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ADVISORY COMMITTEE #2 MINUTES
Proposal to Consolidate Safety Orders for Cranes in Construction (CSO Article 15) into General Industry Safety Orders Group 13 (Cranes and Other Hoisting Equipment).
March 25-26, 2015
Sacramento, CA

Wednesday, March 25, 2015 (First Day).

1. Opening remarks.

The meeting was called to order by Chair, Conrad Tolson, Senior Engineer, Occupational Safety and Health Standards Board (OSHSB), at 9:35 am. The Chair was assisted by Leslie Matsuoka, Program Analyst, OSHSB. The meeting opened with self-introductions by those in attendance, including members and interested parties.

2. Background of the proposed rulemaking.

The Chairman reviewed the Standards Board policy regarding the use of advisory committee meetings; i.e. they are informal and advisory in nature. The Board will use consensus recommendations to develop a reasonable and effective proposal; however, it may be necessary later in the rulemaking process to amend, modify or reject these recommendations, due to the review process. Furthermore, California must be at least as effective as federal standards.

Chair briefly reviewed the background of the proposal. Prior to July 7, 2011, all Title 8 crane standards were horizontal and resided in the General Industry Safety Orders (GISO); however, a federal negotiated rulemaking (CDAC) in 2010, promulgated standards in 29 CFR 1926 specific for cranes and derricks in construction. The Board originally proposed to combine provisions of the CDAC into the GISO using an expedited (Horcher) rulemaking process; however, general industry stakeholders were concerned that the proposed inclusion of the new federal construction standards into the GISO could "over-reach" and apply to general industry. This was not permitted by the Horcher rulemaking process; thus the CDAC was placed in the Construction Safety Orders (CSO). Since that time, the Board has received input from stakeholders (both management and labor) that it would make sense to recombine all the crane safety orders back into the GISO to provide "one stop shopping." The logic being that a crane, particularly a mobile crane, can work on construction and general industry-type projects sometimes in the same day.

This is the 2nd advisory committee (AC2) working on the task of bringing the CSO crane safety orders into the GISO. Subjects proposed for review by AC2 included the following:

- Power line safety – Equipment operations.
- Safety devices
- Operational aids
- Operations

- Multiple-crane/derrick lifts – Supplemental requirements
- Keeping clear of the load, free-fall and controlled load lowering
- Signals and signal person qualifications

Chair also said that the goal was to reach a consensus proposal to combine CSO into GISO and to have it ready to notice around the end of the year.

Electronic copies of the proposal (work-in-progress) had been posted with the AC2 invitation on the web. However, hard-copies were made available at the AC for anyone not having access to the electronic version.

Chair noted that the 1st committee (AC1) was unable to reach consensus on a definition for multipurpose machines and a subcommittee (SC) had met to reach a consensus. The SC consensus definition of multipurpose machines in section 4885 read as follows:

> "Multi-Purpose Machine. A machine, other than a crane or derrick, that is designed to be configured and used in various ways, at least one of which allows it to raise or lower by means of a hoist and horizontally move a suspended load."

The SC consensus for the scope, section 4880, was as follows (in relevant part):

> (a)(1) This standard applies to power operated equipment that can hoist, lower and horizontally move a suspended load with or without attachments. Such equipment includes, but is not limited to: Articulating boom cranes (such as knuckle-boom cranes); crawler cranes; floating cranes; cranes on barges; locomotive cranes; mobile cranes (such as wheel-mounted, rough-terrain, all terrain, commercial truck-mounted, and boom truck cranes); multi-purpose machines when configured to raise or lower by means of a hoist and horizontally move a suspended load; industrial cranes (such as carry deck cranes); cranes being used as dedicated pile drivers; service/mechanic trucks with a hoisting device; a crane on a monorail; tower cranes (such as a fixed jib, i.e., "hammerhead boom", luffing boom and self-erecting); pedestal cranes; portal cranes; overhead/bridge and gantry cranes; straddle cranes; side boom cranes; derricks; and variations of such equipment. However, items listed in subsection (c) of this section are excluded from the scope of this standard.
>
> ***
>
> (c)(8) Powered industrial trucks (forklifts), except when configured to raise or lower by means of a hoist and horizontally move a suspended load.
> (9) …
> (c)(10) Multi-purpose machines or industrial trucks (forklifts) hoisting by use of a come-along or chainfall.

The AC2 committee had no comment on the consensus definition and scope.

3. Section-by-section review.

The committee next turned to a section-by-section review of the proposal.

Section 5003.1. *Power Line Safety (Up to 350kV) – Equipment Operations.*
Title and Subsection (a). There was discussion about clearances for qualified electrical workers (QEW's) vs. non-QEW crane operators. It was noted that section 2940.2 will continue to apply for QEW's and the Section 5003.1 Table A clearances will apply for non-QEW's.

Electric utility representatives suggested that the section title be modified to set the lower voltage limit at 301 or 601 volts. They opined that if the operator didn't know what the line voltage was, then a 20' clearance would apply. The lower voltage limit would also reduce inquiries they get about street lighting circuits. Chair noted that it would be difficult to set a lower limit when the feds don't, and another speaker agreed, noting that it will be better to have consistent standards for interstate commerce. In response to a question about the minimum voltage at which the Table applies, the chair checked the recently published OSHA CPL[1] and could find no lower voltage limit.

It was noted that these standards come from federal CFR Part 1926 and thus apply to construction. The Division commented however that the hazard is the same in general industry. Caltrans added that they have tree-trimmers who work around electrical lines and who are not QEW's. They need the Table A clearances for tree-trimming (which is general industry work) as well.

Electric utilities saw this as generating a lot of calls from contractors seeking to find out line voltages they are working around, especially regarding 120 volt and 240 volt street lighting. Silbernagel agreed that with the amount of work going on, as this currently stands, there will be lots of calls that will not be responded within 2-days and contractors will just go ahead without getting the voltage information. However, chair reminded that when in doubt, a 20' clearance applies. After further discussion, the consensus was to leave the section title as-is.

Subsections (b)-(d). Reviewed; no comments.

Subsection (e). Working near transmitter/communication towers.
Mr. Pena stated that public utilities are required to allow placement of cell phone antennas on their transmission towers and that, in some cases, it is difficult to determine who owns the antenna. He asked how one is to determine who owns the antenna in order to turn the power off. Also, many have battery backup.

Several members opined that the verbiage "where the equipment is close enough for an electrical charge to be induced in the equipment" is unenforceable. It appears that this may have been intended for work near radio or television towers; however there are many sources of voltage in the air, and many members have experienced induced voltages in their crane booms. Often they are unable to determine the source, and the source can be a mile or more away, so what is "near"? The Chair opined that if work is being done in an area where voltages are being induced the standard requires that

[1] OSHA CPL 02-01-057, effective 10/17/2014.

precautions be taken, and all the examples given by committee members support that this is what they do when they encounter induced voltages.

Closson opined that subsection (e) is too limited; it only appears to apply to transmitter/communication towers, and not to other sources that everyone has experienced. Several members had concerns with the term "near." Closson added that the only way to know that the tower or boom has been energized is when sparks or shocking occurs.

There was discussion how to modify the proposed text to address the concerns that had been raised. Proposed modifications for subsection (e) were developed that read:

"(e) When working where a hazardous electrical charge is induced in the equipment or materials being handled, the transmitter or other source shall be de-energized or one of the following precautions shall be taken:
(1) The equipment shall be electrically grounded;
(2) A non-conductive insulating link shall be used between the hook and the load; or
(3) A non-conductive hoisting rope shall be used."
[Ed note: "or other source" has been added post-AC, based on committee discussion].

Bland opined that with these options a non-conductive tag line would not be necessary.

Closson commented that there is no certification for insulating links, thus he felt that allowing an option for one could be problematic. However, Souza stated that although insulated links are not UL rated, they have been used for years. He said the links have tonnage and voltage ratings on them.

There appeared to be general agreement with the verbiage for subsection (e) as shown above. *[Ed note: tag lines were added back in to (e)(1)for equivalency with fed text]*

Subsection (f). Training.
There was a suggestion to modify (f)(4), to include methods for safe evacuation should equipment become energized. Chair commented that the best protection is for the employee to remain in the equipment until the power line is de-energized unless the equipment catches on fire. The speaker commented that evacuation methods would apply to individuals working on the ground around energized equipment. There was agreement that this addition would provide useful guidance to the employer in training his employees. The following modification was agreed upon:

(f)(4) The danger of the potentially energized zone around the equipment (step potential) and the methods for the safe evacuation in an energized condition.
[Ed note: "safe" changed to "emergency" in text. There is no safe way to evacuate energized equipment]

Subsection (g). Devices originally designed by the manufacturer for use as a safety device, operational aid, etc. Reviewed; no comments.

This concluded the review of section 5003.1 and the committee recessed for lunch.

Section 5003.2. *Power Line Safety (Over 350kV).* This section was reviewed without comment.

Section 5003.3. *Power Line Safety (All Voltages) – Equipment Operations Closer Than the Table A Zone. Subsections (a) and (b).* Reviewed without comment. Chair noted that "energized overhead high-voltage" was struck from (b) as a result of comments in the September 2014 AC.

Exception to (b). A proposal was made to modify the clause to read: "…systems that automatically control slew,…" Silbernagel opined that the systems aren't entirely automatic as they must be set-up and programmed. Souza stated that once the systems are programmed, they operate automatically and this is understood in the industry.

Pena queried whether "horizontal proximity" should be modified to "horizontal and vertical proximity." However, others commented that automatic controls are programmed based on radius (thus horizontal distance) and not for vertical distance.

Other than these reservations, there were no other concerns and the consensus appeared to be to include "automatically."

Section 5003.4. *Power Line Safety - While Traveling Under or Near Power Lines with No Load. Subsection (a)*. Berg questioned why this was limited to construction. Chair stated that this section is from the federal standard for cranes in construction and the phrases are in the federal standard; also they serve to prevent over-reach into general industry.

Subsection (b)(4). Closson opined that without the construction limitation, the power line clearances would apply to cranes traveling (or being transported) on public highways and that 5003.4 would require spotters whenever the crane is within 20' of power lines.

Smith stated that travel on public highways is covered by the California Vehicle Code and that anything over 14' high is an oversize load and requires a transportation permit. If there are power line clearance issues, ways can be found to mitigate the problem, even if it involves changes in routing; thus 5003.4 will not apply to over-the-road transportation.

Bland expressed concern that the application of 5003.4 could be a bit more cloudy for a crane traveling down an oil field road (or any private road) with power lines within 20'.

Closson added that since the feds wrote this section for construction, general industry was not considered and we will need to look carefully at it if we extend it to general industry. He opined that in addition to a dedicated spotter, there are requirements that may not be appropriate for general industry.

After considerable discussion, there was no apparent consensus on expanding coverage of this section to include general industry; however Berg continued to support its expansion.

Sensing an impasse, Bland suggested crafting conditions regarding the requirements for a dedicated spotter in construction vs. general industry. There was discussion on how best to accomplish this. Chair suggested that the committee look at how section 4991 would interface with this subject.

Bland noted that in construction the crane is often lifting a load; whereas it is usually "buttoned-up" and not carrying a load while in transit (over a public or private road).

Closson continued to emphasize that the federal verbiage was developed with a construction site in-mind and without consideration for how the standards might apply to general industry.

Bland opined that a crane traveling in the context of section 4991 is "buttoned-up" and therefore he proposed excepting travel under the conditions of 4991 from the provisions of section 5003.4. Thus, if the provisions of 5003.4 are to be expanded to general industry, he proposed an exception to 5003.4(a) to clarify requirements for travel.

Closson continued to express reservations about the expansion of 5003.4 to general industry; however Bland felt that an exception for travel under 4991 would address those concerns. He proposed the following verbiage for the exception to (a):

> "When traveling under the conditions set forth in Section 4991, the requirements of Section 5003.4 do not apply."

Also the phrase "on a construction site" would be struck-out in two places in subsection (a).
The committee reviewed the proposed exception and strikeouts and there was no further comment.

[Ed note: The inclusion of general industry was pushed by the Division; the amendments were made to make it more palatable to everyone else. Closson had serious concerns. The reference to section 4991 was modified to 4991(b) for cranes in-transit which was the intent of the exception.]

***Section 5005**. Work Near Transmitter Towers*.
There were no further comments as this subject had been discussed as part of the review of 5003.1(e).

***Section 2946.** Provisions for Preventing Accidents Due to Proximity to Overhead Lines.*
Chair commented that the text shown on the Form 9 was just new verbiage proposed to be added to section 2946 and that the existing text was not proposed for modification.

Subsection (e).
McClelland requested clarification of the clause "…for all operations where it is difficult for the operator to maintain the desired clearance by visual means." He felt it should be clarified that these are site conditions rather than (for example) the operator's lack of familiarity with the crane or perhaps

operational issues with crane. He proposed modifying the clause to read: "…where site conditions or crane configurations make it difficult for the operator…"

The committee reviewed the proposal and had no further comments.

Section 5017. *Safety Devices*.
Chair opened by noting that the text is the same as what is currently in section 1615.1.
Subsection (a).

There was a question if there is a B30 consensus standard requirement for all cranes to have a crane level indicator; for example, overhead cranes don't need them. Someone surmised that is because overhead cranes are not common in construction. Chair noted that subsection (a)(1)(C) excludes portal cranes, derricks, floating cranes/derricks and land cranes/derricks on barges, pontoons, vessels or other means of flotation.

Committee discussion indicated that many cranes currently in service do not have built-in level indicators. There was concern that this requirement could require retrofitting. Closson stated that all B30.5 mobile cranes are required to have level indicators; however digger derricks are not mobile cranes and are covered by other standards. Another commenter noted that level indicators are already required on mobile cranes by section 4924(e). Chair added that this requirement is in the federal standard [1926.1415(a)(1)] for cranes in construction and that the proposed verbiage [5017(a)] limits the requirement to cranes and derricks in construction.

Another person commented that we are trying to consolidate CSO into GISO; however, we keep running into requirements that are specific to construction. He opined that it might be best to just leave the standards (CSO and GISO) separate. Chair stated however that the majority favors combining them.

Closson also opined that 5017(a) overlaps and potentially could conflict with national consensus standards referenced in 4884.

After more discussion, Bland suggested that the term "all cranes" is more inclusive than the federal limit to construction. Closson suggested that T8, section 4884 is more inclusive than the federal standards because the B30 standards include all the federal requirements for safety devices and more. He added that CA generally has adopted more recent editions of the B30 standards which are more restrictive than earlier editions, so CA requirements for safety devices are more protective than the federal standards.

At this point the committee discussion favored striking 5017(a) because it is covered elsewhere in Group 13.

Subsection (b).

Bland opined that subsection (b) is also unnecessary for similar reasons (covered elsewhere in Group 13). Chair, however, asked about the part of subsection (b) pertaining to actions required if safety devices are not working properly. Berg opposed taking out subsection (b). Bland therefore suggested modifying subsection (b) by replacing "in this section" with "required by Group 13" since Group 13 is more expansive.

Closson stated that "safety device" is not a defined term, and since these are safety orders, every device included in them could be considered a safety device, thus the use of "safety device" in 5017(b) can be problematic. He opined that "safety devices" as listed in subsection (a) depend on the type of crane; i.e., they may not be applicable to all crane types.

Chair noted that this gets back to a concern that has been raised before that we are taking too much out of the standard in order to combine CSO into GISO. Bland stated that we are not taking anything out; we just aren't repeating it. He opined that each Article contains a listing of safety devices specific for the crane type; i.e. bridge cranes, mobile cranes, etc.

Nyple commented that CA standards do not allow the use of alternative measures whereas federal standards do. He opined that there are cases where alternative measures, as permitted by the feds, make sense. A commenter noted that section 4924(c) contains an exception which appears to permit an alternative measure for a safety device. The Division commented however that the exception is not for a safety device, but for an operational aid; thus the Division's position is that they do not permit alternative measures for safety devices. The consensus of the committee was to retain the state prohibition of alternative measures for safety devices with limited exceptions.

Bland opined that the distinction is ambiguous and will complicate compliance and enforcement. Leslie agreed with Closson's concerns about eliminating subsection (a). He opined that subsections (a) and (b) go hand-in-hand and that (b) pertains to the safety devices enumerated in (a). Wright noted, for example, that 4922(d) contains specific requirements for boom stops, and commented that requirements for specific components are throughout the standards.

Bland maintained that the federal list in subsection (a) only applies to a particular type of crane (a mobile crane in this case) and does not apply to all types of cranes covered in Group 13.

The discussion returned to alternative measures [last sentence of subsection (b)]. The general feeling was that the Orders do permit the use of alternative measures in some specific instances (as noted above), and that a blanket prohibition on their use is too restrictive. A suggestion was made to add "except as otherwise permitted by Group 13" to the end of the sentence, and the committee was in agreement to add this clause.

Closson commented on the phrase in the second sentence: "…the operator shall safely stop operations…" He opined that this places all the responsibility on the operator. He recommended changing it to "…the operation shall be safely stopped."

At this point subsection (b), Safety Devices, read as follows:

~~(b)~~ Proper operation required.

Operations shall not begin unless all ~~of the~~ safety devices required by Group 13 ~~listed in this section~~ are in proper working order. If a required device stops working properly during operations, ~~the operator shall safely stop operations~~ the operation shall be safely stopped. If ~~any of the~~ safety devices ~~listed in this section~~ are not in proper working order, the equipment shall be taken out of service and operations shall not resume until the device is again working properly. Alternative measures are not permitted to be used except as otherwise permitted by Group 13.

The committee appeared to be in agreement with these modifications.

After taking a break, the committee had no further comments on section 5017 and turned to section 5018.

Section 5018*. Operational aids.*

Chair commented that this section is being brought over from CSO 1615.2 mostly the same however with a few modifications, one of which is to limit it to cranes and derricks used in construction.

Subsection (a), exclusions. Bland opined that this had the same problems as the federal verbiage for 5017; i.e. the federal verbiage is for mobile cranes. If we are going to apply this to general industry, we need to define what types of cranes are covered.

Closson also questioned the federal verbiage which permits the use of "work-arounds" for malfunctioning operational aids based on their category. He saw this as a reduction in safety from current California standards. Silbernagel agreed with Closson as did the Division. The consensus of the committee is that the proposal, based on federal verbiage, would reduce safety.

There was discussion whether section 5018 was needed at all since it was widely viewed by the committee as being a reduction in safety currently required in CA. The federal "work-around"/ alternative measures make it too easy to operate the crane with reduced safety.

With regard to equivalent safety, Closson opined that CA's prohibition of "work-around" alternatives provides superior safety. He asked rhetorically how CA has been able to keep cranes up and operating safely without work-arounds. Others agreed that the federal verbiage creates loopholes for unsafe, non-compliant operation.

Mr. Nyple; however, had concerns with a wholesale deletion of section 5018. He cited anti-two block device alternative measures for example. He felt this alternative would be a very reasonable way to continue with the work to get the job done. However, the Division re-stated their opposition to temporary measure. There was no other support for section 5018 and, with the exception of one member, the committee consensus was to delete section 5018.

Section 4991. *Travel.*
Closson clarified that "transit" is for movement from one job site to another; whereas "travel" would apply to movement from one location on a job site to another. The committee appeared to be in agreement with the section 4885 definition for travel.

Hall (PMA) said they use some automated/remotely controlled cranes in their yards, and he was concerned that 4991 would require a spotter for their movement. Bland observed that this section appears to be intended for boom-type equipment. He asked that if first sentence were modified to clarify application just to boom-type equipment, would this alleviate PMA's concerns. Thus the sentence was proposed to be modified to read: "The travel of boom-type equipment and cranes ~~or boom-type excavators~~ shall be controlled…"

Closson requested to clarify subsection (c) to "the crane manufacturer" and subsection (d) to the tire pressure recommended for traveling because the manufacturer can specify different tire pressures for traveling with a load vs. stationary lifting a load. Smith proposed wording for (d)(2) to read: For equipment with tires, tire pressure specified by the ~~crane~~ equipment manufacturer for traveling with a load shall be maintained.

General discussion on operator certification.
Before moving on to the next subject, Mr. Nyple voiced his concerns over what he saw as differences between California Operator Certification Standards and Federal Standards. He opined that this will cause confusion in the industry and create problems for certifiers as well as for operators certified in California. Bland countered with a historical perspective that California standards pre-date the federal standards and are generally acknowledged to be more effective. Closson added that while the federal standards currently require certification by type and capacity, the feds are having difficulty getting a consensus on certification by capacity and likely are going to pull back on that requirement.

Leslie added that all accredited testing agencies test to the same criteria, and an operator can take his/her card and work anywhere in the country. He added that it is not just the certificate that makes a person qualified to operate a particular piece of equipment; they must be qualified, and that is what his organization and others are working on in DC right now.

Section 4994*. Hoisting.*
Chair noted that the modifications are to be consistent with federal verbiage and the last sentence in (b)(5) is shown struck-out because the CSO will be incorporated into the GISO.

Subsection (c). Chair commented that existing state verbiage was proposed to be replaced with federal verbiage which includes the 90% of maximum line pull criteria. Closson said that the 90% criterion is incorrect. The problem is that the line pull varies depending on the layer of the rope on the hoist drum and the reeving. The existing state verbiage is more accurate because it is based on the rated load of the crane. Souza added that the rated load is based on crane configuration and is a better criterion to

use. Closson suggested a way to correct the problem would be to modify subsection (c) to begin: "The operator shall test the brakes each time a load creates a line pull that is 90% or more of the maximum line pull…" because the intent is to see if the winch and brake can handle that load.

Harkey questioned whether the average operator knows what the line pull is. Closson said he had only proposed the modification using the line pull criteria because this is what the feds did, but he agreed that the line pull is something the operator cannot readily determine. A consensus developed to use the rated load/load chart instead of line pull. The group also agreed that existing state verbiage "a load approaching the rated load" is vague and therefore proposed to change it to "90% or more of the rated load as configured…"

Subsection (f) Multiple crane/derrick lifts – Supplemental requirements for construction.
A commenter opined that multiple crane lifts are addressed elsewhere in Title 8, but the only other place that could be located was in 1710 which is a vertical standard for steel erection. Therefore the consensus was to leave subsection (f) as proposed.

Section 4991 *Revisited for marine terminals.*
Discussion returned to section 4991 and whether these requirements should apply to marine terminals. Hall (PMA) stated that their equipment is operating in a congested but controlled environment and that requiring a spotter [subsection (d)] would put people and equipment in harm's way and would actually be more hazardous than the way they are doing it. He opined that consolidating federal construction standards into GISO are problematic for maritime because marine terminals are covered by a vertical standard (Article 14); they are not construction and they are not general industry. He was concerned that this section might be applied to their gantry cranes, including rubber-tired gantry cranes. Closson noted that gantry cranes are not currently listed in 4991 but agreed that adding the requirement for a spotter at marine terminals would diminish safety there. A suggestion was made to include an exception to subsection (d)(1) for marine terminals to clarify their exemption from this requirement. PMA proposed to use the same verbiage for the exception as for 5006.1. There was no opposition to this exemption.

At this point Chair reviewed the modifications made to 4991. This completed the committee's review of Section 4991, Travel, and the committee was recessed at 4:25 pm for the day.

Thursday, March 26, 2015 (Second Day).

1. Opening remarks.

The meeting was called to order by Chairman, Conrad Tolson, Senior Engineer, OSHSB, at 9:05 am. Chair was assisted by Leslie Matsuoka, Program Analyst, OSHSB. The Chair reminded those in attendance to please sign-in for the second day; he also requested business cards if available. The meeting opened with self-introductions by those in attendance, including members and interested parties.

Section 4999. *Handling Loads.*

Subsection (b). [Ed note: Sections (b)(1) and (b)(2) in the following discussion have been renumbered to (b)(1)(A) and (B) respectively on the updated work-in-progress document]

Closson expressed concern with putting the administrative burden ("The operator shall verify…") on the operator. He agreed that the load should be verified, but felt it was incorrect to put that responsibility on the operator. Wright noted that the underline and strikeout appeared to take this responsibility away from the rigger; however he opined that (b)(1) and (2) just require the information be determined. A suggestion was made to reinstate the struck-out state verbiage.

Souza also suggested changing "rigger" to "qualified person." Harkey and McCarthy (representing Ironworkers) felt that "rigger" should be retained; however, another member commented that "qualified persons" includes riggers.

There was continued discussion on the use of "rigger" vs. "qualified person." Closson questioned whether "rigger" is a defined term.

Leslie (Operating Engineers) questioned the wisdom of taking the crane operator out of the requirement; he opined that the operator is the "captain of the ship." Harkey called attention to (b)(2) that the lift shall not proceed until the operator verifies the load; however the operator is not the only one involved in that process per (b)(1). There was more discussion.

In an attempt to find consensus, Chair suggested that the committee focus on (b)(1) and (2) and from there could go back to the header subsection (b).

Silbernagel noted that (b)(1) ends with "In addition, when requested by the operator, this information shall be provided to the operator…" Berg recommended this be changed to take out "when requested" and just say "This information shall be provided to the operator." McClellan felt that the header paragraph (b) should include the qualified person in determining the load.

Another person wanted to clarify that "qualified person" includes riggers. There was considerable discussion about use of the term "rigger" [existing GISO verbiage uses "qualified person (rigger)…"] or just use the term "qualified person." Nyple noted that the definition for "qualified rigger" is "a rigger who meets the criteria for a qualified person." The committee continued to work on drafting subsection (b).

Closson reminded the committee that, by virtue of the location in the regulations, the proposed verbiage must work for many types of cranes; e.g., mobile cranes, tower cranes, overhead cranes, etc. The 75% (federal verbiage) used in (b)(2) is for mobile cranes on outriggers on an unimproved site, whereas we have a larger margin of confidence for general industry cranes set-up on structural foundations.

Chair proposed to go back and review the committee discussion and bring a modified proposal for mobile cranes back to the advisory committee for further consideration.

[Ed note: section 4999(b) has been modified based on committee discussions. Proposed modifications are included in the updated work-in-progress Form 9]

Subsection (i). Holding the Load.
The committee reviewed subsection (i) and there was no comment as proposed.

Subsection (k). Wheel-mounted cranes.
Closson commented that wheels are steel; does this change limit the application to rail-mounted equipment?
There was also discussion about lifting the load over the front of the crane. Nyple suggested that if the manufacturer's load chart is followed, this would address all lifting conditions. When asked, Chair said it appeared that the federal change may have been prompted by an incident where the mobile crane tires were overloaded by lifting over the front. Committee members all seemed to feel that if the load charts were followed, jacks and outriggers would be set thus preventing this from occurring.

Yow proposed and the committee appeared to be in general agreement to go back to the original verbiage of 4999(k) with minor modifications. Closson noted that section 4885 currently defines "cranes, wheel mounted" to have rubber tires, so he withdrew his earlier comment about wheels vs tires. Another member noted that rather than "certified agency" the correct term should be "certified agent." Thus the consensus for subsection (k) was: "On wheel-mounted cranes, no loads shall be lifted over the front area except as permitted by the manufacturer or approved by the certified agent."

After a morning break, deliberations resumed at approximately 10:30 am.

Section 5008. *Operating Practices.*
5008 as proposed read: "Whenever the operator doubts the safety of a movement, the operator shall have authority to stop the hoisting operation until a qualified person has determined that safety has been assured."

Miller expressed concern that the way it was written the operator could stop the operation, but a qualified person could over-ride him and order resumption of operations. He recommended modifying to read: "until a qualified person and the operator have determined and agreed…" There were no further comments.

Section 5008.1*. Operation.*
Subsection (a) was read. Closson opined that it was somewhat vague, and broad, but other members felt it was a reasonable and understandable performance standard. No changes were made.

Subsection (b). The only comment was on (b)(2) regarding availability of procedures and load charts. Even though electronic load charts are primarily used on new cranes, several speakers said they are also furnished with back-up written charts attached with a wire lanyard and placed behind the operator's seat. So for (b)(2) to apply, someone would have had to remove the hard copy from behind the seat. The committee wanted to clarify that if this were to occur, then the operator would have to shut down the crane or cease operations. There was discussion about removing "only" from the verbiage and modifying the sentence to "Where rated capacities are available in the cab ~~only~~ in electronic or other form …"

Yow wanted to be sure that section 5008.1 would not eliminate section 4923 (Load rating chart). Chair inquired whether we should try to incorporate 5008.1(b) into 4923. Closson reviewed 4923 with the committee and noted that, with the exception of the federal requirements for documentation being in English and in electronic form, everything else is covered in 4923, often in more detail. He added that the "electronic form" issue is a new issue for mobile cranes. Chair offered to compare 5008.1 with 4923 and see where the provisions of 5008.1 can be combined into 4923.

[Ed note: 5008.1(b)(1) will be deleted as it was mostly copied from 4965(c) and is not required by the federal version. Thus 4923 and 4965(c) will continue to prescribe requirements for load charts.]

Section 5002. *Overhead Loads.*
Chair noted that existing 5002 will be renumbered to subsection (a) and the exception to existing 5002 will be replaced with new subsection 5002(b).

Subsection (e)(2). Miller commented there are occasions in tilt-up construction where it is necessary for employees to approach the slab as it goes upright to grab braces while the crane still has the slab. At this time the employees may approach the fall zone, but they will not be under the load. He wanted confirmation that this verbiage would not prohibit this practice. Souza/Division did not see the proposed wording limiting the installation of braces for tilt-up construction.

Subsection (b) exceptions. Strunk noted that often the oiler needs to enter the fall zone when the load is not moving; he requested to add "oiler or assistant to the operator" to the list of exceptions. The committee was in agreement.

Subsection (e)(2) revisited.
The Division reopened the discussion of subsection (e)(2) noting that CSO 1715(d)(5) requires that lifting methods and procedures shall be such that employees are not at risk of being struck by the panel. There was discussion in the back of the room (out of range of the microphone) as to the potential conflict between GISO 5002(e)(2) and CSO 1715(d)(5). Lacking a solution to the potential conflict, the committee moved on. There were no other issues/concerns raised with section 5002 as modified by committee discussion.

At this point the committee recessed for lunch. Upon returning, the committee took up section 5002.1.

***Section 5002.1**. Free Fall and Controlled Load Lowering.*
Subsection (a). Boom free fall prohibitions. Yow commented that GISO Article 93 (Boom-type mobile cranes) addresses this subject. The proposed location of this content in Article 98 (Operating Rules) means it would apply to all cranes, and he thought that Art. 93 would be a better location for it. He felt we could just take the content of 5002.1 and move it into Art. 93.

[Ed note: contents of sec. 5002.1 have been relocated to Art. 93, sec. 4928.1]

Closson opined that most cranes have free fall and many cranes have special controls to permit free fall. The proposed text would prohibit free fall, and he didn't know if this would be a problem or not. He said that normally cranes that are equipped with controls that lock-out free fall have been permitted to use free fall.

There was discussion about how to permit the use of cranes with free fall controls, and a proposal was made to add an exception for cranes configured to prohibit free fall.

[Ed note: After the committee meeting, Chair reviewed the federal preamble for 1926.1426 (the federal counterpart for 5002.1). The feds did not intend to prohibit cranes configured to prohibit free fall. This condition is permitted by 1926.1426(b), controlled load lowering, thus the proposed exception is not necessary and has been removed from the proposal; however, this subject has been relocated to section 4928.1 as noted above. 5002.1(c) was deleted as it is covered by 4949(d). Other minor modifications recommended by Closson have been added.]

There were no other comments on Section 5002.1 (now renumbered to 4928.1).

***Section 5001**. Signals – General requirements*.
Subsection (a)(1). Harkey noted that the clause "point of operation, meaning the load travel or the area near or at load placement…" doesn't cover all the actions that can occur at the point of operation. For example, the pick point could be outside the operator's view and require a signal person as well. Thus the existing state verbiage is more protective than the federal modification.

Closson opined that the federal verbiage would mean that if an operator using an overhead crane in a warehouse or manufacturing facility can't see the ultimate destination for the load when he starts the operation, a signal person would be required. The problem is that the federal verbiage was written for a mobile crane, but it's placement in the standard makes it applicable to an industrial environment.

Thus the committee was in agreement to delete the clause: "…meaning the load travel or the area near or at load placement…"

Hall also had concerns with (a)(2) and (a)(3) which could be problematic at a marine terminal. Closson added that (2) and (3) were written at the federal level with mobile cranes in mind. He also noted that

the federal definition for "point of operation" in this case conflicts with the GISO definition (the only one of which is for power operated presses). This can create problems in interpretation and application. The root problem with (a)(2) and (3) is that they were intended for mobile cranes but they are not appropriate for many cranes in an industrial setting. Based on committee discussion, a modification was made to make (a)(2) and (3) applicable only to mobile cranes.

Subsections (b) and (c). No comments.

Subsection (d) was read. Hall (PMA) commented that maritime labor and management have negotiated hand signals which are not the same as Title 8 standard hand signals. He wanted to be sure they could continue to use their negotiated signals. It was also noted that section 5001, Plate I, are just recommendations based on B30 standards, and that PMA has published their negotiated hand signals in the Pacific Coast Marine Safety Code. Harkey opined that the published hand signals constitute standard hand signals for the maritime industry. The Division agreed that PMA hand signals are covered under subsection (d)(1).

Silbernagel observed that exception (3) to (d)(1) appeared to be misplaced and that it actually would be more appropriate under (d)(1) but not as an exception.

[Ed note: the text of exception 3 is found in existing text of 5001(e), and thus it makes sense to leave it in its current location.]

Subsection (e). New signals. Closson asked for clarification of the clause: "…where the employer demonstrates that:" He asked who the employer should demonstrate to (the Division?). The Division said this clause was not needed, so it was struck from the text without objection.

Subsections (f) and (g) were reviewed without comment.

Subsection (h). [Ed note: subsection (h) has been renumbered to subsection (i)] Hall questioned how this would work if the employer had developed a system of cameras and sensors in lieu of a signal person. In that case the operator would not have a signal person to communicate with.

Closson opined that this situation is covered by 5008(c) and it is unnecessary to duplicate it here. Harkey, reiterated that "the operator is the captain of the ship," and thus he opined there would be no harm in leaving this section as proposed. Closson opined that 5008(c) accomplishes the same thing and is broader in scope. Committee opinion on this was divided, so although it appears to be somewhat duplicative section 5008(h) will be left in as 5008(i).

Subsections (i) and (j) were reviewed without comment.

***Section 5001.1**. Signals – Radio, Telephone or other Electronic Transmission of Signals.*
Subsection (a). Closson opined that "effective" is not necessary and that "clear and reliable" cover it.

Wright added that if it is clear and reliable, it is effective. Chair opined however that OSHA might question the omission of "effective." Another speaker opined that Morse code is clear and reliable, but not effective. Thus "reliable" will remain as proposed.

Section 5001.2*. Signals – Voice Signals – Additional Requirements*. Reviewed without comment.

Section 5001.3*. Signal person qualifications (for Cranes and Derricks in Construction).*
Chair called attention to the fact that this section applies only to cranes and derricks in construction.
Subsection (a). There was committee discussion of situations where the general contractor trains the subcontractor's employees for signaling. The Division indicated that this would fall under 3rd party qualification, but that the qualification would not be portable.

Yarbrough also raised a question about electronic vs. hard copy signal person qualification documents (card). He wanted clarification that digital certification (i.e., a photo of a c-card on a cell phone) is acceptable. The Division indicated this would be acceptable.

The sense of the committee was that the verbiage in 5001.3 as proposed was adequate and that no changes or modifications were necessary.

Subsections (b) and (c) were reviewed without comment.

Section 5012*. Training – Additional Requirements for Cranes*.
Chair called attention to the fact that this section applies only to cranes.
Subsection (a). Nyple opined that this section should incorporate the new proposed federal training standards. Chair responded that these requirements are under development at the federal level and that this rulemaking won't address something that hasn't been formally promulgated by the feds. Nyple opined that once the new federal training standards are adopted we will need to do a substantial revision to these training requirements. The Chair indicated that fed changes, if any, will be done as a separate rulemaking.

Section 5020*. Operational Testing*.
Subsection (a). Closson inquired whether operational testing by a certified agent would be required if a drilling contractor put a power pack on the back of the crane because that addition would affect the swing radius, load chart, reduce rearward stability, etc. He added that the feds do not require proof load testing and they only require a qualified person vs. a certified agent. The Division noted that 5020 does not require a proof load test; just operational testing, and the testing can be done by the manufacturer or by a certified agent. Closson noted that the feds only require a qualified person to do the testing, so this is somewhat a "toothless" change for them. The Division noted that 5020 merely says that the manufacturer or a registered engineer needs to look at the modified crane whereas 5022 requires proof load testing for a modified crane. Furthermore, 5022 specifies that proof load testing is required after major modifications or repairs.

There was discussion about what constitutes a major modification or repair. Closson pointed out that the added text contains the verbiage that it affects safe operation or capacity. Existing verbiage in 5020 qualifies the modification to a "structural" modification, thus in the example Closson cited earlier, he opined that the addition of a power pack would not require operational testing per 5020.

Chair asked the committee, based on foregoing discussions, whether any changes were needed for the proposed verbiage in 5020. Closson reiterated that adding a power pack to the back of a crane would not be covered by 5020. However the Division noted that it would be covered by 5022.

[Ed note: a side-by-side review with federal standards revealed that the requirements of the added text shown added to 5020 were more appropriately covered in 5022 and thus the text has been removed from 5020. This appears to be consistent with committee discussion as well.]

***Section 5021**. Equipment over Three Tons Rated Capacity.*
Yow noted that this section is required by the Labor Code [sec. 7375] which set a 3 ton trigger for certification. With regard to the notes, he said that most pile driving companies get their equipment certified anyway; however certification is less common for clamshells and draglines. He opined that since this verbiage for the exceptions is in the Labor Code, we probably need to keep them.
Yarbrough said that they often see "dedicated pile drivers" being used as cranes, and the current exception #2 has been problematic.

Discussion continued on the exceptions. Yow noted that the term "lifting service" comes from the Labor Code section 7371 definition for "crane." The Division opined that clamshells, draglines and pile drivers do not meet the Labor Code definition of lifting service and that the notes/exceptions for 5021 should remain.

Yow stated that the feds only require inspection by a qualified person, whereas California adds an additional requirement for equipment over 3 tons rated capacity to be inspected by a crane certifier. Thus he opined that CA is more protective than the feds, even with the exceptions of 5021.

[Ed note: The exceptions only apply to section 5021. Clamshells, draglines and pile drivers are still covered by section 5020.]

This concluded the section-by-section review for this Advisory Committee.

4. Conclusion.
Since this is an on-going rulemaking, the minutes, work-in-progress proposal (Form 9) and Side-by-Side will be distributed to attendees before the next meeting. The committee will have an opportunity to review the proposal as it currently stands along with the minutes. If they see anything in the draft which is other than their recollection of what had been agreed to, they should send their comments to the Chair. These concerns can then be reviewed at the next committee meeting. The Chair reminds committee members to keep-in-mind that the proposal they have in-hand is a preliminary draft and that

it should not be presented to others as what Cal-OSHA is going to do. Until the new rulemaking is formally adopted, the existing CSO and GISO crane safety orders will remain in-effect.

The Chair thanked the committee members for their attendance and participation and adjourned the meeting at approximately 3:10 p.m.