or log handling operations, the existing language taken literally, requires them to be in full compliance with Section 4924 during pile driving or log handling operations. The amendments are necessary to provide clarity to the standard and permit the exception to Section 4924 provisions during pile driving or log handling crane operations.

Existing subsection (a), Exception 2, states that articulating boom cranes are exempt from the provisions of subsections (c) and (d). Existing subsections (c) and (d) pertain to requirements for boom angle and radius indicators. The proposal deletes the provisions in existing subsection (c) and existing subsection (d) is designated as subsection (c). Therefore, an editorial amendment for clarity deletes the unnecessary reference to subsection (d).

#### New Subsection (b)(1)

Subsection (b) requires that mobile cranes having either a maximum rated boom length exceeding 200 feet or a maximum rated capacity exceeding 50 tons to be equipped with a load indicating device or a load moment device, or a device that prevents an overload condition. A new subsection (b)(1) specifies that mobile cranes manufactured after September 27, 2005, with a maximum rated capacity exceeding 3 tons shall have a load indicating device, load moment device, or a device that prevents an overload condition. The Division indicated that there is a history of smaller crane turnovers in the lower rated capacity cranes and there is merit to having load indicators on smaller cranes, not only because recent ASME B30.5 standards require it, but also because it provides the operator with additional verification of the weight of the load and helps to prevent hazardous overloading situations.

Mobile cranes are manufactured in accordance with provisions in the ASME B30.5 standards and the recent 2004 edition of this standard requires mobile cranes with a maximum rated capacity of 3 tons or more to have load indicating devices. Therefore, the proposal would require compliance consistent with the September 27, 2005, effective date of the ASME B30.5-2004 standard.

The advisory committee discussed that when load indicating devices are not functioning properly, there are other means and methods to effectively check the weight of the load. Therefore, an exception is proposed to subsection (b)(1) that is necessary to permit a qualified person to determine the weight of loads when a load indicating device is not functioning.

#### New subsection (b)(2)

A new subsection (b)(2) is proposed that is necessary to ensure that load indicating devices are repaired in accordance with the manufacturer's recommendations.

#### Subsection (c)

Existing subsection (c) is proposed for deletion because the proposed revisions for existing subsection (d) would encompass the provisions for boom angle or radius indicators on mobile cranes making the deleted subsection unnecessary.

#### Subsection (d)

Existing subsection (d), designated as subsection (c) in the proposal, requires that cranes having a boom exceeding 60 feet in length or a maximum rated capacity exceeding 15 tons shall be provided with an approved boom angle or radius indicator which clearly shows the boom angle in degrees to the operator at all times. The existing subsection also provides that the indicator shall give a clear visual warning signal before high or low unsafe boom angles are reached; the indicator shall be adjustable, and under the control of the operator at all times; and a visual inspection of the indicator shall be made each day by the operator to see that it is properly functioning.

Mobile cranes are manufactured in conformance with the ASME B30.5 national consensus standards. The ANSI B30.15-1973 edition and subsequent ASME B30.5 editions have required a boom angle indicator on mobile cranes irrespective of the boom length and rated capacity. An amendment is proposed to delete the more than 60 foot boom length and more than 15 ton capacity criteria that would trigger the requirement for the boom or radius indicator. The amendment is necessary so that mobile cranes subject to Section 4924 provisions would be equipped as designed by the manufacturer and have a boom angle or radius indicator which clearly shows the boom angle in degrees to the operator at all times.

Existing language that requires the indicator to give a clear visual warning signal before high or low unsafe boom angles are reached; and that the indicator shall be adjustable, and be under the control of the operator at all times is proposed for deletion. Advisory committee members

expressed that this language lacked clarity and purpose and that it does not provide any relevant safety provisions. The existing language in this subsection that requires a daily inspection of the indicator is proposed for deletion as Section 5033 already requires daily inspections of a crane's operational and functional mechanisms. The proposed amendments are necessary to provide clarity to the standard and avoid duplication of requirements.

#### New subsection (d)

New subsections (d)(1) and (2) provide the requirements for anti two-block prevention and warning features for telescopic and lattice boom cranes respectively that are manufactured after February 28, 1992. The February 28, 1992, effective date is consistent with the ASME B30.5 standards for mobile cranes. Manufacturers design mobile cranes consistent with the ASME B30.5 standards and have been equipping mobile cranes with these devices since the proposed effective date. The proposed amendments ensure that anti two-block devices; or two-block prevention and/or warning features are provided on mobile cranes in accordance with the proposed standard.

A proposed exception states that the requirements of subsection (d)(2) do not apply to lattice boom cranes when used for dragline, clamshell (grapple), magnet, and drop ball work. These types of exempted crane operations are not considered lifting services and the use of anti two-block features is unnecessary and not feasible. The proposal is necessary to exclude these operations from the provisions of subsection (d)(2).

#### New proposed subsection (d)(3)

Proposed new subsection (d)(3) provides that articulating boom cranes manufactured after August 30, 2001, equipped with a load hoisting device (winch) shall be equipped with a two-block damage prevention feature. This provision is necessary to mitigate two-blocking hazards associated with the use of articulating boom cranes and would provide consistency with the same effective date and similar provisions outlined in the ASME B30.22-2000 standard for "Articulating Boom Cranes."

#### Section 5004(e)(3)

Section 5004 contains provisions for the design, construction, testing, use and maintenance of personnel platforms, and the hoisting of personnel platforms on load lines of cranes and derricks.

With respect to preventing two-blocking hazards during the hoisting of personnel platforms, existing Section 5004(e)(3) states that, "a positive acting device shall be used which deactivates the hoisting action before damage occurs in the event of a two-blocking situation (two block damage prevention feature)." The existing language lacks clarity in that it begins by stating that "a positive acting device shall be used" which implies that an "anti two-block device" as defined in Section 4885 of this proposal must be used. However, the subsection ends with parenthetical language permitting the use of a (two-block damage prevention feature) which contradicts the language that precedes it. Amendments in proposed Section 5004(e)(3)(A) for clarity ensure that

when personnel platforms are hoisted that an anti two-block device is used which when activated, disengages all crane functions that can cause two-blocking. Similarly, new Section 5004(e)(3)(B) would provide that when a derrick is used to hoist personnel platforms, limiting devices shall be installed to prevent two-blocking.

#### DOCUMENTS RELIED UPON

1. Memorandum dated February 9, 2007, from Len Welsh, Acting Chief, Division of Occupational Safety and Health to Keith Umemoto, Executive Officer and attached Division document, dated September 20, 2005, titled "Cal/OSHA Form 9, Request for New, or Change in Existing Safety Order."
2. Memorandum dated April 23, 2001, from John Howard, Chief, Division of Occupational Safety and Health to John MacLeod, Executive Officer and attached Division document, dated April 18, 2001, titled "Cal/OSHA Form 9, Request for New, or Change in Existing Safety Order."
3. American National Standards Institute (ANSI) B30.15-1973 Standard for Mobile Hydraulic Cranes.
4. American Society of Mechanical Engineers (ASME) B30.5 – 1994, Standard for Mobile and Locomotive Cranes.
5. ASME B30.5 – 2000, Standard for Mobile and Locomotive Cranes.
6. ASME B30.5 – 2004, Standard for Mobile and Locomotive Cranes.
7. ASME B30.6 – 2003, Standard for Derricks.
8. ASME B30.22-2000, Standard for Articulating Boom Cranes.

#### REASONABLE ALTERNATIVES THAT WOULD LESSEN ADVERSE ECONOMIC IMPACT ON SMALL BUSINESSES

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

#### SPECIFIC TECHNOLOGY OR EQUIPMENT

This proposal will not mandate the use of specific technologies or equipment. In Section 4885, the proposal would add new definitions for clarity. Proposed Section 4924(b)(1) specifies that mobile cranes manufactured after September 27, 2005, with a maximum rated capacity exceeding 3 tons shall have a load indicating device, load moment device, or a device that prevents an overload condition. Mobile cranes are manufactured in accordance with provisions

in the ASME B30.5 standards and the recent 2004 edition of this standard requires mobile cranes with a maximum rated capacity of 3 tons or more to have load indicating devices. Therefore, mobile cranes manufactured after September 27, 2005, the effective date of the ASME B30.5-2004 standard, are already equipped with a load indicating device.

Amendments are proposed for Section 4924(c) so that mobile cranes subject to Section 4924 provisions would be equipped with a boom angle or radius indicator which clearly shows the boom angle in degrees to the operator at all times. Crane manufacturers follow provisions in national consensus standards and the ANSI B30.15-1973 standard to current ASME B30.5 standards have required a boom angle indicator on mobile cranes irrespective of the boom length and rated capacity. Employers are required to maintain mobile cranes in accordance with the manufacturer's recommendations. Therefore, the proposal ensures compliance with the manufacturer's design.

Proposed amendments for Sections 4924(d)(1) and (2) ensure that anti two-block devices, or two-block prevention and/or warning features are provided on mobile cranes manufactured after February 28, 1992. Manufacturers have been designing and equipping mobile cranes with anti two-block features/devices since the proposed February 28, 1992, effective date that is consistent with provisions in ASME B30.5 mobile crane standards. Similarly, proposed Section 4924(d)(3) provides that articulating boom cranes manufactured after August 30, 2001, equipped with a load hoisting device (winch) shall be equipped with a two-block damage prevention feature. Proposed Section 4924(d)(3) and its effective date is consistent with the ASME B30.22-2000 standard for "Articulating Boom Cranes." Therefore, the proposed amendments do not impose new requirements but rather ensure compliance with the manufacturer's design.

Amendments are also proposed in Section 5004(e)(3)(A) for clarity to ensure when personnel platforms are hoisted that an anti two-block device is used which when activated, disengages all crane functions that can cause two-blocking. Similarly, proposed Section 5004(e)(3)(B) provides that when a derrick is used to hoist personnel platforms, limiting devices shall be installed to prevent two-blocking.

## COST ESTIMATES OF PROPOSED ACTION

### Costs or Savings to State Agencies

No costs or savings to state agencies will result as a consequence of the proposed action. The proposal does not impose new requirements upon State agencies. See the rationale under the heading, "Specific Technology or Equipment."

### Impact on Housing Costs

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

### Impact on Businesses

The Board has made a determination that this proposal will not result in a significant statewide adverse economic impact directly affecting businesses, including the ability of California businesses to compete with businesses in other states. Also, see the rationale under the heading, “Specific Technology or Equipment.”

### Cost Impact on Private Persons or Businesses

The Board is not aware of any cost impacts that a representative private person or business would necessarily incur in reasonable compliance with the proposed action. Also, see the rationale under the heading, “Specific Technology or Equipment.”

### Costs or Savings in Federal Funding to the State

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

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

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

### Other Nondiscretionary Costs or Savings Imposed on Local Agencies

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

## DETERMINATION OF MANDATE

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

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

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

standards do not in any way require local agencies to administer the California Occupational Safety and Health program. (See City of Anaheim v. State of California (1987) 189 Cal.App.3d 1478.)

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

#### EFFECT ON SMALL BUSINESSES

The Board has determined that the proposed amendments would clarify for small businesses that cranes must be equipped with load safety devices designed and equipped by the crane manufacturer. However, no economic impact is anticipated as explained under the heading "Specific Technology or Equipment." In the event that businesses (crane owners) have not maintained the load safety devices by altering them, removing them or not maintaining them, the employer would need to equip and maintain these devices in accordance with the manufacturer's design.

#### ASSESSMENT

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

#### ALTERNATIVES THAT WOULD AFFECT PRIVATE PERSONS

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