U.S. Department of Labor
Occupational Safety and Health Administration

Cranes and Derricks Negotiated Rulemaking Advisory Committee

Meeting Summary – February 4-6, 2004

Agenda Review
C-DAC members reviewed and accepted the February meeting agenda.

Review and Approve January 5-7 Meeting Summary
C-DAC members reviewed the January 5-7 draft meeting summary and approved it as final with no changes. It will be available through the OSHA docket.

Structural Testing
Panel: Hans-Dieter Willim, Chief Designer, Liebherr Werk Ehingen, and Craig Percy, Vice President, All Test and Inspection, Inc., described their procedures for verifying crane design modeling. Mr. Willim explained that the draft European standard prEN13000, which includes safety standards for crane design, (projected adoption date end of 2004) does not specify a particular verification process. He explained that his company uses strain gauge testing on critical boom configurations to verify computer modeling. He noted that strain gauge testing is not practical for all boom configurations since they can number in the thousands. Mr. Willim suggested that CDAC adopt verification criteria that would require a "CE" certification as well as require 1) verification of calculation methods by appropriate tests of a single boom configuration or 2) if that verification is not available, strain gauge testing for "all relevant boom configurations" in accordance with SAE J987 and J1063.

Mr. Percy described his company's use of strain gauge testing as required under the U.S. Society of Automotive Engineers (SAE) standards (SAE J987 and SAE J1063). He stated that many prototype cranes fail strain gauge testing, despite the use of computer calculations, in part because stress concentration areas can be difficult to predict. He recommended that CDAC adopt SAE test methods in the revised regulation, either through B30.5 or as stand-alone requirements.

Discussion: The key issue discussed was whether employers may only use cranes that have been tested under SAE standards or whether there are other standards, e.g. the European standard, which will ensure worker safety. Some Committee members agreed that the European draft standard is sufficient while others stated a continued

preference for the SAE standards, which have historically ensured worker safety. The Committee agreed in concept to allow the use of the SAE testing method and to allow the use of the prEN13000 standard or other industry consensus or government standards if the manufacturer's modeling system had an authenticated history of verification through testing.

Some Committee members raised a concern about design testing for tower cranes. Since there is no U.S. testing criteria standard for tower cranes, the Committee agreed in concept to reference the appropriate DIN standard or other standard that is equally safe for tower cranes.

The C-DAC Derricks workgroup will consider appropriate testing standards for Derricks.

Discussion of Additional New Issues

C-DAC discussed the following additional new issues: Free Fall/Power Down; Critical Lifts/Engineered Lifts; Tower Cranes; Operator Cab Criteria; and Signals (standard methods).

Free Fall/Power Down: Committee members discussed when to allow the use of free fall to lower the boom or load.

Boom hoists: C-DAC members discussed the dangers of using free fall to lower the boom, and considered prohibiting its use. Since a number of older cranes do not have a power down function for the boom hoist, the Committee agreed to allow free fall for cranes built before 1972 (the first full year following the adoption of Section 1926.550), but prohibit its use on boom hoists for cranes manufactured in 1972 or later. The Committee also discussed allowing free fall of the boom hoist for cranes on barges.

Load hoists: C-DAC members agreed that the use of free fall on load hoist lines is more typical than on boom hoist lines. The Committee agreed to require power down (or prohibit free fall) when hoisting personnel or when a load is directly over a person or a power line. The Committee discussed free fall of load hoists for cranes on barges given that there are instances when it is safer to shed the load rather than to handle it. The Committee also discussed free fall during critical lifts.

Critical Lifts/Engineered Lifts: C-DAC members discussed the definition of "critical lifts" and possible requirements for such lifts. Ultimately, the Committee determined that critical lifts are defined differently depending upon a company's "usual" work.

The Committee decided not to include the concept of critical lifts in the standard, but will require pre-planning for all lifts involving two or more cranes.

Tower Cranes: The Committee reviewed draft text for tower cranes, which included topics such as foundation design, signage, structural hazards related to erecting and dismantling, climbing procedures, and additional inspection activities. The Committee decided to include tower cranes under all applicable sections of the standard and to include a separate tower cranes section for requirements that differ from the general crane requirements.

Operator Cab Criteria: C-DAC members reviewed requirements for operator cabs in the 1926.550 standard and in ASME B30.5, and discussed requirements for access to and exit from the operator cab, fire extinguishers, and additional issues.

Committee members discussed requirements for access to the operator cab, including steps and handholds. The Committee discussed the need to provide safe entry to and exit from the cab, roof and other access points. C-DAC members decided that cranes manufactured after a certain future date must be equipped with handholds and steps for safe and easy access to and from the ground to the cab and car. For cranes built prior to that date, original access points provided by the manufacturer will be required to be maintained. Additionally, principal walking surfaces will be required to be skid-resistant.

The Committee discussed the large number of OSHA violations for missing fire extinguishers. Some members stated that extinguishers are necessary for crane safety, especially with regard to electrical fires. Others noted that the fire extinguisher in the cab may be the only one available on the job site. The Committee decided to require that an accessible 10BC-rated fire extinguisher be located in or on the crane.

In addition, the Committee agreed in concept to maintain current requirements to prevent exhaust leaks and prohibit window distortion. The Committee also discussed whether to require seatbelt use for transit and travel, and provide locks for cab doors to prevent sudden opening or closing.

Signals (standard methods): C-DAC members discussed standardized voice signals and agreed to require that voice signals be given in the following order: function, direction, distance/speed, and stop. Examples of voice signals will be included in a

non-mandatory appendix. In addition, the international hand signals chart will be included in the standard as a mandatory appendix.

Cranes on Barges Panel and Discussion

Don Wright of Pile Drivers Local Union 2375 (Southern California), Dan Kuhs of Pile Drivers Local Union 56 (New England), Mitch White of Manson Construction Company, James Pritchett of Crane Inspection Service, Inc., John Colletti of John P. Colletti and Associates, and Steven Hebert of Global Industries discussed issues related to the use of cranes on barges.

Don Wright and Dan Kuhs discussed the importance of securely tying down cranes on barges, providing proper matting, ensuring barges are capable of supporting a crane for the job it will perform, and reliable communication between crane operators and divers.

Mitch White stated that in some cases tying cranes to barges or barricading around them is not practical, especially for small cranes working in designated areas on large barges because a crane may need to move to perform other tasks.

James Pritchett emphasized the need for independent certified inspectors with knowledge of cranes on barges.

John Colletti reviewed existing standards as they relate to cranes on barges and proposed new regulatory language for more stringent safety measures especially with regard to having a qualified person make certain determinations relative to cranes on barges.

Steven Hebert described the unique challenge of operating cranes on water and recommended increased preventative maintenance programs for such cranes.

After an initial discussion of cranes on barges, the Committee decided to form a work group to review issues raised by the panel discussion.

Overhead and Gantry Cranes

Tom Chamberlain of Northrop Grumman-Newport News Shipbuilding described the differences between the 1910 General Industry Standard and the current ASME B30.2, as well as the 1926 Construction Standard regarding overhead and gantry cranes. Mr. Chamberlain recommended regulating overhead and gantry cranes used in construction under 1910, despite some additional stringencies in B30.2.

Although some aspects of the 1910 standard are less stringent than the 1926 standard, members were concerned that requiring two different standards would cause confusion when overhead and gantry cranes in general industry facilities are used for construction purposes. The Committee agreed in concept to reference the 1910 standard and to add provisions of the 1926 standard, if necessary, to address hazards or other issues, such as operator training/certification specific to construction.

Boom Tip Attached Personnel Baskets

Dan Wolff, National Crane Corporation - Manitowoc Crane Group, discussed boom tip attached personnel baskets. He identified key hazards, including putting the outriggers on firm footing and power lines. Mr. Wolff advised against lifting loads with personnel basket equipment, in part because the load could snag and/or because a sudden drop of the load could jolt workers out of the basket. The Committee considered a prohibition against lifting loads with personnel except for equipment specifically designed and manufactured with limited capacity jibs for tools and materials. OSHA will research the aerial lift standard for additional information on the question of including specific requirements for boom tip attached personnel baskets.

Pile Drivers Panel and Discussion

Pat Karinen of Pile Drivers Local Union 34 (Northern California/ Nevada/ Utah), Dan Kuhs of Pile Drivers Local Union 56 (New England), Ahti Knopp of Junttan and Pentti Heinonen, President of Junttan, discussed pile drivers.

Pat Karinen and Dan Kuhs discussed tip over hazards and lack of inspection requirements for dedicated pile drivers. They recommended that the Committee include pile drivers under the crane standard because they function the same way as a crane. They have hoisting and booming (although limited) capabilities. Also, Dan Kuhs noted that oversight is needed as pile driving is stressful on the equipment. Ahti Knopp and Pentti Heinonen described the pile driving equipment their company manufactures. They do not consider their equipment to be cranes. However, they support the inclusion of dedicated pile drivers in the crane standard provided that specific provisions are included that reflect the particular construction and functions of that equipment.

C-DAC members discussed whether to include dedicated pile drivers under the standard. Some Committee members stated that pile drivers should be included because many of the functions and hazards are similar to cranes, and pile driver regulations are not likely be revised in the foreseeable future. Other members were concerned that including pile drivers would encourage incorrect use of the equipment and would subject them to provisions in the standard that should not apply to pile

drivers. The Committee is considering the inclusion of dedicated pile drivers only for applicable and appropriate provisions of the crane standard.

Review of Draft Regulatory Text - §1408 "Signals - General Requirements"

C-DAC members reviewed draft regulatory text for §1408 "Signals - General Requirements." After revisions related to the non-mandatory appendix for voice and audible signals and a few other issues, the Committee reached a tentative agreement on this section. Tentative agreements will not be reviewed again until the end of the negotiated rulemaking process, unless an agreed upon section is linked to another under discussion.

Public Comment

James Pritchett of Crane Inspection Service, Inc., stated that crane operators should be tested on their equipment in the environment in which they will be working and certified for particular equipment. He also recommended that inspectors be independent and that OSHA delegate authority "to qualified companies" to conduct inspections.

Tim Merinar, National Institute for Occupational Safety and Health, stated that engineered critical lift plans should be developed by registered professional engineers for every critical lift.

Delynn Burkhalter, Burkhalter Rigging, stated that OSHA should reference other standards in addition to the SAE standard regarding structural testing verification criteria given that domestic crane companies are affiliated with non-U.S. manufacturers and because the current fleet of cranes, which are not tested according to SAE requirements, would otherwise be devalued.

Robert Wilson, Dockbuilders and Pile Drivers Local Union 1456 (New York City), described the hazards associated with using cranes and pile drivers on barges and the need for better regulation of their use. He is in favor of tying down cranes on barges.

Louis Rioux, Dockbuilders and Pile Drivers Local Union 1456 (New York City), stated that pile drivers should be included in the crane safety standard, that pile drivers should be subject to inspection requirements, and that operators should have additional certification requirements for work on the water.

Dick Vourhes, Weeks Marine, Inc., stated that work on water should fall under marine regulations, not as an aside to land-based regulations. He also stated that the employer was often the most capable of having the specific knowledge needed to train employees.

Pat Karinen, Pile Drivers Local Union 34 (Northern California/ Nevada/ Utah) stated that training specific to pile drivers is needed.

Logistics

Meeting Dates: C-DAC will hold two meetings in March: Wednesday-Friday, March 3-5 and Monday-Wednesday, March 29-31. Meetings will begin 8:30 am each day.

Meeting Locations: The March meetings will be held in Washington, DC. The May meeting, originally planned for Chicago, will likely be held in San Antonio. C-DAC members will be notified when the location of the May meeting is confirmed.

Next Steps

Documents: The approved January 5-7 meeting summary will be distributed as final. The facilitators will draft the meeting summary for this meeting and distribute it prior to the March 3-5 meeting.

Derricks work group: will be established to assist OSHA in developing draft regulatory text for the derricks section of the standard.

Cranes on barges work group: will be established to assist OSHA in developing draft regulatory text for the cranes on barges section of the standard.

Schedule of remaining new issues: Aside from Safety Devices/Operational Aids (other than those used near Power Lines), which will be discussed at the March 3-5 meeting; and Limited requirements for cranes with a rated capacity of 2000 pounds or less, which will be discussed at the March 29-31 meeting, C-DAC has discussed all issues of the standard at least once.

Agenda for Future Meetings: For the remainder of its meetings, C-DAC will review and revise draft regulatory text with the goal of reaching tentative agreements on each section of the standard. Once tentative agreements are reached on all sections, or as many sections as possible, they will be reviewed prior to reaching any final consensus.

C-DAC Attendance – February 4-6, 2004

Present:

Stephen Brown, International Union of Operating Engineers
Michael Brunet, Manitowoc Cranes, Inc., Crane Manufacturers (AEM/CIMA)
Stephen P. Charman, Viacom Outdoor, Inc., Outdoor Advertising Association of America (OAAA)
Joseph Collins, Zachry Construction Corporation, American Road and Transportation Builders (ARTBA)
Noah Connell, U.S. Department of Labor/OSHA
Peter Juhren, Morrow Equipment Company, L.L.C.
Bernie McGrew, Link-Belt Construction Equipment Co
Frank Migliaccio, International Association of Bridge, Structural, Ornamental and Reinforcing Iron Workers
Larry Means, Wire Rope Technical Board, ASME
Brian Murphy, Sundt Construction, Associated General Contractors (AGC)
George R. "Chip" Pocock, C.P. Buckner Steel Erection, Steel Erectors Association of America
David Ritchie, The St. Paul Companies, Training and Testing
Emmett Russell, International Union of Operating Engineers
Dale Shoemaker, Carpenters International Training Center
William Smith, Maxim Crane Works
Craig Steele, Schuck & Sons Construction Company, Inc., National Association of Home Builders (NAHB)
Wallace Vega, III, Entergy Corporation, Inc.
William J. "Doc" Weaver, National Electrical Contractors Association, Inc.
Robert Weiss, Cranes Inc. and A.J. McNulty & Company, Inc., Allied Building Metal Industries
Doug Williams, Buckner Heavylift Cranes, Specialized Carriers and Rigging Association
Stephen Wiltshire, Turner Construction Company, Associated Builders and Contractors
Susan Podziba, Facilitator, Susan Podziba & Associates
Alexis Gensberg, Facilitator, Susan Podziba & Associates

Absent:

Darlaine Taylor, Century Steel Erectors, Co., Association of Union Constructors
Charles Yorio, Acordia

Approved Mtg Summary