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## **INITIAL STATEMENT OF REASONS**

### CALIFORNIA CODE OF REGULATIONS TITLE 8:

#### Subchapter 4, Construction Safety Orders Article 2, Definitions, Section 1504

#### Article 12, Pile Driving and Pile Extraction, Section 1600

Article 15, Cranes and Derricks in Construction, Sections 1610, 1610.1, 1610.2, 1610.3, 1610.4, 1610.5, 1610.6, 1610.7, 1610.8, 1610.9, 1611, 1611.1, 1611.2, 1611.3, 1611.4, 1611.5, 1612, 1612.1, 1612.2, 1612.3, 1612.4, 1613, 1613.1, 1613.2, 1613.3, 1613.4, 1613.5, 1613.6, 1613.7, 1613.8, 1613.9, 1613.10, 1613.11, 1613.12, 1614, 1615, 1615.1, 1615.2, 1615.3, 1616, 1616.1, 1616.2, 1616.3, 1616.4, 1616.5, 1616.6, 1616.7, 1617, 1617.1, 1617.2, 1617.3, 1618, 1618.1, 1618.2, 1618.3, 1618.4, 1619, 1619.1, 1619.2, 1619.3, 1619.4, and 1619.5  
Article 28, Miscellaneous Construction Tools and Equipment, Section 1694

#### Subchapter 5, Electrical Safety Orders

#### Group 2, High-Voltage Electrical Safety Orders

Article 37, Provisions for Preventing Accidents Due to Proximity to Overhead Lines,  
Section 2946

#### Subchapter 7, General Industry Safety Orders

Group 1, General Physical Conditions and Structures Orders, Article 1, Definitions, Section 3207  
Group 13, Cranes and Other Hoisting Equipment, New Sections 4880, 4881, 4883; Section 4884;  
New Section 4884.1; Section 4885;  
Article 93, Boom-Type Mobile Cranes, Section 4924; New Section 4928.1;  
Article 94, Hydraulic Cranes and Excavators, Section 4949;  
Article 95, Derricks, New Section 4959; Section 4960; New Sections 4960.1, 4960.2, 4960.3,  
4960.4; Section 4961; and New Section 4962.1;  
Article 96, Tower Cranes, Section 4965; New Section 4965.1; Sections 4966, 4968; New Sections  
4968.1, 4968.2;  
New Article 97.1, Floating Cranes/Derricks and Land Cranes/Derricks on Barges, New Sections  
4988.1, 4988.2, 4988.3, 4988.4, 4988.5, 4988.6, 4988.7, 4988.8;  
Article 98, Operating Rules, Section 4991; New Section 4991.1; Sections 4994, 4999, 5001; New  
Sections 5001.1, 5001.2, 5001.3; Section 5002; New Sections 5003.1, 5003.2, 5003.3, 5003.4;  
Sections 5004, 5005, 5006.1; New Section 5006.2; Section 5008; New Sections 5008.1, 5010,  
5010.1, 5010.2, 5010.3, 5010.4, 5011, 5012;  
New Article 98.1, Safety Devices and Operational Aids, New Sections 5017, 5018;

Article 99, Testing, Section 5022;  
Article 100, Inspection and Maintenance, Section 5031; New Sections 5031.1, 5031.2, 5031.3,  
5033.1, 5036, 5037

Group 26, Article 153, Commercial Diving Operations, Section 6060

**Proposal to Consolidate Construction Safety Orders, Article 15**  
**(Cranes and Derricks in Construction), into General Industry Safety Orders,**  
**Group 13 (Cranes and Other Hoisting Equipment)**

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

Prior to July 7, 2011, all Title 8 crane standards resided in the General Industry Safety Orders (GISO); however, a federal negotiated rulemaking for cranes and derricks, referred to in the industry as CDAC, promulgated standards specific for cranes and derricks in construction. The Occupational Safety and Health Standards Board (Board) initially intended to consolidate these standards into the GISO using an accelerated (Horcher) rulemaking process, pursuant to Labor Code Section 142.3(a)(3) which permits expedited adoption of federal standards where proposed state standards are substantially the same. However, because of general industry concerns about “over-reach” and because of federal time constraints on adopting the standard, the CDAC rules were placed in the Construction Safety Orders (CSO) in 2011.

Since that time, the Board has received numerous comments from stakeholders that it would make sense to consolidate all the crane safety orders into a single location to provide “one stop shopping.” The logic being that a crane, particularly a mobile crane, can work on construction and general industry-type projects in the same day. This proposal is to consolidate the CSO crane safety orders into the GISO for “one stop shopping.” Since both the CSO and the GISO are based on ASME B30 standards, the consolidation is expected to have little regulatory impact on General Industry, and exceptions are proposed for the limited cases where the CDAC standards would impose new requirements on cranes used solely in general industry.

Due to the size of the proposal, it was divided into several smaller portions for Advisory Committee (AC) review. Each AC consisted of stakeholders from labor, management, manufacturers, crane certifiers, safety experts and the Division of Occupational Safety and Health (DOSH). The end product contains AC-recommended revisions, modifications and clarifications based on their input.

The federal operator qualification update, promulgated November 9, 2018, and incorporated into the Construction Safety Orders, Sections 1618.1 and 1618.4 on February 20, 2020, has been included in this proposed consolidation in order to retain equivalency with the federal update.

Construction Safety Orders  
Article 2. Definitions

Section 1504. Definitions.

Section 1504 defines terms applicable to the CSO. It is proposed to add a definition for “Dedicated Pile Driver” using the same definition as will be used for GISO 3207 (Definitions). The definition for both the CSO and GISO is based on federal standard 1926.10, and the term “dedicated pile driver” will be used in new amendments to both safety orders. The purpose and necessity for this action will be to place the definition for “dedicated pile driver” in both the CSO and GISO as the term will be used in both orders to enable consolidation of CSO Article 15 into GISO Group 13.

CSO Article 12. Pile Driving and Pile Extraction

Section 1600. Pile Driving.

Subsection (g): The cross-reference in existing Section 1600(g)(1)(B) to CSO Article 15, Section 1616.6(p) will be changed to GISO Group 13, Section 5004(p) where the existing corresponding provisions will be relocated. This is necessary because all CSO Article 15 requirements, with the exception of Section 1619.4 (which will be renumbered to 1610), and Section 1619.5 (which will be relocated to subsection (u) – see below), are being consolidated into GISO Group 13.

Subsection (u): This new subsection will contain provisions being relocated from Section 1619.5.

The purpose and necessity for these modifications is to clarify the application of GISO Group 13 to cranes used as dedicated pile drivers.

CSO Article 15. Cranes and Derricks in Construction

Section/header 1610.

This section number is currently used as a header for the 1610 series of general requirement standards. All 1610 series standards will be repealed and relocated to GISO Group 13 except as indicated below. Section 1610 will be re-allocated to the contents of Section 1619.4, which will be relocated here due to the vacation of this section number and the relocation of other CSO Article 15 standards to GISO Group 13.

See Section 1619.4 for an explanation of changes made in relocating Section 1619.4 to Section 1610.

The purpose and necessity for these modifications is to consolidate CSO Article 15 into GISO Group 13.

Section 1610.1. Scope.

This section currently specifies the application of, and exclusions from, Article 15, and the effective date for CSO Article 15, the date when federal standards for cranes and derricks in construction became effective in California. The proposal is to relocate Section 1610.1 to Section 4880 with revisions and clarifications based on AC input. The consolidation will obviate the need for Section 1610.1(g), effective date.

The purpose and necessity for these modifications is to consolidate CSO Article 15 into GISO Group 13.

Section 1610.2. Design Standards.

This section currently lists reference national consensus design standards for cranes and derricks in construction. Those manufactured prior to July 7, 2011, are required to be designed, constructed, and installed in accordance with the applicable standards of General Industry Safety Orders, Section 4884. Those manufactured on or after July 7, 2011, the effective date for Article 15, are to be designed, constructed, and installed in accordance with the applicable standards listed in Section 1610.2(b).

The need for subsection (c) which adds that all electrically powered cranes and derricks must comply with the Electrical Safety Orders will be obviated by the consolidation since this subsection was copied from GISO, Section 4884(g).

Section 1610.2 will be relocated to GISO Section 4884 and be incorporated as subsection (d).

The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

Section 1610.3. Definitions.

This section currently contains definitions for terms used in CSO Article 15. These definitions will be moved to and harmonized with those in GISO Section 4885. Some of the definitions have been modified based on AC input.

The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

Section 1610.4. Design, Construction and Testing.

This section currently lists design, construction, and testing requirements from national consensus standards that are applicable to equipment having a rated hoisting/lifting capacity of more than 2,000 pounds. This section also prescribes requirements for prototype and proof load testing, load charts and related information, hooks, hook and ball assemblies, posted

warnings, cabs, equipment guarding, and the like. The disposition of CSO 1610.4 subsections in the GISO is proposed as follows:

*Subsections (a) and (b)* are covered by ASME B30.5–2004 standards incorporated by reference in Section 4884(c)(1) and (d).

*Subsection (c)* [prototype testing as prescribed by 29 CFR 1926.1433(c), which in turn is derived from ASME B30 standards] is relocated to Section 4884(j).

*Subsection (d)* equivalent requirements are found in GISO Article 92 for cranes (except boom type mobile), Article 93 for boom-type mobile, and Article 96 for tower cranes. Each article contains crane type-specific requirements, thus it was not necessary to repeat them as a new section in the GISO.

*Subsection (e)* requirements are verified using frequent inspections as prescribed in Section 5031.

*Subsection (f)* is no longer needed since it refers to GISO Section 5022.

The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1610.5. Ground Conditions.

This section currently contains requirements for ground preparation and support material as may be necessary to provide conditions meeting the equipment manufacturer's specifications for adequate support and degree of level for the equipment. It is proposed to relocate these provisions to GISO Section 4991.1. The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1610.6. Equipment Modifications.

This section currently contains requirements for review and approval of modifications or additions that affect the capacity or safe operation of the equipment. It is proposed to relocate these provisions to GISO Section 4884.1 with AC-recommended modifications. The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1610.7. Fall Protection.

This section currently contains fall protection requirements for assembly/disassembly and work on specific crane types. In general, these provisions supplement and clarify fall protection requirements found elsewhere in the safety orders. It is proposed to relocate these requirements to GISO Section 5011. The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1610.8. Equipment with a Rated Hoisting/Lifting Capacity of 2,000 Pounds or Less.

This section currently specifies which requirements of Article 15 apply for equipment with a maximum rated hoisting/lifting capacity of 2,000 pounds or less. It is proposed to relocate these provisions to Section 4883 (using corresponding requirements from Group 13) and to specify that they only apply to equipment used in construction since the federal standard from

which they come only applies to construction. Thus, the requirements of this section will be limited to construction. The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

Section 1610.9. Equipment over Three Tons Rated Capacity.

This section currently prescribes requirements for examining, testing, and certifying cranes and derricks over 3 tons rated capacity. It is proposed to delete Section 1610.9 since these requirements are exactly the same as those found in GISO Section 5021.

The purpose and necessity for this deletion is to avoid duplication with GISO Group 13.

Section/header 1611.

This section number is currently used as a header for the 1611 series of assembly/disassembly standards. All 1611 series standards will be deleted and relocated to GISO Group 13 as indicated below, and this section and header will be vacated. The purpose and necessity for these modifications is to consolidate CSO Article 15 into GISO Group 13.

Section 1611.1. Assembly/Disassembly - Selection of Manufacturer or Employer Procedures.

This section currently lists two options for requirements to be followed when assembling or disassembling equipment (or attachments); applicable manufacturer procedures unless it can be demonstrated that employer procedures satisfy specific requirements of Section 1611.4. It is proposed to relocate these requirements to GISO Section 5010 with a cross-reference to Section 5010.3 in place of the cross-reference to Section 1611.4. The note regarding synthetic slings will not be carried forward as requirements for all types of slings are already covered in Section 5010.1.

The purpose and necessity for these modifications is to consolidate CSO Article 15 into GISO Group 13.

Section 1611.2. Assembly/Disassembly - General Requirements (Applies to All Assembly and Disassembly Operations).

This section currently lists general requirements for assembly/disassembly operations including, but not limited to, supervisor qualifications, crew instructions and protection, site and ground conditions, pick requirements, outriggers, blocking and rigging. GISO currently covers these requirements broadly under the Injury and Illness Prevention Program (IIPP) (Section 3203) and Lockout/Tagout (Section 3314). However, the federal standards upon which this section is based [29 CFR 1926.1404] are more descriptive, thus it is proposed to relocate these requirements to GISO Section 5010.1 for equivalency. The purpose and necessity for these modifications is to consolidate CSO Article 15 into GISO Group 13.

Section 1611.3. Disassembly - Additional Requirements for Dismantling of Booms and Jibs (Applies to Both the Use of Manufacturer Procedures and Employer Procedures).

This section currently contains requirements regarding removal of pins during dismantling or changing the length of booms and jibs. These requirements are applicable to both manufacturer and employer dismantling procedures. GISO currently covers these requirements broadly under the IIPP (Section 3203) and Lockout/Tagout (Section 3314). However, the federal standards upon which this section is based [29 CFR 1926.1405] are more descriptive, thus it is proposed to relocate these requirements to GISO Section 5010.2 for equivalency. The purpose and necessity for these modifications is to consolidate CSO Article 15 into GISO Group 13.

Section 1611.4. Assembly/Disassembly - Employer Procedures - General Requirements.

This section currently contains requirements when using employer procedures for assembly and disassembly, such as preventing unintended dangerous movement, providing adequate support and stability, protecting employees and providing qualified supervision. GISO currently covers these requirements broadly under the IIPP (Section 3203) and Lockout/Tagout (Section 3314). However, the federal standards upon which this section is based [29 CFR 1926.1406] are more descriptive, thus it is proposed to relocate these requirements to Section 5010.3 for equivalency. The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

Section 1611.5. Power Line Safety (Up to 350 kV) - Assembly and Disassembly.

This section specifies provisions to be followed when assembling or disassembling equipment within 20 feet of a power line (up to 350 kV). Subsection (a) lists 3 options when assembling or disassembling equipment within 20 feet of a power line. Subsection (b) prescribes requirements for preventing encroachment and electrocution. Subsection (c) prohibits assembly/disassembly below power lines. Subsection (d) generally prohibits assembly/disassembly inside Table A clearances. Subsection (e) prescribes obtaining voltage information. Subsection (f) generally requires that lines be assumed to be energized and subsection (g) prescribes the posting of warnings. Although these requirements are broadly covered in the High-Voltage Electrical Safety Orders (HVESO), the federal standards are more descriptive, thus it is proposed to relocate these requirements to Section 5010.4 for equivalency. The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

Section/header 1612. Power Line Safety.

This section number is currently used as a header for the 1612 series of standards regarding operations in the vicinity of power lines. All 1612 series standards will be deleted and relocated to GISO Group 13 as indicated below, and this section and header will be vacated. The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

Section 1612.1. Power Line Safety (Up to 350 kV) - Equipment Operations.

This section specifies precautions to be taken before operating equipment within 20 feet of a power line (up to 350 kV). Subsection (a) lists three options when equipment operations could potentially be within 20 feet of a power line. Subsection (b) prescribes requirements for preventing encroachment and electrocution. Subsection (c) prescribes requirements for obtaining voltage information. Subsection (d) generally prohibits work below power lines with only limited exceptions. Subsection (e) generally requires lines to be assumed to be energized unless the utility owner/operator confirms that the power line has been de-energized and it is visibly grounded at the worksite. Subsection (f) contains provisions for work near transmitter/communication towers. Subsection (g) prescribes training requirements and subsection (h) contains provisions for the use of safety devices and operational aids designed to prevent power line contact or electrocution. These standards were reviewed and clarified based on AC discussions and recommendations. The resultant have been relocated to Section 5003.1. The purpose and necessity for these modifications and relocation is to consolidate CSO Article 15 into GISO Group 13.

Section 1612.2. Power Line Safety (Over 350 kV).

This section modifies the requirements of Sections 1611.5 and 1612.1 for power lines over 350 kV. It is proposed to repeal and relocate this section to Section 5003.2. These provisions harmonize with HVESO Section 2946. The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

Section 1612.3. Power Line Safety (All Voltages) - Equipment Operations Closer Than the Table A Zone.

This section prescribes that equipment operations in which any part of the equipment will be closer than the minimum approach distance under Table A is prohibited. It also, with a limited exception, prohibits the operation, erection, machinery or handling of tools, etc., over energized overhead high-voltage lines. It is proposed to relocate these provisions to Section 5003.3 with an exception added for consistency with HVESO Section 2946(b)(1). The purpose and necessity for the modification and relocation is to consolidate CSO Article 15 into GISO Group 13.

Section 1612.4. Power Line Safety - While Traveling Under or Near Power Lines with No Load.

This section establishes procedures and criteria for equipment traveling under or near a power line on a construction site with no load. It is proposed to relocate these provisions to Section 5003.4. The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

Section/header 1613. Inspections.

This section number is currently used as a header for the 1613 series of standards regarding equipment inspections and repair. All 1613 series standards will be deleted and relocated to



GISO Group 13 as indicated below, and this section and header will be vacated. The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.1. Inspections - Modified Equipment.

*Subsection (a) and (b)* currently require inspection for equipment that has had modifications or additions which affect safe operation.

*Subsection (c)* requires proof load testing in the case of major modifications or repairs to important structural components.

It is proposed to relocate the provisions of subsections (a) and (b) to Section 5031.2 with clarifications recommended by the AC. Subsection (c) is already covered by GISO Section 5022 and thus can be rescinded as part of the consolidation.

The purpose and necessity for the rescission and relocations is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.2. Inspections - Repaired/Adjusted Equipment.

This section provides that equipment that has had a repair or adjustment that relates to safe operation (such as a repair or adjustment to a safety device or operator aid, or to a critical system, hook, or in-use operating mechanism), shall be inspected by a qualified person after completion of the repair or adjustment and prior to initial use. It is proposed to relocate these requirements to new Section 5031.3. The purpose and necessity for the rescissions is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.3. Inspections - Post-Assembly.

This section requires equipment to be inspected by a qualified person or certificating agency upon completion of assembly and before use to assure that it is properly configured. These provisions are included within the provisions of GISO 5022. However, per AC input, the CSO text has been modified to clarify that modifications may not degrade below the manufacturer's specs and to differentiate between modifications and maintenance. The resultant has been relocated to Section 5031.1. The purpose and necessity for the modification and relocation is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.4. Inspections - Each Shift.

This section currently requires that a qualified person inspect the crane's or derrick's controls, rigging and operating mechanism prior to the first operation on any work shift for apparent deficiencies. Taking apart equipment components and booming down is not normally required unless warranted by results of the inspection or trial operation. Any unsafe conditions disclosed are to be corrected promptly. These requirements are already covered broadly in GISO Section 5031(a) and (b); however, Section 5031 will be clarified with more descriptive

federal requirements as indicated. The purpose and necessity for the relocation with minor revisions is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.5. Inspections - Periodic.

This section prescribes the frequency of and requirements for periodic (quarterly) inspections. The periodic inspection shall include the items included in the shift inspection plus additional items listed in this section. These requirements are mostly already covered in Section 5031(c); however, they will be supplemented with the CSO requirements as indicated. The purpose and necessity for the relocation with minor revisions is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.6. Inspections - Annual/Comprehensive.

This section requires equipment to be inspected at least annually by a certificating agency. Disassembly is required as necessary to complete the inspection; however, whenever it is practical and advisable to avoid disassembly of equipment, examination of structure or parts by nondestructive methods may be carried out. Section 1613.6 includes an extensive list of items to be inspected. Most of the inspection items are already listed in Sections 5031(d) and 5022(d); however, some minor modification of the GISO sections have been made as recommended by AC input. The purpose and necessity for the relocation with revisions is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.7. Inspections - Severe Service.

This section requires that where the severity of use/conditions is such that there is a reasonable probability of damage or excessive wear, the employer shall stop using the equipment and a qualified person shall inspect the equipment for structural damage to determine if the equipment can continue to be used safely. Remedial procedures are specified if a deficiency is found. GISO Sections 5031(a) and 5035 provide equivalent protection, thus this section will be rescinded. The purpose and necessity for the rescission is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.8. Inspections - Equipment Not in Regular Use.

This section requires equipment that has been idle for 3 months or more to be inspected in accordance with the requirements of Section 1613.5 (Inspections - Periodic) before initial use. It is proposed to relocate this section to GISO Section 5031(g). The purpose and necessity for the relocation is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.9. Inspections - General.

This section provides that any part of a manufacturer's procedures regarding inspections related to safe operation (such as to a safety device, operational aid, critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism) that is more comprehensive or has a more frequent schedule of inspection than the requirements of Article 15 is to be followed. It is proposed to relocate this

requirement to Section 5031(e). Subsection (b) requirements for record keeping are covered by Section 5031(c)(3) and (d)(5). The purpose and necessity for the relocation is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.10. Inspections - Wire Rope.

This section contains requirements for shift, monthly and annual/comprehensive inspections for wire rope, actions to be taken for deficiencies discovered and requirements for removal from service. Requirements for daily inspections are covered by GISO Section 5031(a) and (b). More protective requirements for periodic and annual/comprehensive inspections for cranes in construction, including deficiencies and removal from service are relocated to Section 5036. The purpose and necessity for the relocations is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.11. Repairs.

This section refers to GISO Section 5034(e) and (f) for repairs to load sustaining members and other critical crane and derrick parts. Since CSO requirements are proposed to be consolidated into the GISO, this section can be deleted. The purpose and necessity for this deletion is to consolidate CSO Article 15 into GISO Group 13.

Section 1613.12. Damaged Booms.

This section refers to GISO Section 5035 for repairs to boom sections or boom suspension components that have been damaged. Since CSO requirements are proposed to be consolidated into the GISO, this section can be deleted. The purpose and necessity for this deletion is to consolidate CSO Article 15 into GISO Group 13.

Section 1614. Wire Rope - Selection and Installation Criteria.

Section 1614 will be deleted and relocated to GISO Group 13 as indicated below.

*Subsection (a)* contains general requirements for wire rope selection and installation. This requirement will be relocated to Section 5037(a).

*Subsection (b)* contains wire rope design criteria. These criteria are covered by GISO Section 4884.

*Subsection (c)* requires the wire rope to be compatible with safe functioning of the equipment. This requirement will be covered by Section 5037(b).

*Subsection (d)* contains requirements for boom hoist reeving. Under the consolidation, these requirements are covered by Section 4884.

*Subsection (e)* contains requirements and limitations on the use of rotation resistant ropes. Requirements for rotation resistant ropes were revised per AC review and they will be located at Section 5037(c).

*Subsections (f)-(h)* cover aspects of wire rope terminations and they will be covered by Section 5037(d) in the consolidation.

The purpose and necessity for these relocations and revisions is to consolidate CSO Article 15 into GISO Group 13.

Section/header 1615. Safety Devices.

This section number is currently used as a header for the 1615 series of standards regarding equipment safety devices. All 1615 series standards will be deleted and relocated to GISO Group 13 as indicated below, and this section and header will be vacated. The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

Section 1615.1. Safety Devices.

This section lists equipment safety devices and requirements for proper operation. Based on AC review and input, several devices currently listed as “operational aids” in the federal standards will be reclassified as safety devices as part of the consolidation. All these requirements will be found in Section 5017 in the consolidation. The purpose and necessity for the relocation and reclassification is to provide safety equivalent to current practice in California and to consolidate CSO Article 15 into GISO Group 13.

Section 1615.2. Operational Aids.

This section lists operational aids and requirements for their maintenance and functioning. As noted above, per AC input, some devices currently listed as “operational aids” in the federal standards are being reclassified as “safety devices” in Section 5017 as part of the consolidation. The remaining operational aids will be relocated to Section 5018 in the consolidation. The purpose and necessity for these relocations is to provide safety equivalent to current practice in California and to consolidate CSO Article 15 into GISO Group 13.

Section 1615.3. Rigging Equipment for Material Handling.

*Subsection (a)* contains general requirements for marking and safe practices for use of rigging equipment. These requirements are already covered in GISO Section 5042(a)(4) and (15).

*Subsections (b) and (c)* contain requirements for wire rope slings. Subsection (b) requirements are covered by Section 5042(a)(4) and subsection (c) requirements are covered by Section 5045 (g)(1).

*Subsection (d)* contains requirements for shackles. These requirements are already covered in GISO Section 5049(g).

The purpose and necessity for these deletions and relocations to the GISO is to consolidate CSO Article 15 into GISO Group 13.

Section/header 1616. Operations.

This section number is currently used as a header for the 1616 series of standards regarding equipment operations. All 1616 series standards will be deleted and relocated to GISO Group 13 as indicated below, and this section and header will be vacated. The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

Section 1616.1. Operation.

*Subsections (a)-(c)* prescribe requirements for manuals, operating procedures, load charts and the like. These requirements will be relocated to Section 5008.1(a), (b) and (d).

*Subsections (d) and (e)* prescribe operator duties. The requirements of subsection (d) will be relocated to GISO Section 5008.1(c). Subsection (e) is already covered by GISO Section 5008(e). Subsection (c) is covered by Section 4965(b) and (c).

*Subsection (f)* prescribes precautions to be taken when a load is to remain suspended for a considerable time. This provision will be covered by GISO Section 4999(i) as revised.

*Subsection (g)* prescribes tag-out procedures. These provisions will be relocated to GISO Section 5008.1(e).

*Subsection (h)* describes precautions to be taken before starting the engine. These precautions are already covered in GISO Section 5008(f).

*Subsection (i)* describes when steps must be taken to secure the crane in the event of a storm warning. This requirement will be relocated to GISO Section 5008.1(f).

*Subsection (j)* describes notification procedures when equipment adjustments or repairs are necessary. These requirements will be relocated to GISO Section 5008.1(g).

*Subsection (k)* states that safety devices and operational aids shall not be used as a substitute for the exercise of professional judgment by the operator. This requirement will be relocated to Section 5008.1(h).

*Subsection (l)* prescribes steps to be taken if a slack rope condition requiring re-spooling of the rope occurs. This requirement is already covered by GISO Section 4999(e)(4).

*Subsection (m)* requires a competent person to adjust the equipment and/or operations to address the effect of wind, ice, and snow on equipment stability and rated capacity. This requirement will be relocated to Section 5008.1(i).

*Subsection (n)* states that equipment shall not be operated in excess of its rated capacity, and lists measures to be taken to prevent overloading. This requirement will be relocated to GISO Section 4999(b)(1).

*Subsection (o)* states that the load, boom, or other parts of the equipment shall not contact any obstruction in a way which could cause falling material or damage to the boom. This provision is already covered by GISO Section 4999(f).

*Subsection (p)* limits side-loading of booms. This requirement is already covered by GISO Section 4999(g).

*Subsection (q)* provides that on wheel-mounted equipment, loads shall not be lifted over the front area, except as permitted by the manufacturer. This provision is covered by GISO Section 4999(k) as modified per AC input.

*Subsection (r)* provides that the brakes shall be tested each time a load is 90% or more of the rated load by raising the load a few inches and applying the brakes. It also provides an exception for duty-cycle or repetitive lifts. This requirement will be covered by GISO Section 4994(c) as amended per AC input.

*Subsection (s)* provides that the load or the boom shall not be lowered below the point where less than two full wraps of rope remain on grooved drums and three full wraps on ungrooved drums. This requirement is covered by Section 4994(d).

*Subsection (t)* contains provisions for travel of cranes or boom-type excavators. These requirements will be relocated to Section 4991(c) and (d) with clarifications recommended by the AC.

*Subsection (u)* requires that when rotating the crane, sudden stops shall be avoided and rotational speed shall be such that the load does not swing out beyond the radius at which it can be safely controlled. These requirements are already covered by Section 4993(a).

*Subsection (v)* provides that a tag or restraint line shall be used if necessary to prevent hazardous rotation of the load. This requirement is already covered by Section 4993(b).

*Subsection (w)* provides that brakes shall be adjusted in accordance with manufacturer procedures to prevent unintended movement. This requirement is already covered by Section 5034(d).

*Subsection (x)* requires that the rigger be trained and capable of safely performing the rigging operation. This requirement is already covered by Section 4999(a).

*Subsection (y)* contains provisions for swinging locomotive cranes. These requirements are already covered by Section 4993(d).

*Subsection (z)* contains requirements for counterweights and ballast. These requirements will be relocated to Section 5008.1(j).

*Subsection (aa)* is a printing error. Subsection (aa) is covered by Group 13, Article 101.

The purpose and necessity for all these relocations is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1616.2. Authority to Stop Operation.

This section gives the operator authority to stop the lift whenever there is a concern as to safety, until a qualified person has determined that it is safe to proceed. It is proposed to delete this section as it will now be covered under Section 5008(c) as revised. The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1616.3. Work Area Control.

This section prescribes requirements for protecting employees from swing radius hazards. It is proposed to delete this section as it is covered in the GISO by Section 4993.1. The purpose and necessity for this deletion is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1616.4. Overhead Loads.

This section prescribes means and methods for preventing exposure or protecting employees whose work requires them to work where potentially exposed to overhead loads (such as when hooking/unhooking, and guiding suspended loads). It also contains requirements for tilt-up operations. It is proposed to relocate these requirements to Section 5002 with revisions. The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

Section 1616.5. Free-Fall and Controlled Load Lowering.

*Subsections (a) and (b):* (a) Lists conditions where boom free-fall (live boom) is prohibited; (b) prescribes requirements for preventing boom free-fall. These provisions are proposed to be relocated to Section 4928.1(a) and (b).

*Subsection (c)* requires that hydraulic telescoping booms shall have an integrally mounted holding device to prevent the boom from retracting in the event of hydraulic failure. This subsection is covered by Section 4949(d) in the GISO.

*Subsection (d)* lists conditions under which controlled load lowering is required and load line free-fall is prohibited. This subsection is proposed to be relocated to Section 4928.1(c).

The purpose and necessity for all these relocations is to consolidate CSO Article 15 into GISO Group 13.

Section 1616.6. Hoisting Personnel.

*Introduction and subsection (a)* prohibit the use of equipment to hoist employees except where it can be demonstrated that the erection, use, and dismantling of conventional means of reaching the work area, would be more hazardous, or is not possible because of worksite conditions. This subsection does not apply to work covered by CSO Section 1710, Steel Erection. These provisions are covered in the GISO by Section 5004(a) and (c).

*Subsection (b)* details limitations on the use of personnel platforms. These limitations have been relocated to GISO Section 5004, new subsection (k)(10).

*Subsection (c)* lists requirements for leveling, and stabilization for lifting equipment set-up. These requirements will be covered in the GISO by Section 5004(d)(4) as revised.

*Subsection (d)(1)-(d)(3)* prescribes capacity limitations. These requirements will be covered by GISO Section 5004(d)(5) as revised.

*Subsection (d)(4)* prescribes braking requirements when the platform is in a stationary working position. These requirements will be covered by Section 5004(d)(3) as revised.

*Subsection (d)(5)* lists required safety devices when using suspended personnel platforms. These requirements will be covered by Section 5004(e) as revised.

*Subsections (e)(1)-(e)(4)* contain provisions for design and attachment of the personnel platform. These requirements are covered by Section 5004(f)(1)-(f)(3) with new subsection (f)(4).

*Subsection (e)(5)* prescribes qualifications for welded construction of the platform. These requirements are covered by Section 5004(g)(8).

*Subsections (e)(6)-(e)(8)* contain design requirements for platform guardrails, grab rails and gates. These requirements are covered by Sections 5004(f)(3) and (g)(1)-(g)(4).

*Subsections (e)(9)-(e)(10)* prescribe headroom and head protection for workers. These requirements are covered by Sections 5004(g)(5) and (g)(6).

*Subsection (e)(11)* requires that edges exposed to employee contact shall be smooth enough to prevent injury. This requirement is covered by Section 5004(g)(7).

*Subsection (e)(12)* requires that the platform weight and capacity shall be conspicuously posted on the platform. This requirement is covered by Section 5004(g)(9).

*Subsection (f)* limits platform loading to employees, their tools, and the materials necessary to do their work. It further prohibits platforms from being used to hoist materials or tools when not hoisting personnel, and requires that materials and tools be secured and evenly distributed. These requirements are covered by Section 5004(h).

*Subsection (g)* contains requirements for hooks, shackles and other detachable devices, bridles, slings and other rigging hardware used for connection between the hoist line and the personnel platform. These requirements are covered by Section 5004(i) as revised.

*Subsection (h)* specifies when trial lifts are required, and the components and procedures to be followed in conducting a trial lift. These requirements will be covered by Section 5004(j) as revised.

*Subsection (i)* is not used.

*Subsection (j)* describes proof testing of the platform. These requirements are covered by Section 5004(j)(6).

*Subsection (k)(1)* describes practices for hoisting the personnel platform. These practices are covered by Section 5004(d)(1).

*Subsections (k)(2)-(k)(6)* describe platform work practices. These practices are covered by Section 5004(k)(1)-(k)(4) as revised.

*Subsection (k)(7)* describes requirements for platforms with controls. This section will be deleted in the consolidation per AC recommendation for safety reasons.

*Subsection (k)(8)* requires hoisting of employees to be discontinued upon indication of any dangerous weather conditions or other impending danger. It is proposed to relocate this requirement to Section 5004(k)(5) as revised.

*Subsection (k)(9)* requires employees being hoisted to be in direct communication with the signal person or the operator. This provision is covered by Section 5004(k)(6).

*Subsection (k)(10)* requires the use a fall arrest system when working on a personnel platform. This provision is covered by Section 5004(k)(7).

*Subsection (k)(11)* prohibits lifts on any other of the equipment's load lines while personnel are being hoisted. This requirement is covered by Section 5004(k)(8).

*Subsections (k)(12) and (k)(13)* list restrictions on travel while hoisting employees. These restrictions are covered by Section 5004(l) as revised.

*Subsection (l)* is not used.

*Subsection (m)* contains pre-lift meeting requirements. These requirements are covered by Section 5004(m).

*Subsection (n)* prescribes clearances to be maintained when hoisting personnel near power lines. These prescriptions will be relocated to Section 5004(n).

*Subsection (o)* contains requirements to be followed when hoisting personnel in drill shafts. These requirements will be relocated to Section 5004(o).

*Subsection (p)* contains requirements to be followed when hoisting personnel for pile driving operations. It is proposed to relocate these requirements to Section 5004(p) with AC recommended revisions and clarifications.



*Subsection (q)* is not used.

*Subsection (r)* contains requirements for hoisting personnel for marine transfer. It is proposed to relocate these requirements to Section 5004(r).

*Subsection (s)* contains requirements when hoisting personnel for storage-tank, shaft and chimney operations. It is proposed to relocate these requirements to Section 5004(s).

The purpose and necessity for all these relocations is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1616.7. Multiple-Crane/Derrick Lifts - Supplemental Requirements.

This section contains provisions for planning and coordinating multiple-crane/derrick lifts. It is proposed to relocate these provisions to new Section 4994(f). The purpose and necessity for the relocation is to consolidate CSO Article 15 into GISO Group 13.

#### Section/Header 1617. Signals.

This section number is currently used as a header for the 1617 series of standards regarding signals. All 1617 series standards will be deleted and relocated to GISO Group 13 as indicated below, and this section and header will be vacated. The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1617.1. Signals - General Requirements.

*Subsections (a)-(d)* prescribe when a signal person is required, their qualifications, and types of signals. These provisions will be covered by Section 5001(a), (c) and (d) as revised.

*Subsections (e)-(g)* list requirements for signal suitability, continuity of communication, and emergency stopping procedures. These provisions will be relocated to Section 5001(g)-(i).

*Subsection (h)* provides that only one person shall give signals to a crane or derrick at a time. This requirement is already covered by Section 5008(b).

*Subsection (i)* is not used.

*Subsections (j)-(k)* prescribe conventions to be used by the signal person in communicating with the crane/derrick operator(s). These requirements will be relocated to Section 5001(j)-(k).

The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1617.2. Signals - Radio, Telephone or Other Electronic Transmission of Signals.

This section contains requirements for testing, dedicated channels, hands-free reception by the operator and procedures to be followed in the event of interruption. It is proposed to relocate these requirements to new Section 5001.1. The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1617.3. Signals - Voice Signals - Additional Requirements.

This section requires the operator, signal person and lift director, to contact each other prior to beginning operations and agree on the voice signals that will be used. It also prescribes three

elements of each signal and requires that the parties be able to communicate effectively in the language to be used. These requirements will be relocated to new Section 5001.2. The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

Section/Header 1618. Qualification and Training.

This section number is currently used as a header for the 1618 series of standards regarding qualification and training. All 1618 series standards will be deleted and relocated to GISO Group 13 as indicated below, and this section and header will be vacated. The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

Section 1618.1. Operator training, certification and evaluation.

*Subsection (a)* requires the employer to ensure that, prior to operating any covered equipment, the operator is either under supervised training, or they are trained, certified/licensed, and evaluated to operate the equipment in accordance with one of two listed options. The training requirement is covered by GISO Sections 3203(a)(7) and 5006.2(a). The requirement for certification is covered by Section 5006.2(a).

*Subsection (a)(1)* provides criteria under which a non-military government entity may issue operator licenses. Under this option, the operator will only be licensed for operation of equipment within that entity's jurisdiction. This provision will be covered by Section 5006.2(e), new Exception (2)(C).

*Subsection (a)(2)* provides that where subsection (a)(1) does not apply, the operator shall be certified by an accredited crane operator certifying entity. This requirement will be covered by Section 5006.1(a)-(c).

*Subsection (a)(3)* requires the employer to provide certification or licensure (where required) at no cost to the employee. This requirement is covered by Section 3203(a)(7).

*Subsection (b)* makes provision for an employee who is not yet qualified or certified to be able to operate equipment as an operator-in-training. This provision will be covered by Section 5006.2(b) as revised.

*Subsection (c)* describes operator certification and licensing requiring the employer to ensure each operator is certified and licensed in accordance with subsection (d) or (e) of this section. This provision will be covered by Section 5006.2(b).

*Subsection (d)* describes requirements for Option 1, certification by an accredited crane operator certifying entity, one of the two California options for certification. These requirements are covered in the GISO in Section 5006.2(d)(1)-(d)(4).

*Subsection (e)* describes requirements for Option 2, licensing by a government entity, the second California option for certification/licensing. These requirements will be relocated to Section 5006.2(e)(1)-(e)(3) as new Exception (2)(C).

*Subsection (f)* describes the evaluation process, who the evaluator must be, and the documentation requirements to ensure each operator is qualified to operate the equipment. This provision will be covered by Section 5006.2(f).

*Subsection (g)* describes the certification criteria operators must pass to obtain a certificate of competency to operate a crane covered by this Article. This provision will be covered by Section 5006.2(g).

*Subsection (h)* lists effective dates. The effective date of Section 5006.1(f) pre-dates those of Section 1618.1; however, new exceptions to Section 5006.1 harmonize with CSO and clarify application of effective dates. This provision will be covered by Section 5006.2(i).

The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1618.2. Signal Person Qualifications.

This section requires the employer to ensure that only qualified persons give signals. Two options for qualification are provided: (1) third party qualified evaluator or (2) employer's qualified evaluator. The employer is to maintain documentation of such training and to provide re-training where indicated. This section also lists qualification requirements. It is proposed to relocate these provisions to new Section 5001.3.

The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1618.3. Qualifications of Maintenance and Repair Employees.

This section lists qualifications for maintenance and repair employees in order for them to operate cranes or derricks in the performance of their duties. These requirements will be relocated to new Section 5033.1.

The purpose and necessity for this relocation is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1618.4. Training.

This section requires the employer to provide training as follows:

*Subsection (a)* requires each employee to be trained in power line safety (up to 350 kV) as required by Section 1612.1. These requirements will be covered as well as safety training for voltages over 350 kV in new Sections 5003.1(g) and 5003.2.

*Subsection (b)* lists training and qualifications for signal persons. These requirements are covered by Section 3203 and new Section 5001.3.

*Subsection (c)(1)* prescribes training requirements for operators subject to Section 1618.1. It also requires retraining if the trainee does not pass testing and certification. These requirements have been relocated to new Section 5012(a).

*Subsection (c)(2)* requires employers train operators covered under the Exceptions to Section 1618.1. The Exceptions to Section 1618.1 have been relocated to Exceptions to Section 5006.2.

*Subsection (c)(3)* prescribes training for use of boom hoist brakes and for emergency procedures for halting unintended equipment movement. These provisions have been relocated to new Section 5012(b).

*Subsection (d)*, based on federal verbiage, prescribes training for competent persons and qualified persons. By definition (Section 3207), competent persons and qualified persons are required to be knowledgeable in the particular hazards for which they are competent or qualified, thus there is no need to copy subsection (d) into the GISO.

*Subsection (e)* requires that each employee shall be trained to keep clear of crush/pinch hazard points and holes. These requirements are covered by existing Sections 4993.1(a)(2) and 3203(a)(6) and (7).

*Subsection (f)* requires the operator and any other employee authorized to start/energize equipment or operate equipment controls (such as maintenance and repair employees), to be trained in tag-out and start-up procedures. These requirements are covered by lockout/tagout training required by Section 3314(l).

*Subsection (g)* prescribes training administration requirements. These requirements are covered by Section 3203, thus there is no need to copy them into Group 13.

The purpose and necessity for the relocations described above is to consolidate CSO Article 15 into GISO Group 13.

#### Section/Header 1619. Supplemental Requirements.

This section number is currently used as a header for the 1619 series of standards regarding supplemental requirements. All 1619 series standards, except Section 1619.4, will be deleted and relocated to GISO Group 13 as indicated below, and this header will be vacated. The text of Section 1619.4 will be retained and relocated to Section 1610 as it contains requirements for overhead and gantry cranes that are unique to construction. The purpose and necessity for these relocations is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1619.1. Tower Cranes.

*Subsection (a)* scopes the requirements of this section; i.e., supplemental requirements for tower cranes. There is no need to relocate this scope as it is covered in existing GISO Section 4965(a).

*Subsection (b)* requires the erection, climbing (up and down) and dismantling of a fixed tower crane to comply with the requirements of Title 8, Section 341.1(c)(2) and GISO, Section 4966(a)(1). It contains the following supplemental requirements as listed below:

*Subsection (b)(1)* assembly/disassembly procedures are relocated to Section 4966(a)(1) as revised, and to Sections 5010 thru 5010.3.

*Subsection (b)(2)* prescribes restrictions on work in dangerous areas (for self-erecting tower cranes). These provisions are relocated to Section 4966(i) with AC recommended modifications.

*Subsection (b)(3)* lists requirements for foundations and supports. These requirements are relocated to Section 4966(d) with AC recommended modifications.

*Subsection (b)(4)* addresses specific hazards such as installation of foundations and structural supports, backward stability and wind speed. These requirements are relocated to Section 4966(j) with AC recommended modifications.

*Subsection (b)(5)* prescribes requirements for plumb tolerance. These requirements are relocated to Section 4966(k) with AC recommended clarification.

*Subsection (b)(6)* prescribes requirements for preventing contact between cranes on multiple-tower crane jobsites. These requirements are relocated to Section 4966(l) with AC recommended clarification.

*Subsection (b)(7)* prescribes climbing procedures. These requirements are relocated and appended to Section 4966(e).

*Subsection (b)(8)* prescribes requirements for counterweights and ballasts. These requirements are relocated to Section 4966(m).

*Subsection (c)* provides criteria for size and location of signs installed on tower cranes. These requirements will be relocated to Section 4965(h).

*Subsection (d)(1)* states that Section 1615.1 does not apply to tower cranes. This condition will be placed as a note to Section 4968.

*Subsection (d)(2)* lists safety device requirements for tower cranes. These requirements will be relocated to Section 4968(g)-(o) with revisions as recommended by the AC.

*Subsection (d)(3)* requirements for proper operation of safety devices will be relocated to Section 4968.1.

*Subsection (e)* lists requirements for operational aids for tower cranes. Some federally classified "operational aids" have been re-categorized to "safety devices" per AC recommendations and will be relocated to Section 4968. Those that remain as operational aids will be relocated to Section 4968.2.

*Subsection (e)(1)-(4)* have been relocated to Section 4968.2(a)-(c) with AC recommended clarifications.

*Subsection (e)(5)* has been relocated to Section 4968.2(e) with AC recommended modifications.

*Subsection (e)(5)(A) & (B)* have been relocated to Section 4968(f)(2), (3) & (s)(1) with AC recommended modifications.

*Subsection (e)(5)(C)* has been relocated to Section 4968(p) with AC recommended modifications.

*Subsection (e)(5)(D)* has been relocated to Section 4968.2(e)(1) with AC recommended modifications.

*Subsection (e)(5)(E)* has been relocated to Section 4968(d) with AC recommended modifications.

*Subsection (e)(5)(F)* has been relocated to Section 4968(f)(4) with AC recommended modifications.

*Subsection (e)(5)(G)* has been relocated to Section 4968(k) with AC recommended modifications.

*Subsection (e)(5)(H)* has been relocated to Section 4968(r) with AC recommended modifications.

*Subsection (e)(5)(I)* has been relocated to Section 4968(q).

*Subsection (e)(5)(J)* has been relocated to Section 4968(s)(1).

*Subsection (e)(5)(K)* has been relocated to Section 4968(s)(2).

*Subsection (e)(5)(L)* has been relocated to Section 4968(s)(3).

*Subsection (e)(5)(M)* has been relocated to Section 4968.2(e)(2).

*Subsection (e)(5)(N)* has been relocated to Section 4968(a).

*Subsection (f)* contains requirements for tower crane inspections including pre-erection, post-erection, monthly and annual. These requirements will be relocated to Section 4965.1 except subsection (f)(3)(B) [new subsection 4965.1(c)(2)] has been revised per AC input.

The purpose and necessity for these relocations and revisions is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1619.2. Derricks.

*Subsection (a)* scopes the requirements of this section; i.e., supplemental requirements for derricks whether temporarily or permanently mounted. GISO Article 95 (Derricks) and the definition of “derrick” (Section 4885) provide equivalent scoping.

*Subsection (b)* prescribes requirements and procedures for operation, including accessibility of procedures, and load chart contents. These requirements will be covered by Sections 4959(a) and 4961.

*Subsection (c)(1)* contains general requirements for derrick construction. These requirements will be relocated to Section 4884(c)-(f).

Subsections (c)(2)-(c)(5) contain crane-specific construction requirements for guy, stiff-leg, gin pole, and Chicago boom derricks. These requirements will be relocated to Section 4960(a)-(d).

*Subsection (d)* contains requirements for anchoring and guying derricks. These requirements will be relocated to Section 4960(e)(1)-(3).

*Subsections (e)(1)-(e)(2)(A)* require derrick boom, swinger mechanisms and hoists to be suitable for the work intended and to be anchored to prevent displacement from imposed loads. These requirements will be relocated to Section 4960(f)(1)-(f)(2)(A).

*Subsection (e)(2)(B)* will be covered by new Section 4960(f)(2)(B) and by existing Section 5023(a)-(b) and Article 99.

*Subsection (e)(2)(C)* requires hoists that have had repairs, modifications or additions that affect their capacity or safe operation to be evaluated to determine if a load test is necessary. This requirement is covered by Section 5022(a)(3).

*Subsection (e)(2)(D)* specifies the load testing procedure. This requirement is covered by Section 4960(f)(2)(C) and Section 5020(a).

*Subsection (f)* lists exceptions to operational aids required by Section 1615.2 (now Section 5018) for derricks. The operational aid requirements for derricks will be relocated to Section 4960.1.

*Subsection (g)* prescribes post-assembly testing, approval and documentation requirements for new or reinstalled cranes. These requirements will be relocated to Section 4960.2 with modifications to harmonize with GISO Group 13 as follows:

*Subsection (g)(1)* contains requirements for anchorages. These requirements will be relocated to new Section 4960.2(a), except that subsection (g)(1)(B) is not allowed by Section 4960(b).

*Subsection (g)(2)* prescribes the functional test. This is covered by Section 5020(a).

*Subsection (h)* prescribes conditions under which load testing may be required for derricks that have had repairs, modifications or additions affecting the derrick's capacity or safe operation. These requirements are covered by Sections 5020(a) and 4960.2.

*Subsection (i)* is not used.

*Subsection (j)* prescribes shut-down procedures in the event of power failure. These requirements are covered by Section 5008(g).

*Subsection (k)* places conditions on the use of winch heads. These conditions will be relocated to Section 4962.1.

*Subsection (l)* is not used.

*Subsection (m)* contains requirements for securing the boom. These requirements will be relocated to Section 4960.3.

*Subsection (n)* requires the process of jumping the derrick to be supervised by the A/D director. This requirement will be relocated to Section 5010.1(a)(3).

*Subsection (o)* requires derrick operations to be supervised by a competent person. This requirement will be relocated to Section 4959(b).

*Subsection (p)* contains additional inspection requirements for derricks. This requirement will be relocated to Section 4960.4.

*Subsection (q)* describes derrick operator qualifications and training. These requirements are covered by Section 5006(a).

The purpose and necessity for these relocations and revisions is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1619.3. Floating Cranes/Derricks and Land Cranes/Derricks on Barges.

*Subsections (a) and (b)* scope the requirements and application of this section; i.e., supplemental requirements for floating cranes/derricks and land cranes/derricks on barges, or other means of flotation except barges fully supported by jacks. The scope has been relocated to Section 4988.1.

*Subsection (c)* prescribes requirements for work area control. These requirements will be relocated to Section 4988.2.

*Subsection (d)* states that Section 1616.4 (overhead loads) does not apply to cranes/derricks within the scope of this section. No relocation is necessary since overhead loads are already covered in GISO Section 5002.

*Subsection (e)* contains supplemental requirements for safety devices when the equipment is on a means of flotation. These requirements will be covered by Section 4988.3.

*Subsection (f)* limits when an anti-two-blocking device is required. It also lists conditions where load weighing devices are not required. These provisions will be covered by Section 4988.3, exceptions 1 and 2.

*Subsection (g)* prescribes that procedures (load charts and operating procedures) must be available to the operator regardless of whether the operator's station is fixed or moveable. This requirement will be relocated to Section 4988.4.

*Subsection (h)* prescribes additional inspection requirements for the means of flotation, including shift, monthly, annual, and quadrennial inspections and documentation. These requirements will be relocated to Section 4988.5.

*Subsections (i) and (j)* are not used.

*Subsection (k)* requires that the barge or other means of flotation is capable of withstanding imposed environmental, operational and in-transit loads when used in accordance with the manufacturer's specifications and limitations. It also requires that the manufacturer's specifications and limitations with respect to environmental, operational, and in-transit loads for a barge or other means of flotation are not exceeded or violated. These requirements will be relocated to Section 4988.6.

*Subsection (l)* was not used.

*Subsection (m)* contains requirements for floating cranes/derricks designed by the manufacturer (or employer) for marine use by permanent attachment of equipment to barges or other means of flotation. Load charts are required to take into account marine-related factors such as dynamic loading, list and trim, freeboard, and effects of wind, and if the equipment is employer-made it also requires the load charts to be approved by a registered engineer. This section also includes structural design criteria and other features for the means of flotation. All these requirements will be relocated to Section 4988.7.

*Subsection (n)* contains provisions for land cranes/derricks used on barges or other means of flotation. Subsections *(n)(1)-(n)(4)* pertain to modifications of rated capacity due to maritime effects such as list, trim, wave action, wind, and freeboard. Subsections *(n)(5)-(n)(6)* identify conditions where physical attachment or containment of the equipment may be required. Subsection *(n)(7)* contains structural design criteria and other features for the means of flotation. All the requirements of subsection (n) will be relocated to Section 4988.8.

The purpose and necessity for these relocations and revisions is to consolidate CSO Article 15 into GISO Group 13.

#### Section 1619.4. Overhead and Gantry Cranes.

GISO Article 92 prescribes requirements for overhead and gantry cranes used in general industry. CSO Section 1619.4 currently prescribes requirements for overhead and gantry cranes used in construction. Subsection (a) is for permanently installed overhead and gantry cranes and subsection (b) is for overhead and gantry cranes not permanently installed. CSO Section 1619.4(b) currently cross-references to other parts of CSO Article 15 for many requirements. Since all other parts of CSO Article 15 will be relocated into the GISO, it is necessary to change the subsection (b) cross-references.



Additionally, the text of Section 1619.4 will be relocated to Section 1610 and retained in Article 15 because, although overhead and gantry cranes are covered in GISO Group 13, there are some differing and unique conditions found for overhead and gantry cranes used in construction, and the AC felt that the CSO requirements should be retained to cover those conditions.

The purpose and necessity for the relocation and changes to cross-references is to accomplish the consolidation of CSO Article 15 into GISO Group 13.

Section 1619.5. Dedicated Pile Drivers.

This section describes certain exceptions for dedicated pile drivers from requirements of Article 15. Since CSO Article 15 will be consolidated into GISO Group 13, the exceptions will be revised to corresponding sections of Group 13 and will be relocated to Section 1600(u).

The purpose and necessity for the revisions and relocation is to accomplish consolidation of CSO Article 15 into GISO Group 13.

CSO Article 28. Miscellaneous Construction Tools and Equipment

Section 1694. Sideboom Cranes.

This section currently specifies that certain CSO Article 15 standards became applicable to sideboom cranes manufactured on or after July 7, 2011. Since Article 15 will be consolidated into GISO Group 13, this section will be revised to indicate that corresponding requirements of GISO Group 13 became applicable for cranes manufactured on or after July 7, 2011. The purpose and necessity of the revision is to accomplish consolidation of CSO Article 15 into GISO Group 13.

High-Voltage Electrical Safety Orders

Article 37. Provisions for Preventing Accidents Due to Proximity to Overhead Lines

Section 2946. Provisions for Preventing Accidents Due to Proximity to Overhead Lines.

This section is being amended with subsections (e) and (f) to clarify requirements for cranes working in proximity to energized overhead lines. These hazards apply regardless of the industry in which the crane is working. The purpose and necessity is to provide equivalence with federal standards [29 CFR 1926.600(a)(6)] for cranes and derricks in construction.

General Industry Safety Orders  
Group 1. Article 1. Definitions

Section 3207. Definitions.

Section 3207 defines terms applicable to the GISO. Although the term “Competent Person” is already used in the GISO and will be used more extensively with the consolidation of CSO Article 15 into Group 13, it is not currently defined in the GISO. It is thus proposed to define “Competent Person” in Section 3207 using the same definition as in the CSO (Section 1504). The purpose for this amendment is to place the definition where it will apply to all GISO standards, including the consolidation. This is necessary because the term is used in the standards that are being incorporated into GISO Group 13.

GISO Group 13. Cranes and Other Hoisting Equipment

Section 4880. Scope.

This new section in large part transfers the contents of CSO Section 1610.1 (Scope) into the GISO with minor changes due to differences in formatting between the CSO and GISO. In addition, Section 4880(a)(1), (c)(8) and (c)(10) have been modified and clarified based on subcommittee and AC input. Subsection (a)(2) has been added to clarify that these orders apply to all cranes having a maximum rated capacity greater than one ton (except where otherwise noted). The one ton trigger has previously been included by reference to ASME B30.5-2004; however, the clarification has been found to be necessary. The purpose and necessity for these amendments is to accomplish the consolidation of the CSO crane standards into the GISO and to clarify the scope of application.

Section 4881. General.

This new section incorporates CSO Section 1610.4 (Design, Construction and Testing), subsections (d)(2)-(5), (d)(7) and (d)(9) with AC recommended clarifications into the GISO, which are arranged due to formatting differences between the CSO and GISO. CSO Section 1610.4(d)(7) [relocated to Section 4881(e)] contains some federal requirements exceeding ASME B30.5–2004, thus it has been identified to be limited to cranes in construction. The purpose and necessity for these amendments is to accomplish the consolidation of the CSO crane standards into the GISO.

Section 4883. Equipment with a Rated Hoisting/Lifting Capacity of 2,000 Pounds or Less (Cranes and Derricks in Construction).

This new section in large part transfers the contents of CSO Section 1610.8 into the GISO with changes in formatting due to differences between the CSO and GISO. The purpose for this section is to clarify requirements for cranes and derricks having a hoisting/lifting capacity of 2,000 pounds or less. These requirements apply only to cranes and derricks used in construction. This section is necessary to conform to federal standards for cranes and derricks

in construction and to accomplish the consolidation of the CSO crane standards into the GISO.

Section 4884. Standards Incorporated by Reference.

This section, formerly titled “Scope” has been renamed and rearranged with former subsection 4884(a), a scope item, relocated to new Section 4880. The existing standards incorporated by reference in GISO Section 4884 have been retained. They are supplemented with new subsection (d) which brings forward the content of CSO Section 1610.2 and new subsection (e) which will update certain ANSI/ASME standards that will become effective with the adoption of this consolidation. The latter update was requested by the AC to be more consistent with current design, construction and installation standards. It should also be mentioned that Section 1610.4(c) has been relocated to subsection (j). The purpose and necessity for these amendments is to update referenced standards to those currently used in industry and to accomplish the consolidation of the CSO crane standards into the GISO.

Section 4884.1. Equipment Modifications – Mobile and Tower Cranes.

This new section brings forward the requirements of CSO Section 1610.6 with modifications based on AC input which condense the federal options for modifications or additions which affect the capacity or safe operation of the equipment from six to two. The AC’s opinion was that all the federal options logically fit into one of the two remaining categories. The purpose of these modifications is to provide standards for modifications and additions to mobile and tower cranes. The necessity is to consolidate CSO crane standards into the GISO and to provide a level of safety at least as effective as federal standards.

GISO Article 91. Definitions

Section 4885. Definitions.

This section supplements Section 3207 and contains definitions specifically applicable to Group 13. Existing definitions have been amended with definitions brought forward from CSO Section 1610.3 (Definitions) which were not formerly contained in Section 4885. The definition of “multi-purpose machine” and other terms have been reviewed and modified based on AC input. The purpose and necessity for these amendments is to consolidate the CSO crane standards into the GISO.

GISO Article 93. Boom-Type Mobile Cranes

Section 4924. Load Safety Devices.

Subsection (c) boom angle or radius indicator has been clarified per stakeholder and AC input to require that the device indicate to the operator the boom angle or radius distance at all times. The purpose and necessity for this change is to update standards to current industry methods and practices.

Subsection (d) currently requires cranes with lattice booms manufactured after February 28, 1992, to be equipped with an anti-two-block warning or prevention device. Federal 29 CFR 1926.1416(d)(3) requires lattice boom cranes manufactured after November 8, 2011, to be equipped with two-block damage/failure prevention device(s). This requirement is consistent with the ASME B30.5-2004 standard that has been incorporated by reference. The purpose and necessity for this change is to consolidate CSO crane standards into the GISO and to be at least as effective as federal standards. In addition a new subsection (d)(3) is proposed to address lattice boom cranes and derricks manufactured after November 8, 2011, with a load failure device to prevent two-blocking. An editorial amendment is proposed to renumber existing subsection (d)(3) as subsection (d)(4) to be consistent with Title 8 format.

#### Section 4928.1. Free Fall and Controlled Load Lowering.

This new section brings forward the requirements of CSO Section 1616.5 into GISO Group 13 with minor clarifications recommended by the AC. These standards address prohibitions intended to protect employees in cases where the boom or hoist line is configured for free fall from being struck by the equipment and/or load and includes but is not limited to situations where the employee is being hoisted, the employee is located in the fall zone, the boom is operated in proximity to energized conductors, the load is over a shaft or the lifting takes place at a refinery or tank farm. Additional standards address boom free fall prevention and load line free fall prohibitions. The purpose and necessity for this change is to consolidate CSO crane standards into the GISO.

### GISO Article 94. Hydraulic Cranes and Excavators

#### Section 4949. Boom Hoist and Supporting Mechanism.

Existing Section 4949 will be amended with new subsections (e) regarding friction mechanisms and (f) regarding hydraulic load hoists, brought forward from CSO Section 1610.4(d)(12)-(13). The purpose and necessity for these amendments is to consolidate CSO crane standards into the GISO and to provide equivalency with federal standards. No new requirements are created by this action as these provisions are already required by ASME B30.5-2004 standards which have been incorporated by reference in the GISO.

### GISO Article 95. Derricks

#### Section 4959. Operation – Procedures.

This new section brings forward provisions of CSO Section 1619.2(b) and (o) [which are based on federal standards 1926.1436(b) and (o)] and prescribes operation, supervision and accessibility of procedures for derricks. The purpose and necessity for this new section is to clarify provisions of ASME B30.6 which are currently only incorporated by reference in the GISO and to consolidate CSO derrick standards into the GISO.

#### Section 4960. Construction.

This section prescribes construction requirements for derricks. Modifications are proposed for this section to provide equivalency with 29 CFR 1926.1436(c)-(e) which contains construction requirements for specific types of derricks. These modifications bring forward the provisions of CSO Section 1619.2(c)(2) through (e) into the GISO. The purpose and necessity for these modifications is to clarify provisions of the federal standards which are currently only incorporated by reference to ASME B30.6 in the GISO and to consolidate CSO derrick standards into the GISO.

#### Section 4960.1. Operational Aids (Supplemental requirements for derricks in construction).

This new section prescribes operational aids and safety devices for derricks. This section brings forward the provisions of CSO Section 1619.2(f) for derricks in construction [based on federal standard 1926.1436(f)] into the GISO. The purpose and necessity for this new section is to bring provisions of the CSO into the GISO and to avoid over-reach by limiting their application to derricks in construction thus enabling consolidation of CSO derrick standards into the GISO.

#### Section 4960.2. Post-Assembly Approval and Testing—New or Reinstalled Derricks.

This new section prescribes post-assembly testing, approval and documentation for derricks. This section brings forward the provisions of CSO Section 1619.2(g) [which are based on federal standard 1926.1436(g)] into the GISO. The purpose and necessity for this new section is to clarify provisions of the federal standards which are currently only incorporated by reference to ASME B30.6 in the GISO and to consolidate CSO derrick standards into the GISO.

#### Section 4960.3. Securing the Boom.

This new section modifies and amends former Section 4960(c) to provide more type-specific requirements for securing the derrick boom. The purpose and necessity of this section is to bring forward the provisions of CSO Section 1619.2(m) [based on federal standard 1926.1436(m)] which are not currently in the GISO and to consolidate CSO derrick standards into the GISO.

#### Section 4960.4. Inspections.

This new section prescribes derrick-specific inspection items that are in addition to the requirements of Article 100. This section brings forward the provisions of CSO Section 1619.2(p) [based on federal standard 1926.1436(p)] into the GISO. The purpose and necessity for this new section is to consolidate CSO derrick standards into the GISO.

#### Section 4961. Rated Load Marking.

This is an existing section which prescribes that for permanently installed derricks with fixed lengths of boom, guy and mast, a durable and clearly legible rating chart shall be provided where it is visible to operating personnel. Subsection (a)(3) states that for hoisting reeving the size and construction of the rope “may” be shown either on the rating chart or in the operating manual. It is proposed to clarify this requirement by changing “may” to “shall.” The purpose

and necessity for this change is to provide clarity and equivalency with federal standard 29 CFR 1926.1436(b)(2)(iv).

#### Section 4962.1. Use of Winch Heads.

This new section prescribes use of ropes on winch heads. This section brings forward the provisions of CSO Section 1619.2(k) [based on federal standard 1926.1436(k)] into the GISO. The purpose and necessity for this new section is to consolidate CSO derrick standards into the GISO.

### GISO Article 96. Tower Cranes

#### Section 4965. General.

Existing subsection (h) requires cranes mounted on rail tracks to be equipped with limit switches and stops or buffers at each end of the tracks. This provision for safety devices will be relocated to Section 4968 (Safety Devices), subsection (k). The existing general requirements will be amended with provisions for signs (such as for advertising, project name, crane company, etc.). These provisions are brought forward from CSO Section 1619.1(c) [based on federal standard 1926.1435(c)]. The purpose and necessity for these modifications is to place requirements for crane safety devices in a logical location and to incorporate provisions of the CSO not currently in the GISO.

#### Section 4965.1. Inspections.

This new section prescribes inspection frequencies and inspection items for tower cranes that are in addition to the requirements of Article 100. This section brings forward the provisions of CSO Section 1619.1(f) [based on federal standard 1926.1435(f)] into the GISO. The purpose and necessity for this new section is to incorporate provisions of the CSO which are not currently in the GISO and to consolidate CSO tower crane standards into the GISO. These provisions pertain to construction-related activities and thus will not impact cranes used solely in general industry.

#### Section 4966. Erection, Climbing, Dismantling and Operation.

The existing section title is "Erection, Dismantling and Operation." Since the subject matter also includes climbing (up and down), it is proposed to clarify the section title by adding "climbing" to the title. Other modifications and amendments are proposed as follows to bring forward the provisions of CSO Section 1619.1 into the GISO and to be at least as effective as federal standards contained in 29 CFR 1926.1435:

*Subsection (a).* This subsection currently requires erection, climbing and dismantling operations to comply with administrative Section 341.1(b)(2). It is proposed to add reference to operating rules for assembly/disassembly, Sections 5010 thru 5010.3 and other provisions as may be applicable. These sections bring forward provisions of CSO Sections 1611.1 through 1611.4 [based on federal standard 1926.1435(b)(1)] into the GISO.

*Subsection (d).* This subsection currently pertains to protection of structural support for tower crane vertical loads. Modifications and amendments are proposed to be added as part of bringing forward CSO Section 1619.1(b)(3) [based on federal 1926.1435(b)(3)] into the GISO. Subsections (d)(1)-(d)(3) bring forward CSO Section 1619.1(b)(3)(A)-(C) which were adopted into the CSO on August 16, 2012, as a result of input from a “clean-up” advisory committee.

*Subsection (e).* This subsection currently requires that when mast sections are raised to a new position measures shall be taken to prevent damage, slippage or collapse of the crane assembly. It is proposed to clarify this with requirements to comply with manufacturer’s prohibitions and obtain a certified agent’s verification that the host structure can withstand the forces imposed. These amendments are brought forward from CSO Section 1619.1(b)(7) [which is based on federal 1926.1435(b)(7)] and are consistent with ASME B30.3.

*Subsection (i).* This new subsection prescribes precautions for employee access to dangerous areas during erection, climbing and dismantling. It brings forward the provisions of CSO Section 1619.1(b)(2) [based upon federal 1926.1435(b)(2)].

*Subsection (j).* This new section requires the Assembly/Disassembly (A/D) director to check foundations and structural support installation, backward stability and wind speed during A/D operations. It brings forward the provisions of CSO Section 1619.1(b)(4) [based on federal 1926.1435(b)(4)].

*Subsection (k).* This new subsection specifies plumb tolerance to be adhered to in the erection of tower cranes. It brings forward the provisions of CSO Section 1619.1(b)(5) [based on federal 1926.1435(b)(5)].

*Subsection (l).* This new subsection prescribes installation precautions when more than one hammerhead tower crane is operating on a site. It brings forward the provisions of CSO Section 1619.1(b)(6) [based on federal 1926.1435(b)(6)].

*Subsection (m).* This new subsection prescribes requirements for counterweight ballast during A/D and operation. It brings forward the provisions of CSO Section 1619.1(b)(8) [based on federal 1926.1435(b)(8)].

The purpose and necessity for these amendments and modifications is to incorporate provisions of the CSO which are not currently in the GISO and to consolidate CSO tower crane standards into the GISO. Since these amendments and modifications pertain to construction-related activities they will not impact cranes used solely in general industry.

#### Section 4968. Safety Devices.

Existing Section 4968 lists safety devices for tower cranes. However, federal standards incorporated into the CSO as a result of the federal CDAC rulemaking necessitated amendments

to this section. A Note has been added for technical clarity to explain that Section 5017 does not apply to tower cranes.

Some of the existing requirements [subsections (d) and (f)] will be modified and clarified. However, they will also be supplemented with amendments based on the federal rulemaking 29 CFR 1926.1435 [subsections (h) through (o)]. The AC determined that the amended requirements occasioned by the adoption of the federal CDAC are consistent with ASME B30 standards, which are already incorporated by reference (Section 4884).

Federal 29 CFR 1926.1415 (Safety Devices) lists devices classified by federal OSHA as safety devices; however, CFR 1926.1416 (Operational Aids) lists a number of devices that the federal standards classify as “operational aids.” Existing state tower crane standards do not currently use the term “operational aid.” Thus it was necessary for the AC to review federal “operational aids” to determine those that should properly be classified as “safety devices” consistent with current precedent and practice in California.

The purpose and necessity for these clarifications, modifications and amendments is to provide consistency with ASME B30 standards (incorporated by reference) which are spelled out in federal standards but that are not currently clearly identified in the GISO. It is also to coordinate federal and state terminology, and to consolidate CSO tower crane standards into the GISO.

#### Section 4968.1. Safety Devices - Proper Operation Required.

This new section requires that operations shall not begin unless safety devices are in proper working order and for operations to be stopped if a safety device stops working properly. This section brings forward the provisions of CSO Section 1619.1(d)(3) into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1435(d)(3)] which are not currently in the GISO and to consolidate CSO tower crane standards into the GISO.

#### Section 4968.2. Operational Aids.

This new section prescribes operational aids and alternative methods that may be employed if the operational aids are not in proper working order or if they stop working during operations. This section brings forward the provisions of CSO Section 1619.1(e) into the GISO. Based on AC review, some devices previously classified by federal standards as operational aids and located in this section have been relocated to Section 4968 (Safety Devices) for reasons described in that section (above). The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1435(e)] which are not currently in the GISO and to consolidate CSO tower crane standards into the GISO.



### GISO Article 97.1. Floating Cranes/Derricks and Land Cranes/Derricks on Barges

This new Article is added to accommodate federal requirements for floating cranes/derricks and land cranes/derricks on barges. This Article brings forward the provisions of CSO Section 1619.3 into the GISO. The purpose and necessity for this new Article is to capture the requirements of the CSO [based on federal standard 1926.1437] not currently in the GISO and to consolidate CSO standards for floating cranes/derricks and land cranes/derricks on barges into the GISO.

#### Section 4988.1. Scope.

This new section describes the scope of application of Article 97.1. This section brings forward the provisions of CSO Section 1619.3(a) and (b) into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1437(a) and (b)] which are not currently in the GISO and to consolidate CSO standards for floating cranes and derricks and land cranes and derricks on barges into the GISO.

#### Section 4988.2. Work Area Control.

This new section prescribes methods for identifying and controlling access to hazardous work areas. This section brings forward the provisions of CSO Section 1619.3(c) into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1437(c)] which are not currently in the GISO and to consolidate CSO standards for floating cranes and derricks and land cranes and derricks on barges into the GISO.

#### Section 4988.3. Additional Safety Devices.

This new section prescribes additional safety devices for Article 97.1 (floating cranes/derricks and land cranes/derricks on barges). This section brings forward the provisions of CSO Section 1619.3(e) and (f) into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1437(e) and (f)] not currently in the GISO and to consolidate CSO standards for floating cranes and derricks and land cranes and derricks on barges into the GISO.

#### Section 4988.4. Accessibility of Procedures Applicable to Equipment Operation.

This new section prescribes requirements to make available load charts and operating procedures for Article 97.1 cranes and derricks. This section brings forward the provisions of CSO Section 1619.3(g). The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1437(g)] not currently in the GISO and to consolidate CSO standards for floating cranes and derricks and land cranes and derricks on barges into the GISO.

#### Section 4988.5. Inspections.

This new section prescribes inspection frequencies and inspection items for Article 97.1 cranes and derricks that are in addition to the requirements of Article 100. This section brings forward

the provisions of CSO Section 1619.3(h) into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1437(h)] that are specific for floating cranes and derricks and land cranes and derricks on barges that are not currently in the GISO and to consolidate CSO standards for floating cranes and derricks and land cranes and derricks on barges into the GISO.

#### Section 4988.6. Manufacturer's Specifications and Limitations.

This new section prescribes requirements to ensure that means of flotation for Article 97.1 cranes and derricks are capable of withstanding imposed environmental, operational and in-transit loads. This section brings forward the provisions of CSO Section 1619.3(k). The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1437(k)] not currently in the GISO and to consolidate CSO standards for floating cranes and derricks and land cranes and derricks on barges into the GISO.

#### Section 4988.7. Floating Cranes/Derricks.

This new section prescribes requirements for cranes or derricks designed by a manufacturer or employer for marine use by permanent attachment to barges, pontoons, vessels or other means of flotation. This section brings forward the provisions of CSO Section 1619.3(m). The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1437(m)] not currently in the GISO and to consolidate CSO standards for floating cranes and derricks into the GISO.

#### Section 4988.8. Land Cranes/Derricks.

This new section prescribes requirements for land cranes or derricks used on barges, pontoons, vessels or other means of flotation. This section brings forward the provisions of CSO Section 1619.3(n). The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1437(n)] not currently in the GISO and to consolidate CSO standards for land cranes and derricks used on means of flotation into the GISO.

### GISO Article 98. Operating Rules

#### Section 4991. Travel.

This existing section prescribes requirements for travel of cranes or boom-type excavators. New subsections (c) and (d) are proposed which will bring forward the provisions of CSO Section 1616.1(t). The purpose and necessity for this new subsection is to capture provisions of the CSO [based on federal standard 1926.1417(u)] not currently in the GISO and to consolidate CSO mobile cranes standards into the GISO. These provisions pertain to construction-related activities and thus will not impact cranes used solely in general industry.

#### Section 4991.1. Ground Conditions.

This new section prescribes ground conditions for cranes and derricks in construction to assure adequate support, drainage and level. This section brings forward the provisions of CSO Section

1610.5 into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1402] not currently in the GISO and to consolidate CSO mobile crane standards into the GISO. These provisions pertain to construction-related activities and thus will not impact cranes used solely in general industry.

#### Section 4994. Hoisting.

This existing section prescribes requirements for deployment of mobile crane outriggers or stabilizers, pre-lift brake testing, and multi-crane lifts. A modification is proposed to clarify pre-lift hoist drum brake testing, and proposes supplemental requirements for multiple crane/derrick lifts. The modification and addition brings forward the provisions of CSO Sections 1616.1(r) and 1616.7 into the GISO. The purpose and necessity for the new subsection and modifications is to capture provisions of the CSO [based on federal standard 1926.1417(s) and 1926.1432] not currently in the GISO and to consolidate certain CSO mobile crane standards for hoisting into the GISO. It is also proposed to delete the last sentence in subsection (b)(5) as it is unnecessary given the consolidation of the CSO requirements into the GISO.

#### Section 4999. Handling Loads.

Modifications to existing Section 4999 are as follows:

- Existing subsection (b) is proposed to be modified and amended with supplemental/clarifying requirements for determining the load for cranes and derricks in construction. These changes bring forward the requirements of CSO Section 1616.1(n) into the GISO.
- Existing subsection (i): A minor modification regarding holding the load is being brought forward from CSO Section 1616.1(f) [comports with federal standard 1926.1417(e)].
- Existing subsection (k): A minor modification changing “truck mounted” to “wheel mounted” and regarding lifts over the front are being brought forward from CSO Section 1616.1(q) [comports with federal standard 1926.1417(r)].

The purpose and necessity for these modifications and amendments are to capture provisions of the CSO [based on federal standard 1926.1417(o), (e) and (r) respectively] which are not currently in the GISO and to consolidate CSO mobile crane standards into the GISO.

#### Section 5001. Signals – General Requirements.

This is an existing section. Modifications and amendments are proposed as follows:

- The Section 5001 title is proposed to be amended to add the term “general requirements” after “Signals” for clarity as Section 5001 contains general signaling standards.
- Existing subsection (a) contains requirements for when a signal person is required. Supplemental requirements are proposed for mobile cranes in construction when traveling and when site-specific concerns may necessitate a signal person. These amendments are brought forward from CSO Section 1617.1 [based on federal standard 1926.1419(a)].
- Existing subsection (c) will be relocated to subsection (d)(1) for formatting reasons. In its place, new subsection (c) will bring forward a clarifying requirement from CSO Section

1617.1(c) for signals to be by hand, voice, or audible. The purpose and necessity is to capture clarifying provisions of the CSO [based on federal 1926.1419(b)] and to consolidate CSO standards into the GISO.

- Existing subsection (d) requires signals systems other than manual to be protected against anything that would interfere with safe operation. This provision will be relocated to new subsection (h)(1) for formatting reasons. It is proposed to title subsection (d) “Hand Signals,” and replace existing verbiage with the contents of subsection (c) which will be relocated here. These provisions will also be supplemented with clarifying requirements brought forward from CSO Section 1617.1(d). The purpose and necessity is to capture the provisions of the CSO [based on federal 1926.1419(c)] and to consolidate CSO standards into the GISO.
- New subsection (g) requires that the signals used, and means of transmitting the signals to the operator, shall be appropriate for the site conditions. This subsection brings forward clarifying provisions of CSO Section 1617.1(e) into the GISO. The purpose and necessity for this new subsection is to capture provisions of the CSO [based on federal standard 1926.1419(e)] and to consolidate CSO crane standards into the GISO.
- New subsection (h) prescribes requirements for maintaining signals between the signal person and the operator and procedures to be followed in the event of interruption. This subsection brings forward clarifying provisions of CSO Section 1617.1(f) into the GISO. The purpose and necessity for this new subsection is to capture provisions of the CSO [based on federal standard 1926.1419(f)] and to consolidate CSO crane standards into the GISO.
- New subsection (i) requires that if the operator becomes aware of a safety problem and needs to communicate with the signal person, the operator shall safely stop operations, and they shall not resume until the problem has been resolved. This subsection brings forward the provisions of CSO Section 1617.1(g) into the GISO. The purpose and necessity for this new subsection is to capture clarifying provisions of the CSO [based on federal standard 1926.1419(g)] and to consolidate CSO crane standards into the GISO.
- New subsection (j) requires that all directions given to the operator must be given from the operator’s perspective. This subsection brings forward clarifying provisions of CSO Section 1617.1(j) into the GISO. The purpose and necessity for this new subsection is to capture provisions of the CSO [based on federal standard 1926.1419(k)] and to consolidate CSO crane standards into the GISO.
- New subsection (k) contains requirements for communication with multiple cranes and/or derricks. This subsection brings forward the provisions of CSO Section 1617.1(k) into the GISO. The purpose and necessity for this new subsection is to capture provisions of the CSO [based on federal standard 1926.1419(m)] not currently in the GISO and to consolidate CSO crane standards into the GISO.

Section 5001.1. Signals – Radio, Telephone or other Electronic Transmission of Signals.

This new section prescribes requirements for electronic transmission of signals, and brings forward the provisions of CSO Section 1617.2 into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1420] not

currently in the GISO and to consolidate CSO crane standards into the GISO.

Section 5001.2. Signals – Voice Signals – Additional Requirements.

This new section prescribes additional requirements for the use of voice signals, and brings forward the provisions of CSO Section 1617.3 into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1421] not currently in the GISO and to consolidate CSO crane standards into the GISO.

Section 5001.3. Signal Person Qualifications – Supplemental Requirements for Cranes and Derricks in Construction.

This new section prescribes supplemental qualification requirements for signal persons in construction. It lists two options for qualification: (1) third party qualified evaluator or (2) employer's qualified evaluator (Note: third party certification is not required). This section brings forward the provisions of CSO Section 1618.2 into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1428] not currently in the GISO and to consolidate CSO crane standards into the GISO.

Section 5002. Overhead Loads.

This existing section requires operations to be conducted in a manner that will avoid exposure of employees to the hazard of overhead loads. It also requires that whenever loads must be passed over workers, safety type hooks or equivalent means of preventing the loads from becoming disengaged are to be used.

An existing note that employees should not work directly beneath a suspended load is proposed to be deleted and replaced with new subsections (b) through (e) which clarify safeguards for employees whose duties may necessitate them working in the fall zone (but not directly under the load). The modification and amendments bring forward the provisions of CSO Section 1616.4 into the GISO. The purpose and necessity for the modification and amendments is to capture provisions of the CSO [based on federal standard 1926.1425] not currently in the GISO and to consolidate CSO crane standards into the GISO.

Section 5003.1. Power Line Safety (Up to and Including 350kV) – Equipment Operations.

This new section prescribes work procedures, clearances and training requirements for work in proximity of power lines up to and including 350kV. This section clarifies that it includes voltages at 350kV and brings forward the provisions of CSO Section 1612.1 into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1408] and to consolidate CSO crane standards into the GISO.

Section 5003.2. Power Line Safety (Over 350kV).

This new section prescribes supplemental safety measures for work in proximity of power lines over 350kV. This section brings forward the provisions of CSO Section 1612.2 into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on

federal standard 1926.1409] not currently in the GISO and to consolidate CSO crane standards into the GISO.

Section 5003.3. Power Line Safety (All Voltages) – Equipment Operations Closer Than the Table A Zone.

This new section prohibits operations in which any part of the equipment is closer than the Section 5003.1, Table A, minimum approach distance to an energized power line, except as permitted by the HVESO and with other very limited exceptions. This section brings forward the provisions of CSO Section 1612.3 into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1410], modified per existing California standards (HVESO) where more protective, and to consolidate CSO crane standards into the GISO.

Section 5003.4. Power Line Safety - While Traveling Under or Near Power Lines with No Load.

This new section establishes procedures and criteria for equipment traveling under or near a power line on a construction site with no load (equipment traveling on a construction site with a load is governed by other sections). This section brings forward the provisions of CSO Section 1612.4 into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO [based on federal standard 1926.1411] not currently in the GISO, harmonize with the HVESO and to consolidate CSO crane standards into the GISO.

Section 5004. Crane or Derrick Suspended Personnel Platforms.

This is an existing section. Modifications and amendments are proposed as follows:

- Existing subsection (d) contains operational requirements for suspended personnel platforms. This subsection will be modified with amendments brought forward from CSO Section 1616.6(c), (d)(1) thru (d)(4), and (d)(5)(G) [based on federal standards 1926.1431(c), (d)(1) thru (d)(4) and (d)(5)(vii)].
- Existing subsection (e) lists safety devices required on cranes and derricks used to lift suspended personnel platforms. This subsection will be modified with amendments brought forward from CSO Section 1616.6(d)(5)(A) thru (d)(5)(F), [based on federal standards 1926.1431(d)(5)(i) through (d)(5)(vi)].
- Existing subsection (f) prescribes design criteria for personnel platforms. A new subsection (f)(4) is proposed for platforms connected to booms to require the platform to be within 10 degrees of level. This section brings forward the provisions of CSO Section 1616.6(e)(2) [based on federal standard 1926.1431(e)(2)] into the GISO.
- Existing subsection (i) contains requirements for rigging. Modifications are proposed to bring forward the provisions of CSO Section 1616.6(g)(1) and (g)(3) [based on federal standards 1926.1431(g)(1) and (g)(3)] into the GISO.
- Existing subsection (j) contains requirements for a trial lift and proof testing. Modifications are proposed to bring forward the provisions of CSO Section 1616.6(h) [based on federal standard 1926.1431(h)(1) through (h)(6)] into the GISO.
- Existing subsection (k) prescribes work practices when hoisting personnel platforms.

Modifications are proposed to subsections (k)(1), (k)(2), (k)(4), (k)(5) and (k)(7), and new subsections (k)(9) and (k)(10) will be added. These modifications and amendments are proposed to bring forward the provisions of CSO Section 1616.6(k)(2), (k)(4), (k)(6), (k)(8), (k)(10), (d)(6) and (b)(1) [based on federal standard 1926.1431(k)(2), (k)(4), (k)(6), (k)(8), (k)(10), (d)(6) and (b)(1)] into the GISO.

- Existing subsection (l) regulates crane travel while hoisting personnel. It is proposed to be amended with new subsection (l)(2)(D). This amendment is proposed to bring forward the provisions of CSO Section 1616.6(k)(12)(B)1 into the GISO. This amendment is necessary to capture provisions of the CSO [based on federal standard 1926.1431(k)(12)(ii)(A)].
- New subsection (n) is proposed for hoisting personnel near power lines. This amendment is proposed to bring forward the provisions of CSO Section 1616.6(n) [based on federal standard 1926.1431(n)] into the GISO.
- New subsection (o) is proposed for hoisting personnel in drill shafts. This amendment is proposed to bring forward the provisions of CSO Section 1616.6(o) [based on federal standard 1926.1431(o)] into the GISO.
- New subsection (p) is proposed for hoisting personnel for pile driving operations. This amendment is proposed to bring forward the provisions of CSO Section 1616.6(p) [based on federal standard 1926.1431(p)] into the GISO.
- New subsection (r) is proposed for hoisting personnel for marine transfer. This amendment is proposed to bring forward the provisions of CSO Section 1616.6(r) [based on federal standard 1926.1431(r)] into the GISO.
- New subsection (s) is proposed for hoisting personnel for storage-tank (steel or concrete), shaft and chimney operations. This amendment is proposed to bring forward the provisions of CSO Section 1616.6(s) [based on federal standard 1926.1431(s)] into the GISO.

The purpose and necessity of all these modifications and amendments is to capture provisions of the CSO to comport with federal standards and to consolidate CSO crane standards into the GISO.

#### Section 5005. Work Near Transmitter Towers.

This new section reclaims a section number from a repealed section. It establishes criteria for work near transmitter towers where electrical energy can be induced in the equipment or materials being handled. The purpose and necessity for this amendment is to clarify and incorporate provisions of CSO 1612.1(f) [based on federal standard 1926.600(a)(6)(vii)] to facilitate consolidation of CSO crane standards into the GISO.

#### Section 5006.1. Mobile Crane and Tower Crane-Operator Qualifications and Certification (Applicable to Cranes in General Industry Only).

This existing section contains requirements for qualification and certification of crane operators and for accreditation of certification agencies. GISO Section 5006.1, which preceded the adoption of federal standards into the CSO, applied to both construction and general industry until standards for cranes and derricks in construction (29 CFR 1926, Subpart CC) were adopted

into the CSO (Article 15) in 2011. However, with the adoption of the federal standards in 2011, it was necessary to blend existing state requirements together with federal standards. This is additionally necessary to retain existing state requirements that were more protective and to include the new federal requirements where they were more specific or more protective, as required by the Labor Code. To avoid applying extra federal requirements for construction to general industry, and at the request of stakeholders, the combined requirements were placed in CSO Article 15, Section 1618.1. With this proposed consolidation, the title of Section 5006.1 will be amended to indicate that it is applicable to cranes in general industry only.

Additional federal requirements for operator qualification were promulgated on November 9, 2018, and these were incorporated into CSO Section 1618.1 using an expedited “Horcher” rulemaking process. The additional requirements became effective April 6, 2020. To consolidate all the new federal requirements into the GISO without over-reaching into general industry, it was necessary to create a new Section 5006.2, Operator Training, Certification, and Evaluation for Cranes and Derricks in Construction (see discussion for Section 5006.2, below) which brought CSO Section 1618.1 forward into Section 5006.2.

The certification requirements for operators of cranes in general industry and construction are essentially the same; however, the 2018 federal amendments to 29 CFR Section 1926.1427 included additional requirements for qualification and evaluation of operators of cranes in construction. Since all operators will likely undergo the same examination and testing, minor modifications have been made to Section 5006.1(c)(1) and (e)(1) to harmonize the examination and testing requirements.

Existing subsection (a)(1) requires crane operators pass a physical examination conducted by a physician. An amendment is proposed to allow other licensed health care professionals (e.g. physician’s assistant or nurse practitioner) to conduct the examination. This amendment is necessary to provide the employer with flexibility in terms of who can provide the examination and to ensure that all crane operators have been examined and are medically/physically fit to safely operate a crane.

Subsection (a)(3) requires the operator pass a written examination using criteria developed by the Joint Committee as described in the existing standard. Amendment of subsection (a)(3) is proposed to delete the references to the Joint Committee Standards for Educational and Psychological Testing and replace it with a performance-oriented requirement that requires the potential crane operator pass a test administered in accordance with generally accepted industry best practices. Additional language is proposed and is necessary to spell out, and clarify, the specific areas of technical knowledge required to operate the crane safely. The proposed amendment is necessary to allow a reasonable and effective level of flexibility for crane operator candidate testing.



Amendments are proposed for subsection (b) to add a new subsection (b)(1) which addresses procedures for the reapplication of candidates to the testing process in the event an applicant fails the test or is decertified. This is necessary to ensure that applicants are given a fair chance for achieving their goal of becoming a certified crane operator as set forth in the proposal.

An amendment of subsection (c) requires the crane operator testing organization to be accredited by an approved nationally recognized accrediting agency based on a determination made by the accrediting agency that the proper criteria for testing have been met as specified in the proposed text. The proposed amendment is consistent with comparable federal standards for this issue and is consistent with stakeholder recommendations. It is also necessary to permit some latitude and flexibility in terms of providing multiple paths to accreditation of the testing entity by the accrediting agency.

An additional amendment is proposed to subsection (c)(1) which pertains to the frequency the accredited certifying entity has its accreditation reviewed by the nationally recognized accrediting agency to specify at least every three (3) years. This amendment is necessary to be consistent with current state of the art accreditation review frequency guidelines used by accrediting entities. The three year review cycle is also necessary to ensure that all certifying entities are conducting their examinations and testing in a manner that assures an accurate and consistent crane operator evaluation.

An amendment is proposed to add subsections (e)(1)(A)-(E) to address what an operator-in-training cannot do unless under direct supervision. This amendment is necessary to ensure the safety of the operator, trainer, and ground personnel and to prevent costly equipment damage.

The purpose and necessity of these modifications and amendments is to facilitate consolidation of CSO crane operator certification standards [based on federal standard 1926.1427] with crane operator certification standards for general industry.

#### Section 5006.2. Operator Training, Certification, and Evaluation for Cranes and Derricks in Construction.

This is a new section added to clearly delineate between training, certification and evaluation requirements for operators of cranes and derricks in construction and those working solely in general industry. As noted in the discussion for Section 5006.1 above, the certification requirements for construction [5006.2(g)] have been harmonized with those for general industry [5006.1(a)]. However, requirements for construction based on the November 2018 update to federal 29 CFR Section 1926.1427 include additional requirements for training and evaluation due to hazards in construction that are not likely to be encountered in general industry. It has been determined that the best way to consolidate and delineate between the qualification and certification requirements for general industry and those for construction is to have two parallel but unique sections.

The additional requirements of Section 5006.2 resulting from the consolidation of Section 1618.1 requirements into the GISO are as follows:

- Additional training requirements of subsection (b)(3).
- Clarification of “operator trainer” qualifications in subsection (b)(4)(A)2.
- Two options for certification in subsections 5006.2(c)-(e).
- Requirements for operator evaluation in subsection (f).
- An option for reciprocity in subsection (g) recognizes that an operator trained, certified and evaluated per Section 5006.2 has also met the requirements of Section 5006.1 and thus may work in either (or both) fields.

The purpose and necessity for this new section is to consolidate requirements for construction operator qualifications into the GISO for “one-stop” shopping without imposing construction requirements on operators who work solely in general industry.

#### Section 5008. Operating Practices.

Existing subsection (c) provides that the operator can stop operation when they doubt the safety of a movement. Clarifying verbiage is to be brought forward from CSO Section 1616.2 [based on federal standard 1926.1418]. The purpose and necessity of this modification is to consolidate CSO crane standards into the GISO.

#### Section 5008.1. Operation.

This new section clarifies operational practices, procedures and accessibility of procedures which are currently prescribed more generally in the GISO. This section brings forward more specific provisions of CSO Section 1616.1 into the GISO. The purpose and necessity for this new section is to consolidate provisions of the CSO [based on federal standard 1926.1417] into the GISO.

#### Section 5010. Assembly/Disassembly – Selection of Manufacturer or Employer Procedures.

This new section prescribes that when assembling or disassembling equipment, the employer shall comply with manufacturer procedures, or, subject to limitations, written employer procedures. This section brings forward the provisions of CSO Section 1611.1 [based on federal standard 1926.1403] into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO not currently in the GISO and to consolidate CSO crane standards into the GISO. These provisions pertain to construction-related activities and thus will not impact cranes used solely in general industry.

#### Section 5010.1. Assembly/Disassembly – General Requirements (Applies to All Assembly and Disassembly Operations).

This new section prescribes general requirements for assembly and disassembly for cranes and derricks. Requirements include but are not limited to: supervision, qualifications, procedures, hazard mitigation, selection and configuration of components, means of stabilization, and rigging. This section brings forward the provisions of CSO Section 1611.2 [based on federal

standard 1926.1404] into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO not currently in the GISO and to consolidate CSO crane standards into the GISO. These provisions pertain to construction-related activities and thus will not impact cranes used solely in general industry.

Section 5010.2. Disassembly – Additional Requirements for Dismantling of Booms and Jibs (Applies to Both the Use of Manufacturer Procedures and Employer Procedures).

This new section prescribes precautions when removing pins and disassembling booms and jibs. This section brings forward the provisions of CSO Section 1611.3 [based on federal standard 1926.1405] into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO not currently in the GISO and to consolidate CSO crane standards into the GISO. These provisions pertain to construction-related activities and thus will not impact cranes used solely in general industry.

Section 5010.3. Assembly/Disassembly – Employer Procedures – General Requirements.

This new section prescribes criteria for employer assembly/disassembly procedures and also prescribes that if employer procedures are used, they shall be developed by a certified agent. This section brings forward the provisions of CSO Section 1611.4 [based on federal standard 1926.1406] into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO not currently in the GISO and to consolidate CSO crane standards into the GISO. These provisions pertain to construction-related activities and thus will not impact cranes used solely in general industry.

Section 5010.4. Power Line Safety (Up to and Including 350kV) – Assembly and Disassembly.

This new section prescribes procedures for assembly/disassembly in proximity to power lines. (Note: for A/D over 350kV see Section 5003.2). This section brings forward the provisions of CSO Section 1611.5 [based on federal standard 1926.1407] into the GISO. The purpose and necessity for this new section is to capture provisions of the CSO not currently in the GISO and to consolidate CSO crane standards into the GISO. These provisions pertain to construction-related activities and thus will not impact cranes used solely in general industry.

Section 5011. Fall Protection – Supplemental/Specific Requirements for Cranes.

This new section prescribes fall protection procedures specific for cranes. These requirements supplement and clarify the application of CSO Article 24 as it applies to particular types of cranes. This section brings forward the provisions of CSO Section 1610.7 [based on federal standard 1926.1423] into the GISO. The purpose and necessity for this new section is to bring forward and consolidate provisions of the CSO into the GISO.

Section 5012. Training – Supplemental Requirements for Cranes in Construction.

This new section supplements training requirements in other parts of the GISO with federal clarification of training requirements for operators of cranes in construction. This section brings forward the provisions of CSO Section 1618.4(c) [based on federal standard 1926.1430(c)]

as modified by 2018 federal amendments for operator qualification] into the GISO. The purpose and necessity for this new section is to bring forward and consolidate provisions of the CSO into the GISO.

#### GISO Article 98.1. Safety Devices and Operational Aids

This new Article is added to accommodate requirements for safety devices and operational aids based on differences between federal and state formatting and consistent with industry practice in California. This Article brings forward the provisions of CSO Sections 1615.1 and 1615.2 into the GISO with modifications recommended by the crane consolidation Advisory Committee. The purpose and necessity for this new Article is to harmonize the requirements of the federal standards [1926.1415 and 1926.1416] with industry practice in California concurrent with consolidating CSO crane standards into the GISO.

#### Section 5017. Safety Devices.

This new section is a consolidated list of safety devices applicable to equipment covered by Group 13. This section brings forward the provisions of CSO Section 1615.1 into the GISO. It also prescribes procedures to be followed in the event of malfunction. These safety devices are already required, either by other existing sections of Group 13, or by ASME B30 standards already incorporated by reference in Section 4884. The purpose and necessity for this section is to clarify these requirements and to provide a consolidated list of safety devices as part of consolidating CSO crane standards into the GISO.

#### Section 5018. Operational Aids.

This new section is a listing of operational aids for mobile cranes and derricks covered by Group 13. This section brings forward the provisions of CSO Section 1615.2 into the GISO. It also prescribes procedures to be followed in the event of malfunction. The purpose and necessity for this section is to distinguish between safety devices and operational aids and to clarify procedures to be followed in the event of malfunctions as part of consolidating CSO crane standards into the GISO.

#### GISO Article 99. Testing

#### Section 5022. Proof Load Test and Examination of Cranes and Their Accessory Gear.

This existing section contains requirements for proof load testing and examination of cranes and their accessory gear. Modifications are proposed as follows:

- Subsection (a): Due to consolidation of the CSO (based on federal standards for cranes and derricks in construction) into the GISO, there are some differences in requirements based on crane types. Therefore, notes have been added to accommodate and clarify the differences.
- Exceptions 1 and 2 have been added to clarify requirements for cranes having a maximum rated capacity greater than one ton but not exceeding three tons.

- Subsection (d): Existing requirements for examination are being clarified by bringing forward the requirements of CSO Section 1613.6 [based on federal standard 1926.1412(f)] into the GISO.

The purpose and necessity for these amendments and modifications are to capture provisions of the CSO [based on federal standard 1926.1412] not currently in the GISO, to clarify differences between general industry and construction testing requirements, and to consolidate CSO crane standards into the GISO.

### GISO Article 100. Inspection and Maintenance

#### Section 5031. Inspection.

This existing section contains requirements for inspections, ranging from shift/daily, periodic, and annual/comprehensive. Modifications are proposed as follows:

- Subsection (b), Daily inspections: Inspection checklist has been amended to bring forward provisions of CSO Section 1613.4 [based on more descriptive federal 1926.1412(d)] into the GISO with modifications and clarifications recommended by the crane consolidation AC.
- Subsection (c), Periodic inspections: Formatting changes and an AC recommended clarification to subsection (c)(3)(C).
- Subsection (d), Annual/comprehensive: Subsection (d)(5) added to bring forward and harmonize CSO Section 1613.6(g) [based on federal standard 1926.1412(f)(7)] with GISO Section 4885, Plate V. Federal requirements were clarified with AC recommendations for consistency where existing California requirements are more protective.
- Subsection (e), Manufacturer's procedures to be followed where more protective: New subsection added to bring forward CSO Section 1613.9 [federal 1926.1412(j)].
- Subsection (g), added to bring forward provisions of CSO Section 1613.8 [29 CFR 1926.1412(h)] and to clarify requirements for equipment to be inspected before being returned to service after being idle for three months or more.

The purpose and necessity for these modifications and amendments is to bring forward provisions of CSO sections as noted above and to capture provisions of federal 1926.1412(d)-(f), (h), (j), and (k) and to consolidate CSO standards into the GISO.

#### Section 5031.1. Inspection – Post-Assembly.

This new section describes post-assembly inspection and inspector qualifications. This section brings forward the provisions of CSO Section 1613.3 [based on federal standard 1926.1412(c)] into the GISO. A note has been added per AC recommendation that disassembly and reassembly of equipment does not require recertification of the equipment provided that the equipment is reassembled and used in a manner consistent with its certification. This note has been added to provide consistency with GISO 5022(a). The purpose and necessity for this new section is to facilitate consolidation of CSO crane standards into the GISO.

Section 5031.2. Inspection – Modifications or Additions.

This new section describes inspection and certification requirements for equipment that has had modifications or additions that affect the safe operation of the equipment or capacity. This section brings forward the provisions of CSO Section 1613.1 [based on federal standard 1926.1412(a)] into the GISO. Per AC input, the text has been modified to clarify that modifications may not degrade below the manufacturer's specs and to differentiate between modifications and maintenance. The purpose and necessity for this new section is to facilitate consolidation of CSO crane standards into the GISO.

Section 5031.3. Repaired/Adjusted Equipment.

This new section describes inspection requirements for equipment that has had a repair or adjustment that relates to safe operation (such as a repair or adjustment to a safety device or operational aid, or to a critical part of a control system, power plant, braking system, load-sustaining structural components, load hook, or in-use operating mechanism). This section clarifies inspection provisions of Section 5020(a) and brings forward the provisions of CSO Section 1613.2 [based on federal standard 1926.1412(b)] into the GISO. The purpose and necessity for this new section is to facilitate consolidation of CSO crane standards into the GISO.

Section 5033.1. Qualifications of Maintenance and Repair Employees.

This new section prescribes qualifications for maintenance and repair employees and for those permitted to operate equipment as part of maintenance or inspection functions. This section brings forward the provisions of CSO Section 1618.3 [based on federal standard 1926.1429] into the GISO. The purpose and necessity for this new section is to facilitate consolidation of CSO crane standards into the GISO.

Section 5036. Inspection – Wire Rope (Additional Requirements for Cranes and Derricks in Construction).

This new section prescribes wire rope deficiency categories, critical review items, criteria for removing wire rope from service, periodic and annual/comprehensive inspection requirements, and procedures for wire rope maintenance and repairs. This section brings forward into the GISO the provisions of CSO Section 1613.10 [based on federal standard 1926.1413]. Since these provisions are being brought forward from federal construction standards, their application is limited to cranes and derricks in construction to avoid regulatory over-reach. The purpose and necessity for this new section is to facilitate consolidation of CSO crane standards into the GISO.

Section 5037. Wire Rope – Selection and Installation Criteria.

This new section prescribes wire rope selection and installation criteria consistent with ASME B30 standards which are incorporated by reference. This section brings forward the provisions of CSO Section 1614 [based on federal standard 1926.1414] with AC recommended modifications into the GISO. AC recommended modifications remove verbiage that could be

inconsistent with or conflict with manufacturer's recommendations. The purpose and necessity for this new section is to facilitate consolidation of CSO crane standards into the GISO.

GISO Group 26. Diving Operations  
Article 153. Commercial Diving Operations

Section 6060. Procedures During Dive.

Existing subsection (b)(4)(C) contains requirements applicable when a crane/derrick is used to get a diver into and out of the water. It currently contains cross-references to CSO Article 15. The CSO Article 15 sections will be superseded by GISO Group 13 as a result of the consolidation. The purpose and necessity for these changes is to provide the correct cross-references for the consolidation of CSO crane standards into the GISO.

**TECHNICAL, THEORETICAL AND/OR EMPIRICAL STUDIES, REPORTS OR DOCUMENTS RELIED  
ON BY THE BOARD**

1. September 9-10, 2014, January 21, 2015, March 25-26, 2015, July 22-23, 2015, and October 7-8, 2015, Advisory Committee minutes, members roster and attendance sheets.

These documents are available BY APPOINTMENT 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. Appointments can be scheduled via email at [oshsb@dir.ca.gov](mailto:oshsb@dir.ca.gov) or by calling (916)274-5721.

**DOCUMENTS INCORPORATED BY REFERENCE**

1. ASME B30.2–2005, Overhead and Gantry Cranes (Top Running Bridge, Single or Multiple Girder, Top Running Trolley Hoist), issued December 30, 2005 (“ASME B30.2–2005”)
2. ASME B30.3-1996, Construction Tower Cranes, issued April 30, 1997
3. ASME B30.4-1996, Portal, Tower, and Pedestal Cranes, issued June 23, 1997
4. ASME B30.5–2004, Mobile and Locomotive Cranes, issued September 27, 2004 (“ASME B30.5–2004”)
5. ASME B30.6-1995, Derricks, issued January 31, 1996
6. ASME B30.7–2001, Base-Mounted Drum Hoists, issued January 21, 2002 (“ASME B30.7–2001”)
7. ANSI/ASME B30.8-1982, Floating Cranes and Floating Derricks, issued May 17, 1982
8. ANSI B30.11-1980, Monorails and Underhung Cranes, issued April 11, 1980
9. ANSI B30.13-1977, Controlled Mechanical Storage Cranes, issued January 27, 1977
10. ASME B30.14–2004, Side Boom Tractors, issued September 20, 2004 (“ASME B30.14–2004”)

11. ASME B30.17-1992, Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist), issued April 30, 1993
12. ASME B30.3-2012, Tower Cranes, issued February 22, 2013
13. ASME B30.4-2010, Portal and Pedestal Cranes, issued April 19, 2010
14. ASME B30.5–2011, Mobile and Locomotive Cranes, issued January 17, 2012
15. ASME B30.6-2010, Derricks, issued June 30, 2010
16. ASME B30.7–2011, Winches (Formerly Titled Base-Mounted Drum Hoists), issued August 5, 2011
17. ASME B30.8-2010, Floating Cranes and Floating Derricks, issued March 15, 2010
18. ASME B30.11-2010, Monorails and Underhung Cranes, issued April 16, 2010
19. ASME B30.13-2011, Storage/Retrieval (S/R) Machines and Associated Equipment, issued January 17, 2012
20. ASME B30.14–2010, Side Boom Tractors, issued October 26, 2010
21. ASME B30.17-2006, Overhead and Gantry Cranes (Top Running Bridge, Single Girder, Underhung Hoist), issued February 12, 2007
22. B30.22-2010, Articulating Boom Cranes, issued November 22, 2010

Documents incorporated by reference, including dates of publication, and effective dates are listed in GISO Section 4884 (Standards Incorporated by Reference) which is part of this rulemaking proposal.

These documents are too cumbersome or impractical to publish in Title 8 and may include copyrighted material (e.g., ANSI standards). Therefore, it is proposed to incorporate the documents by reference. Copies of these documents are available BY APPOINTMENT 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. Appointments can be scheduled via email at [oshsb@dir.ca.gov](mailto:oshsb@dir.ca.gov) or by calling (916)274-5721.

#### **PETITION**

This proposal was not the result of a petition.

#### **ADVISORY COMMITTEE**

This proposal was developed with the assistance of multiple advisory committees. A list of advisory committee members, attendance sheets, and minutes are included as Documents Relied Upon.



### **FIRE PREVENTION STATEMENT**

This proposal does not include fire prevention or protection standards. Therefore, approval of the State Fire Marshal pursuant to Government Code Section 11359 or Health and Safety Code Section 18930(a)(9) is not required.

### **SPECIFIC TECHNOLOGY OR EQUIPMENT**

This proposal will not mandate the use of specific technologies or equipment.

### **ECONOMIC IMPACT ANALYSIS/ASSESSMENT**

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.

The proposal is to consolidate CSO crane standards into the GISO primarily by relocating existing CSO standards into the GISO with AC recommended clarifications of existing standards and harmonization where inconsistencies may have existed. Four advisory committees and a subcommittee reviewed the proposal and recommended modifications and clarifications to consolidate the two Safety Orders and eliminate conflicts. The consensus at the conclusion of the AC process was that the proposal should not result in any significant economic impact. Although no new requirements are intended, nor foreseen, it is possible there may be some minor initial costs related to training. Although the committee consensus was that these costs, if any, would be minimal, the cost-ranges of \$0-\$500 for small businesses and \$0-\$1,000 for typical businesses were estimated in order to cover any incidental or unanticipated costs related to implementation.

The adoption of the proposed consolidation 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.

### **BENEFITS OF THE PROPOSED ACTION**

This consolidation of Crane Safety Orders for cranes and derricks into the General Industry Safety Orders standards for cranes and derricks is responsive to the requests from management, labor and interested parties in the crane industry. Cranes used in construction often are mobile or they can be disassembled, moved and reassembled. Thus, they can be moved from one site to another, and in the case of mobile cranes this can sometimes occur in the same day. Due to the itinerant nature of many crane types, they can be used in both construction and general industry settings, thus exposing them to dual standards under the current CSO/GISO arrangement where the standards overlap, but are not necessarily

coordinated. The crane industry therefore favors consolidated crane standards to eliminate or greatly reduce overlapping and conflicting standards.

Title 8 CSO crane standards, adopted in 2011, were developed to provide safety at least as effective as federal standards for cranes and derricks used in construction (29 CFR 1926 Subpart CC), which were promulgated in 2010. The consolidation of those CSO crane standards into the GISO has occasioned incidental updates and clarifications of some existing GISO standards to retain required equivalency for cranes and derricks used in construction. However, a majority of those modifications have been reviewed and approved by advisory committees comprised of industry stakeholders, and it is their opinion that the incorporation of federal-based CSO crane standards into the GISO is unlikely to have any financial impact beyond that already realized when the CSO crane standards were originally adopted in 2011. Certain requirements that are unique to construction have been so designated and limited so as not to apply to cranes used only in general industry.

Coherent and coordinated standards will also benefit workers who find themselves working in differing industries, subject to different standards, due to the mobile/transient nature of the cranes and equipment they work on.

More clearly organized and consolidated crane standards will enhance public safety because cranes must often work in congested urban areas and crane malfunction or failures resulting from improper or inconsistent construction, installation, operation, inspection, testing, maintenance or use of cranes can endanger anyone in the vicinity of the crane.

This rulemaking proposal has no effect on the state's environment.

**EVIDENCE SUPPORTING FINDING OF NO SIGNIFICANT STATEWIDE ADVERSE ECONOMIC  
IMPACT DIRECTLY AFFECTING BUSINESSES**

The Board has made an initial determination that this proposal will not result in a significant, statewide adverse economic impact directly affecting businesses/individuals, including the ability of California businesses to compete with businesses in other states.

The Board has determined that the proposed amendments may affect small businesses. However, no significant adverse economic impacts are anticipated because changes consist primarily of consolidating existing standards from the CSO into the GISO. The two sets of standards currently overlap and contain occasional inconsistencies that become apparent for cranes that are used in both construction and general industry. The consolidation process made every effort to identify the points of inconsistency and modify/clarify them to remove conflicts.

**REASONABLE ALTERNATIVES TO THE PROPOSAL AND THE BOARD'S REASONS FOR REJECTING  
THOSE ALTERNATIVES**

The rulemaking proposal has been reviewed by advisory committees and no reasonable alternatives were identified or otherwise brought to the Board's attention that would be more effective in carrying out the purpose for which the action is proposed, would be as effective and less burdensome to affected private persons than the proposed action, or would be more cost-effective to affected private persons and equally effective in implementing the statutory policy or other provision of law.