

**Report of the Small Business Advocacy Review Panel  
On the Preliminary Draft Standard for  
Cranes and Derricks in Construction**

October 17, 2006

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# **Report of the Small Business Advocacy Review Panel on the Preliminary Draft Standard for Cranes and Derricks in Construction**

## **1. Introduction**

This report has been developed by the Small Business Advocacy Review Panel (the Panel) for the preliminary draft OSHA standard for cranes and derricks in construction. The Panel included representatives of the Occupational Safety and Health Administration, the Office of the Solicitor of the Department of Labor, the Office of Advocacy of the Small Business Administration, and the Office of Information and Regulatory Affairs of the Office of Management and Budget. On August 18, 2006, the Panel Chairperson, Robert Burt of OSHA, convened this Panel under section 609(b) of the Regulatory Flexibility Act (RFA), as amended by the Small Business Regulatory Enforcement Fairness Act (SBREFA) (5 U.S.C. 601 *et seq.*). A list of the panel members and staff representatives with their affiliations is included in Appendix A.

This report consists of four parts. This introduction is Part 1. Part 2 provides background information on the development of the draft proposal. Part 3 summarizes the requirements of the draft proposal and the oral and written comments received from the small-entity representatives (SERs). Part 4 presents the findings and recommendations of the Panel. A list of the SERs is included in Appendix B of this report; a complete copy of the written comments submitted by the SERs is included in Appendix C of this report. In addition, the core of the materials sent to the SERs, the Preliminary Initial Regulatory Flexibility Analysis, is included as Appendix D to this document.

## **2. Reasons Why Action by the Agency is Being Considered**

OSHA estimates that between 64 and 82 construction workers are killed and 263 are injured working around cranes and derricks every year. The draft proposed standard will substantially reduce fatalities and injuries among construction workers and will eliminate significant financial and emotional burdens suffered by family members and many other people associated with these cases. Preliminary estimates by OSHA indicate that as a result of this rulemaking, 37 to 48 fatalities and 186 injuries could be avoided annually by full compliance with the draft proposed standard.

The existing rule for cranes and derricks in construction, codified in 29 CFR 1926.550 (Subpart N), dates back to 1971 and is based primarily on industry consensus standards published from 1967 through 1969. Since 1971, Subpart N has undergone two additional amendments. In 1988 a new paragraph (g) was added to §1926.550 to clarify when employees on personnel platforms may be lifted by cranes. Also in 1993, provision (a)(19) was added to clarify that employees were to be kept clear of about-to-be-lifted or suspended loads. There have been considerable technological changes since those consensus standards were developed. Industry consensus standards for derricks and for crawler, truck, and

locomotive cranes were updated as recently as 2004. A cross-section of industry stakeholders asked the Agency to update Subpart N's requirements, indicating that over the past 30 years there has been considerable change in both work processes and crane technology that have made much of Subpart N obsolete.

In 1998, OSHA's Advisory Committee for Construction Safety and Health (ACCSH) formed a workgroup to review Subpart N. ACCSH charged the workgroup with the task of identifying key issues regarding the operation of cranes and derricks in construction and proposing draft language in anticipation of a future revision of Subpart N. In 1999, ACCSH passed a motion recommending that OSHA consider negotiated rulemaking as the mechanism to revise/update Subpart N. A Federal Register Notice (67 FR 46612) was published on July 16, 2002, requesting nominations for membership on the Committee and comments on the appropriateness of using negotiated rulemaking to develop a crane and derrick proposed rule. On July 3, 2003, OSHA published a Federal Register notice (68 FR 39877) announcing the members of the Committee.

The first C-DAC meeting was held in July of 2003 and over the next 11 months the Committee met ten more times. The meetings were announced in the Federal Register and open to the public. On July 9, 2004, the Committee reached a final consensus (as defined by the Committee's ground rules) on all issues and successfully negotiated a consensus-based document.

### **3. Summary of SER Comments**

#### **Provisions of the Standard**

##### *Scope*

The C-DAC document establishes its scope by a nonexclusive list of covered equipment, a paragraph that addresses attachments to covered equipment, a list of exclusions, and definitions that further describe some of the equipment. Several SERs expressed concern that the document, in their view, does not adequately tailor requirements to equipment of different sizes and hoisting capacities.

One SER (engaged primarily in residential and light construction) stated that OSHA should

consider regulating cranes based on the type of equipment, the working environment, and risk involved. For example, using a boom truck rated at 10,000 pounds lifting [] 500 pound roof trusses on a single family home on a 1 acre lot should be regulated differently than a 100,000 pound hammerhead tower crane lifting 5,000 pound steel beams in downtown Washington, DC. The materials are different, the working environment is different, the severity of the accidents are different, and the regulations should take into account these differences.

Several SERs commented that the C-DAC document should not apply to equipment that simply delivers/unloads materials to the ground or on a stack. One SER characterized these as "small unloading devices" that are "not complicated." This SER indicated that, to his knowledge, while ground conditions are a concern with this equipment, accidents have not

been occurring in the course of this activity. He also noted that once the materials are unloaded from the delivery equipment, the movement of the materials thereafter is done by others using other equipment.

The residential/light commercial SER mentioned above also suggested that the scope of the C-DAC document was not sufficiently clear. Specifically, he noted that “construction sites are now populated with multi-purpose or hybrid machines that can do many tasks” and indicated that the scope section does not clearly indicate whether those machines, as well as forklifts that have been adapted to perform hoisting, would be covered. He stated that “[t]he proposal excludes hoisting equipment that has been modified to a non-hoisting use, but it says nothing about conversion in the other direction, from non-hoisting to hoisting.” He attached several photographs and descriptions of machines that reflect this concern. In closing, he asked if he would need “to keep two operators on hand, depending on what attachments are on the machine.”

Section 1441 of the document sets out a more limited set of requirements for equipment with a hoisting capacity of 2,000 pounds or less. Some SERs questioned the appropriateness of setting 2,000 pounds as the threshold for applying these limited requirements. One SER stated his belief that this threshold was arbitrary. Another SER indicated that the criterion was set too low, and that the requirements in the proposed standard should be tiered based on increasing capacity.

### Ground Conditions

A number of SERs raised issues related to the provision placing responsibility for ensuring that ground conditions are suitable (as set forth in the C-DAC document) on the controlling entity. Several SERs favored the controlling entity and crane operator having a shared responsibility for ground conditions. In their view, that would allow for greater flexibility when a problem is found and allow for the possibility of more than one solution. Another SER suggested that responsibility for adequate ground conditions should be a shared one between all parties with an expertise in the area while the decision of who is responsible for correcting it should be a contractual one between the parties involved.

Several SERs indicated that, at present, it is common for the controlling entity and crane company to take a shared responsibility approach with respect to ground conditions. They objected to placing sole responsibility for ground conditions on the controlling entity. One SER commented that such a requirement would be difficult to implement because, as a practical matter, it is difficult for a second or third tier subcontractor to get in contact with the controlling entity. Another SER noted that there can be so many contracting layers separating a controlling entity and a subcontractor, the controlling entity may not even be aware that a crane is going to be on the site. One SER more specifically indicated that the controlling entity is typically responsible (contractually) for providing adequate space and “sufficient” ground, while the crane company is typically responsible for outlining the space that is needed. Finally, another SER stated that problems arise for various reasons and in various scenarios over which the controlling entity has no control; as such, he indicated that all parties should be involved in the resolution of ground condition issues.

Another SER stated that in typical residential construction, the owner/operator of the crane takes responsibility for ground conditions. In his view, the controlling entity on a residential construction site does not have the necessary knowledge to do an assessment of ground conditions. Instead, that entity relies on the expertise of the crane owner/operator. This SER also stated that a controlling entity without knowledge of ground conditions is unable to give the crane operator a list of unsafe ground conditions. This same sentiment was echoed by another SER, who stated that a main problem within the industry was general contractors who are unaware of the conditions that are required for a crane to operate on the site, including proper clearance.

Several other owner/operators also indicated that they take responsibility over ground conditions. Specifically, one SER noted his project engineers and superintendents are generally responsible for ground conditions, with their operators providing a final review of the set-up and safety of the situation.

One commenter proposed that section (e) (which would require the crane owner/operator to consult with the controlling entity if the crane operator believes the ground conditions are unsuitable) be removed, believing that it creates confusion as to who would be ultimately responsible for the ground conditions. In particular, he expressed concern over who would be responsible for ground conditions where the employer of the operator or the assembly/disassembly supervisor fails to raise an issue with regard to ground conditions. This SER also recommended that the job should stop if "anyone determines that the ground conditions are questionable."

### Power Lines

The SERs who commented on the provisions designed to prevent cranes from coming too close to power lines generally recommended that OSHA include additional protections beyond those in the C-DAC document.

The C-DAC document provides for several alternatives to ensure that cranes maintain minimum distances from power lines, one of which is the use of dedicated spotters. Several SERs indicated that they currently use dedicated spotters most of the time. One SER noted that he is unaware of cranes being equipped with proximity alarms (another of the C-DAC document's permitted alternatives) and therefore believes dedicated spotters would be used all of the time to comply with sections 1407(b)(3) and 1408(b)(4). Additionally, one SER recommended that the rule require the spotter to have suitable eyesight for effectively gauging clearance distances. This SER believed that the spotter's eyesight should be a minimum of 20:20 without the use of corrective glasses (but not excluding the use of contact lenses). The SER asserted that: (1) to be able to view a .75 inch diameter power line from 40 feet would technically require a visual acuteness of 20:13 but that a minimum of 20:20 should be required, and (2) that glasses could become obscured in the rain and interfere with the dedicated spotters' ability to gauge the clearance distances.

One SER recommended that the proposed standard should prohibit hoisting operations when working near power lines during fog, heavy rain, and from one hour before dusk until one hour after dawn. This SER asserted that lifts at night or dusk need additional lighting to illuminate objects that are difficult to see and that severe fog can reduce the insulating properties of insulating links and tag lines.

In relation to an employer's option to deenergize and visibly ground power lines at the worksite, one SER indicated that the reference to "grounding" is ambiguous.

One SER suggested removing the word "employer" from the power lines sections (1407-1411) because in his experience the power lines are a site restriction and currently the responsibility of the controlling entity. This SER also raised the need to address how the requirements would apply where a lift involves multiple employers. He indicated that the proposed rule should clarify which employer(s) would be required to provide a dedicated spotter and implement encroachment prevention measures.

Another SER recommended increasing the minimum clearance distance in Table A from 10 feet to 20 feet, suggesting that a greater distance is needed because power lines can sway due to wind or sag in the heat later in the day, after distances have been calculated in the morning. Additionally, this SER noted that only a small portion of work is done closer than 20 feet to a power line.

One SER suggested that the provisions regarding power lines in 1407-1411 should be equally applicable to employees performing Subpart V work.

As a means of preventing electrocution, an SER suggested that where tag lines are used, in addition to requiring the lines to be non-conductive, they should be equipped with insulators.

One SER recommended requiring that all power lines be marked with the voltage to allow employees working near power lines to quickly and easily ascertain the minimum clearance distance needed to maintain safety.

### Inspections

The C-DAC document requires inspections of cranes that have had modifications or additions that affect safe operation or that have been repaired or adjusted in a manner that relates to safe operation. In addition, it requires various levels of inspection after assembly, during each shift, monthly, annually, and during severe service.

Several SERs expressed concerns about the clarity of the document's inspection provisions. One SER suggested that the provisions should "be in a spreadsheet format" indicating what needs to be inspected and when. An SER suggested that for clarity, the corrective action specified in the shift inspection provision should be repeated under the monthly inspection provision. Another SER indicated that it was not clear whether booming down would be required as part of the shift inspection and was uncertain as to the meaning of a "visual" inspection and the limitation relative to disassembly. Another concern reflected the

requirement to refer to Section 1416 for corrective action relative to an operational aid. Specifically, the SER stated that the “operational aid malfunction language” was unclear but that the other language was understandable.

With respect to inspections generally, one SER stated that the required inspections would make their operations safer and generally they would not have difficulty doing them. That SER noted that they already have their crane inspected daily, annually (by an outside company), and after “major repairs.”

Another SER stated his belief that his company exceeds ANSI inspection requirements; he stated that they already perform and document a shift, project and annual inspection, as well as after equipment modification and repair. He indicated that they did not have a special inspection for equipment that had been idle, but that such equipment is subject to a shift inspection once it is returned to service. A third SER stated that they also follow the ANSI standard or, if a rental crane is used, verify with the crane owner that those inspections have been done.

Another SER noted that they currently perform many of the inspections called for by the C-DAC document. Similarly, an SER noted that he inspects his machines daily, inspects and certifies his cranes annually, and has their “booms recertified after major repairs.”

One SER questioned the need to apply these inspection requirements to small residential builders who often lease their cranes, along with operators, from rental firms. According to this SER, small home builders lack the expertise to perform inspections and rely on the crane owner to perform the inspections for these short rentals (“typically one day, sometimes two days”) that are often returned to the owner overnight. This SER indicated that he relies upon the “lessor (e.g. owner/operator)” to perform inspections, to comply with ANSI, and does not maintain any related documentation. An SER also suggested that the inspection requirements be adjusted to “match the level of risk inherent with the type and usage of the crane.”

With regard to paragraph 1412(a), "Modified equipment," an SER suggested that an exception be added for “transportation systems.” This SER stated that the provision could be read to require approval (under Section 1434 - Equipment Modifications) of “any boom dolly, booster, or other transportation system dispersing the weight of the crane for movement on the highways.” Another SER stated that a load testing requirement be added to this provision because the modification might have changed the equipment’s lifting properties; currently the inspection for modified equipment in the C-DAC document requires “functional testing.”

Regarding paragraph 1412(b), Repaired/adjusted equipment, an SER stated that he was concerned about a potential conflict between the provisions in paragraph 1412(b) on “Repaired/adjusted equipment” and Section 1416 on “Operational Aids.” A second SER questioned whether a contractor sending a crane to a crane dealer for repairs would have to verify that the dealer's welder is certified.

One SER stated that his company's list of items to inspect during each type of inspection was similar to the items listed in the C-DAC document. Another SER stated that they inspect "60-95% of [those] items, depending on the inspection interval." A third SER noted they are "conducting the appropriate inspections."

The shift inspection provision provides that the inspection begin before the beginning of the shift and be completed before or during that shift. One SER noted that some deficiencies only become apparent after operation has begun (and which would only be detected after the shift has begun) and therefore objected to requiring the shift inspection to take place before the beginning of the shift. This SER noted that ANSI B30.5 provides for frequent inspections including observations during operation for any deficiencies that might appear between regular inspections. He suggested that the proposal should conform to ANSI by permitting the shift inspections to occur by the end of the shift.

Several SERs took issue with some of the items listed in the shift and monthly inspections. An SER suggested that the provision that would require a wire rope inspection to take place during the shift inspection be deleted. This SER believes that this provision exceeds ANSI requirements and is not achievable without lowering the boom, which would be too time consuming. It was also suggested that the inspection of wire rope be conducted during assembly/disassembly, when the rope can be inspected by touch as well as visually. Another SER stated that the inspection of reeving each shift is unnecessary. This opinion was shared by a second SER, who noted that such an inspection was not practical unless the reeving had been changed.

An SER was concerned with the inclusion of ground conditions (1412(d)(x)) in the shift and monthly inspections. He noted that ground conditions are not included in the ANSI inspection, is the responsibility of the controlling entity, rather than the operator or other person, and suggested its removal or its insertion in Section 1402 – Ground Conditions. This SER similarly suggested that the requirement to inspect the equipment for "level position" be removed from the shift and monthly inspections. He noted that this item is not included in ANSI, and is "unclear as to its intent" with respect to when it would have to be level and "tolerances of level."

Another SER stated that it was not necessary to inspect pressure lines and electrical lines at "the start of each shift unless there are obvious leaks or lack of function."

A few SERs questioned the corrective action provision of the shift and monthly inspections. They were concerned about the possibility of down time for "any deficiencies" even if they did not constitute a hazard. However, another SER indicated that the term "deficiency," as used by some people in the industry, implies that there is a safety hazard. In his view, the identification of a "deficiency" would in and of itself give rise to potential legal liability if the employer did not immediately correct it, irrespective of whether it constituted a safety hazard.

Section 1412 specifies that if inspections reveal a deficiency in safety equipment, the competent person must immediately determine whether the deficiency constitutes a safety hazard. If it does, the crane must be taken out of service until the deficiency is corrected. One SER noted that it was sometimes difficult to obtain replacement parts for a crane, in effect suggesting that a delay in obtaining such parts could result in a crane being out of service for an extended period.

Many SERs also expressed concern about several of the items included in the annual/comprehensive inspection (Section 1412(f)). One questioned the need to include paragraphs (f)(2)(xi) and (xiv), with specific reference to the checking of pressure and relief valves. He stated that it is difficult to perform this task onsite and would require time to check the history of the equipment; he also noted that typically a mechanic rather than an inspector would perform any needed repair (suggesting that there could be a delay if a repair was needed).

Another SER suggested changing “checking pressure” to “checking pressure setting” in (f)(2)(xiv)(D) to keep it parallel with ANSI and to avoid having to check the pressure at “each and every line” as opposed to “at the end of the line.” This SER also believes that the requirement to inspect (f)(2)(xx), “[o]riginally equipped steps, ladders, handrails, guards: missing” should be removed since he believes that related safety issues are already addressed by paragraph (f)(2)(xxi) and because he believes that it could be construed to require the retention of “original” steps and ladders. He noted that these items are sometimes removed and replaced with “attaching dollies . . . for transport purposes.”

Under the C-DAC document, a "competent person" would be required to perform the shift and monthly inspections, while a "qualified person" would perform the annual/comprehensive inspection. The document defines both a "competent person" and a "qualified person." One SER, who states that his company does not currently need to perform annual inspections, noted that their operator performs "frequent" inspections, while monthly inspections are conducted by "key company personnel." He stated his concern about costs if these personnel "would not be considered competent person[s]." Another SER similarly noted that operators perform the daily inspection, while an outside company performs the annual inspection. A third SER noted that this aspect of the draft proposed standard "would not [a]ffect our practices to any significant amount."

Many SERs noted the potential effect of the inspection documentation requirements on their respective companies. Under the C-DAC document, the monthly and annual/comprehensive inspections (but not the shift inspections) would have to be documented. One SER stated that he had only one safety officer, who he wanted “working in the field,” as opposed to documenting inspections. Another SER noted that he “would have to increase the amount of recordkeeping we already perform,” which would require additional personnel. Similarly, a third SER indicated that although they currently keep monthly inspections documented on daily work records, they would most likely develop a new monthly inspection form. He also noted that they would have to “keep on file copies of annual inspections from the crane owners when we [lease]” and copies of monthly inspections from owners when they lease on a short term. Another SER emphasized that the “biggest change” posed by the C-DAC

document inspections is the additional documentation that he believes would be entailed. He stated that while they keep maintenance records for each piece of equipment, they do not “currently keep documentation of daily site conditions for each crane or daily inspections of each crane.” He noted that he moves his cranes frequently each day and does “not record the ground condition for each move.”

Another SER similarly stated that under the C-DAC document his company would have to “increase the amount of recordkeeping” they currently perform. In contrast, another SER said he would not need to do anything different than what his company is already doing to meet the documentation requirements of the C-DAC document.

### Operational Aids

Two SERs noted that it is common for employers to have difficulty in obtaining parts for older equipment. One stated that the provision that would require parts for operational aids to be fixed within seven to thirty days is unrealistic. He pointed out that obtaining a replacement operational aid is often extremely difficult for various reasons, including that it can be difficult to obtain a part number and that the part is no longer made or stocked. Often in such cases, the manufacturer does not have a substitute. He recommended OSHA revise all provisions under Section 1416 that put an unfair time burden for older equipment.

An SER asserted that Section 1416 (Operational Aids) conflicts with Section 1412 (Inspections). Specifically, he stated that Section 1412(b)(1), which requires that machines be inspected before the first use after a repair, conflicts with the provisions of 1416.

### Fall Protection

One SER stated that the expanded fall protection requirements in the C-DAC document are unnecessary and that adequate safety measures are addressed in the current Subpart N at 1926.550(a)(13)(i)-(iii) and 1926.550(c)(2). This SER stated that it does not currently use fall protection equipment for its employees; instead, it trains employees to only use areas of the crane designed for walking and to keep those areas free of any slick substance. Another SER similarly proposed that the fall protection requirements remain unchanged from the current Subpart N.

One SER stated that its employees do not use fall protection when walking the cords of a conventional (lattice boom) crane. Otherwise, this SER uses the 6 foot fall protection standard. He stated that when on top of the cab a retractable lifeline with a secure anchorage point is used. Another SER simply stated that it followed current OSHA standards for fall protection.

Four SERs noted, in direct response to a SBREFA Panel inquiry, that the crane booms they have used do not include walkways.

### Operator Qualification and Certification

The SERs expressed a number of concerns with respect to both Section 1427, "Operator Qualification and Certification," of the C-DAC document and Section 1430, "Training." Because operator training and operator certification are related topics, a number of the SER comments pertain to both. The comments that overlap the two topics will be addressed in this section, while those that pertain exclusively to training will be discussed in the next section.

#### Accredited testing/certifying organizations:

The C-DAC document requires that crane operators be certified or qualified for the equipment they operate by one of several means. One way is by an organization that has been accredited by a nationally recognized accrediting agency. A number of SERs believed that this was the only realistic option of the four options listed in the C-DAC consensus document for most small entities and focused their comments on this alternative. One SER advocated that the accrediting agency be required to be an unbiased third party or government entity, to avoid bias in the accreditation process.

Other SERs indicated concerns about the low number of accredited testing organizations currently available. Several SERs mentioned that they were aware of only one accredited testing organization, and were concerned about time constraints on getting operators certified if only one organization were available. However, another SER commented that there was a high likelihood of additional accredited testing organizations coming into existence during the four year implementation period in the C-DAC document.

#### Comments supporting certification:

Several SERs supported the certification/qualification provisions. One based his view on his experience with complying with a third party certification requirement in California, which resulted in his company auditing and making significant changes and improvements to its operator training program. Others based their views on their experiences with their company's voluntary use of third party certification. One of these stated that it had already been through a State-required operator certification process and found the additional training required was beneficial to all operators, including its experienced operators. This SER currently trains its operators in-house and administers the written exam successfully. The SER's operators found this training superior to the training done prior to implementation of the State certification standards. This SER stated it had retained all of its operators through the training/certification process and that proper advance training was necessary to achieve a high passage rate for testing.

Another SER stated that it already requires certification for its crane operator employees. Prior to requiring certification, this SER had experience with in-house training, which had proven ineffective. The SER stated that having a third party audit a training program is

necessary to ensure quality and consistency. This SER also stated that given the increasing complexity of cranes, improved training is critical for safety.

A third SER stated it is currently pursuing third party certification for its operators, with 75% of them successfully certified to date. He supports inclusion of the option provided in the C-DAC document at 1437 (c) (Option 2: Qualification by an audited employer program), which allows employers to use certified testing materials developed by a third party. In his view, use of this option would result in training and certification that is meaningful to parties outside the company. This SER found that its operators had improved in every skill area since the implementation of its current training and testing program.

An SER indicated that both his customers, and several States in which his company works, require certification by the National Commission for the Certification of Crane Operators (“NCCCO”) or its equivalent. This SER also indicated that the four-year implementation period included in the C-DAC document would allow for the development of additional accredited certification programs, as well as in-house employer qualification programs.

One SER noted that training requirements for operators have been in place for a long time under the ANSI industry consensus standards. He reported that his company has gone beyond those consensus standards and has already implemented certification and documentation requirements. He stated that, as a result, its operators’ competency has improved. In light of his experience, he concluded that training requirements alone are not enough to ensure that crane operators are adequately qualified. Another SER stated that the lack of training for crane operators in the industry is a major problem and fully supports the requirements for training, third party accreditation, and testing.

Three SERs recommended that certification requirements be graduated according to the load capacity of the crane, so that operators handling progressively larger/more hazardous loads would have to meet higher standards of certification.

Several SERs commented that certified operators increased their business and served to reduce potential liability. Many SERs leasing cranes with operators from others mentioned they prefer or even require that the operators be certified.

Comments favoring training but opposing certification:

Many SERs indicated that certification does not, standing alone, contribute to a safe work environment, and that emphasis should be placed on training rather than certification.

One SER recommended exempting certain small businesses from certification. In lieu of certification, these businesses would be required to prove the safety and training provided was adequate for their operation and equipment. This SER also recommends exempting experienced operators from certification/qualification by “grandfathering” operators with a number of years of experience.

One SER indicated that his company has a policy that, before an employee is permitted to learn how to operate a crane, that person must operate every other piece of equipment that

they use for many years. He assesses that person's ability to operate a crane based on knowing that particular employee's capabilities and qualifications based on years of observation. This SER does not have any operators who have been certified by a third party. He believes that, for small companies like his with special knowledge of each employee's abilities, which a large company may not have, it would be more appropriate for the proposed rule to emphasize training and qualification rather than certification. He also indicated that his company leases cranes with operators for all heavy lifts.

One SER stated that it currently trains its operators using a local university-affiliated training program, which includes a professional instructor who provides the employer with an assessment of each trainee's skill level. This SER also indicated that the certification requirement in the draft proposed standard was too burdensome for a small business owner.

One SER recommended that in lieu of certification, OSHA should publish standards to guide an employer's minimum training program, including the use of a commercial school or university training program to meet the training requirements for its operators. Another SER recommended the use of existing "third party institutions of learning, such as the USDA Cooperative Extension Service, U.S. Army Corps of Engineers, or TEEEX as an option for training and qualification of crane operators instead of the certification requirements in the C-DAC document."

Several SERs recommended a certification requirement similar to that described in 29 CFR 1910.178(l), the General Industry qualification program for powered industrial truck (e.g., fork lift) operators. Under that standard, an employer certifies its own powered industrial truck operators based on criteria set out in the standard.

One SER indicated that his company owns one crane and employs one crane operator trained specifically for that crane and for the types of loads for its business operation, which is primarily light duty building construction. This SER believes the addition of a written certification examination to the employee's training would not improve safety and would require him to lay off the operator.

An SER recommended that the certification requirement be replaced with an employer qualification and training program to produce trained operators targeted to the specific operations the operator will be doing and to the specific equipment the employee will be operating. This SER also stated that it would be more beneficial to have frequent and focused training based on an employer's requirements instead of those in the C-DAC document.

One SER indicated that when he leases a crane and operator from a crane rental company, he insists on third-party certification of that operator, because he has not worked with that operator enough to trust that the operator has been sufficiently trained. This SER distinguished these lifts from those in which he works with his own operators, whom he has personally supervised in both training and actual operation. For his own employees, this SER felt that internal qualification procedures are adequate.

### Literacy/language barrier issues:

Many SERs indicated that the literacy/language proficiency that would be needed to pass the written certification test could make it burdensome for employers who have operators who are illiterate or are unable to read or speak English. One SER indicated that a loss of experienced operators due to such a requirement could increase unsafe conditions on worksites by requiring the use of less experienced crane operators.

One SER indicated that his company's research showed that most manuals provided by manufacturers are available only in English, and that most manuals that were available in another language were available only in one other, German. However, another SER stated that two crane manufacturers provide operator manuals in Spanish.

### Other comments on certification:

One SER indicated that clarification is needed about the types of certification available, and what equipment might be covered by various levels of certification. Specifically, the SER raised the issue of whether certification would be by crane model or if it would apply to all crane types, comprehensively. One SER suggested defining the word "type" of crane as it is used in 1427 (b)(ii)(B) and as it relates to operator certification. This SER noted that the use of the phrase "equipment capacity and type" in this provision is unclear as to whether it would require operator certification for every make and model of crane or certain crane "types" similar to those set out in ANSI B30.5-3.1.2. To the extent the intent of this provision is to be similar to ANSI, this SER recommended that the ANSI B30.5 figures be included in the proposed standard where different levels of operator certification are required for "equipment type."

One SER, whose company is engaged in duty cycle work that primarily uses drag lines, was concerned that the C-DAC document would require crane operators to demonstrate competence with respect to issues rarely or never encountered in this type of work, e.g., power lines.

An SER expressed concern that five years might be too long a duration for a certification, citing physically and mentally disabling conditions which might occur in a shorter period of time. This SER recommended that certification be valid for two years, with a written retest every year, and that provision be made to withdraw an operator's certification if the employee becomes disabled.

One SER recommended that operators be re-evaluated, not re-certified, after the initial certification is completed, because a less comprehensive examination might save time and resources. In addition, this SER recommended that operators should be retrained and retested after an incident or "near miss."

An SER indicated that a physical examination not unlike that required for commercial driver's licenses should be required as part of the certification/qualification exam.

An SER suggested that the provision on crane operator certification/qualification might be more easily complied with if OSHA provided an option by which operators could take certification examinations verbally.

## Training

### Operator training

The C-DAC document requires that operators be trained in certain topics relevant to safe operation. As discussed in the section on operator certification, even those SERs who opposed the certification requirement believed that operator training was important to the safety of crane operations. Some, however, opposed certain training requirements in the C-DAC document. One SER indicated that the C-DAC training provisions are too broad considering the broad range of crane load capacity, worksite conditions and crane types -- that the risks presented by tall, 350-ton lattice-boom cranes are very different compared to those from small, limited reach cranes used for light construction. This SER currently leases cranes and operators and believes that the training requirements in the C-DAC document would make it too difficult for it to hire and train its own operators. Two other SERs also stated that the training requirements in the C-DAC document are too broad and cover too many types of operations that are not relevant to a small business.

One SER recommended using the forklift training standards at 29 CFR 1910.178(l)(the powered industrial truck training standard) as a model for crane operator training requirements. Another SER recommended use of that standard as a model for cranes with a capacity of less than 20 tons and with a less than 85 foot extension. Another recommended that training should be specific to the equipment and worksite conditions and consist of 3 elements: formal instruction; practical training; and evaluation of performance in the workplace.

The C-DAC document does not specify who must conduct the training and thereby permits an employer to conduct its own training program or to have its operators trained by an outside entity. One SER uses an outside training agency and augments that training with internal training and retraining. Another has its in-house competent persons train operators initially and later sends the operators to outside professionals for training and certification. A third uses a university-affiliated training program.

Two SERs indicated that if a supervisor is overseeing an operator during the operator's pre-qualification period (per C-DAC section 1427(f)), that supervisor should be adequately trained with respect to both the operation of that equipment and in the proper oversight of an operator in training.

One SER recommended elimination of 1427(a)-(e) and instead using 1427(j) as guidance for training requirements.

One SER indicated that the operator training requirements in the C-DAC document are “directly aligned with ANSI” and as a result, the elements for operator training are currently the industry standard for which employers should already be in compliance.

#### Signal person training

Three SERs indicated they currently use on-the-job training for the signal person. Another SER indicated it conducts its own training and includes demonstration of hand signals in assessing the employee, but does not use a written test.

Another SER uses ANSI A10.42 for Qualified Rigger training for signal persons, which is then documented. Another SER uses the Texas A&M Rigger Training program for signal persons.

One SER asked the Agency to clarify which employer would be responsible for qualifying the signal person on jobs where the crane has been rented.

#### Floating Cranes & Land Cranes on Barges

One SER stated that his company would be unable to comply with the requirement of Section 1437(n)(2) in the C-DAC document for rated capacity modification with respect to land cranes/derricks used on barges. This SER noted that for the duty cycle work performed by its cranes there are no experts qualified to do the calculations for the rated capacity modification as required by this section.

#### Side Boom Cranes

One SER recommended that small side boom cranes not capable of lifting above the height of a truck bed and with a capacity of not more than 6,000 pounds be exempt from Section 1440. In light of the fact that these machines are performing such limited functions, this SER felt that small side boom cranes should not be covered by the proposed rule.

#### Drug Testing and Physical Qualifications

The C-DAC document does not include provisions regarding drug testing or physical qualifications for crane operators. Some SERs believed there should be such requirements. One SER asserted that there has been an increase in drug abuse in construction. Several SERs suggested that drug testing and physical exams are key components to safe crane operations and employee safety and should be included as proposed requirements. Many of

the SERs indicated they already have their own policies covering drug testing and physical examinations.

One SER suggested that operators be required to provide evidence of passing a commercial drivers license (CDL) medical examination. Similarly, other SERs suggested that construction employers be required to follow requirements similar to the U.S. Department of Transportation's physical examination and controlled substance abuse and alcohol testing program.

### Clarity of the C-DAC Document

#### General comments on clarity

Some SERs commented that the C-DAC document is too long, making it onerous to deal with for a small business. These SERs voiced concern that its length would inhibit timely implementation because small businesses like theirs lack personnel who could devote time to outlining the standard's requirements in a concise manner. Several of these SERs worried or believed that they would need to hire additional personnel in light of the draft proposed standard's length and complexity.

Several SERs commented that the C-DAC document as a whole is not difficult to comprehend. However, one SER voiced concern that the document uses very complex language, rather than user-friendly layman's terms. Another SER felt that, because various sections in the document refer to other sections, the document is difficult to read.

#### Clarity of specific C-DAC sections

In discussing the C-DAC document's length, one SER provided a specific example of changes that, in his estimation, unnecessarily lengthened the document. The SER questioned the expansion of Section 1423 (dealing with fall protection) to a length of three and one-half pages when, in his estimation, the existing 1926.550(a)(13)(i-iii) and 1925.550(c)(2) provided more than adequate protection in only four paragraphs of written text.

One SER suggested that the inspection provisions in Section 1412 should be incorporated into a spreadsheet detailing what needs to be inspected and when each inspection must occur. The SER stated that employers could create spreadsheets themselves, but that for small businesses, spreadsheet development would be time-consuming and cause further delays before full compliance.

Similarly, another SER commented regarding Section 1412 that the operator aid malfunction language was difficult to comprehend, but that the rest of the corrective action provisions were clear.

One SER noted that in Sections 1416(d) and 1416(e) the word "days" should be defined as either calendar days or business days.

## Documentation

### General comments on documentation

Several SERs indicated that the provisions of the C-DAC consensus document would increase their companies' documentation and recordkeeping obligations. One SER felt that the only purpose that the added documentation would serve would be to provide "ammunition for lawyers to use" in the event that an employer did not fully comply with the requirement. Another SER questioned not only the amount of added documentation, but also its correlation with increased employee safety, if any. This SER cautioned that the additional documentation would have to be organized, causing companies to expend time and resources on excessive paperwork; furthermore, the SER expressed concern that the documentation requirements "will not enhance worker safety in any way."

An SER whose company already documents inspections, signal person training, crane operator certification, and operator training, commented that the record-keeping provisions in the draft proposed standard are clearly stated and much needed in the industry. This SER suggested that additional documentation requirements be added; specifically, a national database in which employers could report and search operator-caused accidents in order to check prospective employee work history.

### Requests for clarification regarding when documentation is mandated

Several SERs asked for clarification about which sections mandate documentation. One SER stated that the standard should be more specific in places where it requires documentation and recordkeeping. Another SER recommended using "plain language" at each juncture where the proposed standard requires documentation; this SER suggested the specific phrase "records shall be kept" at each part in the standard instead of "employer must" or "employer shall." This SER believed that, as written, the C-DAC document's "ambiguous language" only implies that documentation is required.

Similarly, another SER felt that phrases such as "employer must determine" and "employer must demonstrate" constitute implicit documentation requirements. This SER counted 154 such instances and identified each instance where documentation would be required either directly or indirectly.

One SER expressed concern that record-keeping changes will necessitate the implementation of a monthly inspection form, storage of such forms, and create an obligation to obtain copies of annual inspections from the crane owners when the company leases cranes.

Finally, an SER was of the view that, as a result of the C-DAC document requiring shift inspections, employers would have to make daily recording of site conditions for each crane and daily recording of each crane's inspection findings. Although Section 1412(d) (Shift

Inspections) does not specify that the shift inspections be documented, the SER was of the view that, as a practical matter, to protect against potential legal liability in the event of an accident, the employer would nonetheless have to document them. This SER's company sometimes moves cranes up to 20 times in one day; therefore, he believes that he would have to record the ground conditions after each move.

### **Description of Affected Small Entities**

The SERs included employers that rented cranes to others as their primary business; that owned their own cranes; and that leased cranes with and without operators from others.

Some SERs commented that the PIRFA ignored the characteristics, practices, and requirements of the residential homebuilding industry, especially the single-family construction industry. According to Table 3 of the PIRFA, these industries fall into the "Own and Rent" category. While this industry overall was not assumed to lease cranes only, it was included in OSHA's industrial profile. SERs noted that short term leasing of cranes was quite common in this industry.

Some SERs that solely unloaded materials using crane trucks asked whether their operations were covered by this draft proposed standard, and noted that their operations had not been included in the industrial profile or cost estimates.

OSHA estimated that there is an average of four crane jobs per year for each crane in use. One commenter stated that their company does about 20 to 30 projects per year. This commenter continued in stating that their company owns 9 cranes resulting in 800 days of usage per year. Another SER estimated about 12-20 jobs per year, with 1-2 weeks usage per job. Another stated that his company does about 77.2 jobs per year (average job length of 2 days); and that his company has 29 mobile cranes and 45 operators. This same commenter estimates 2.5 million jobs for the industry. Yet another SER commented that in 2005, his company performed 2,531 jobs. Lastly, one commenter stated that his company does about 24 jobs per year with a crane or derrick on site typically six weeks.

One SER stated that his company does not presently own any cranes. Another SER stated that his company owns 9 cranes, 9 operators (lost one operator in the past 5 years) and does not rent its cranes. One SER stated that his company owns 1 small crane, 1 operator (with no turnover) and does not rent it out. Another SER (a crane rental company) stated that his company has 11 cranes averaging about 12-15 full time employees and 2-4 part time employees.

## **Costs and Economic Impacts**

### *General Comments*

One SER stated that “the document is flawed in that all the underlying data is not sourced in many of the areas.”

As noted above, SERs generally noted many more crane jobs per crane per year than OSHA estimated, and stated that OSHA neglected firms renting cranes from others in the home building industry and crane trucks that unloaded materials on construction sites. Both of these comments have general effects on the estimates of costs and economic impacts.

### *Costs Associated with Ground Conditions*

The Agency estimated that the draft proposed standard would add 30 minutes of supervisory time to assure adequate site assessment. One commenter stated the many tiers of contractual management to reach the general contractor or controlling entity makes this requirement costlier than OSHA’s PIRFA estimate. One SER stated that “...OSHA has created a potential need to document almost every list. This could require hours of time not thirty minutes.” Another SER stated that it would be doubtful that 30 minutes may be sufficient for the supervisor’s time to assess the site conditions and more than the supervisor should be involved in the assessment. According to one SER, this assessment would cost from \$447.14 to \$1,170 should the crane already be on site. This comment was addressed by another SER who stated “this cost is part of normal operations.”

One SER commented that adding 30 minutes of supervisory time to assure adequate site assessment is not the issue; rather the whole team needs to have input to assess the operations, including the crane operator. Another SER stated that it is not feasible for the general contractor’s superintendent to perform site assessment; rather the owner/operator of the crane is in the best position to conduct this assessment, with possible coordination with the general contractors/controlling employer. Another SER commented that there is no additional time to implement the standard, however if paragraph (e) remains there would be an additional 2 hours per job for review of site conditions by the crane company. This commenter felt that paragraph (e) confuses the otherwise clear standard by indicating only one of many possible solution paths to poor ground conditions and creates ambiguity as to who is ultimately responsibly for the ground.

One SER provided the following perspective:

Often, the general contractors (OSHA has defined them as the “controlling entity”) do not have prior knowledge that a crane will be on a jobsite. For example, a framing subcontractor may set roof trusses in one of three ways: 1) hire a crane to hoist the trusses, 2) use a forklift, or 3) lift them by hand/manpower-and may use a different method depending on the accessibility of equipment.

Another SER stated that control of ground conditions should be given to the controlling contractor, due to the lack of control and power the crane company would have on any given site.

#### Costs Associated with Assembly/Disassembly

According to one SER, the operator and project supervisor are responsible for assembly and disassembly of equipment. Another SER stated that their crane does not require breaking down for travel. According to another SER, the operator, a mechanic, and a project supervisor are responsible for assembly and disassembly. It appears to be the consensus for companies that lease cranes to rely on the crane rental company for assembly and disassembly.

According to one SER, their equipment does not have instruction manuals available. This SER also added that they train all their operators on how to assemble and disassemble their cranes.

#### Costs Associated with Power Line Safety

One SER stated that as high as 50% of its jobs could be closer than 20 feet of power lines. The commenter continued by adding that the typical job would work within 20 feet of a power line for 20 days; and less than 25% of its jobs require them to work within 10 feet of power lines (these jobs average 2 days). According to another SER, power line safety issues are left to the crane rental company (crane owner and operator) to check these conditions. Another SER stated that 7.3% of their jobs per year are within 20 feet of power lines, and 0.04% of its jobs per year are within 10 feet of power lines. This commenter also added that he was not aware of any cranes that are equipped with proximity alarms and therefore believes that spotters would be used 100% of the time.

Another SER provided the following information:

“There is great variation in power line situations. This year we have had no power line conflicts but other years we have had three or four in a year. Over twenty years we have only been within ten feet once and the power company was able to cut the power during the construction time.”

One SER made several comments on the injury data presented in the PIRFA. According to this SER, “PIRFA P3, quotes 37 to 48 fatalities, however well supported evidence on Federal Register, (S030 47, 47-1), estimates 58 CPLC fatalities alone.” (The estimates of 37 to 48 are the estimated reductions in fatalities from complying with the draft proposed rule.)

According to one SER, power line safety requires training of personnel in awareness and procedure. This commenter also stated that safety personnel are on site full time when work will be performed around a power line and that all procedures are reviewed and followed

throughout the construction. Another SER stated that it uses various methods depending on the site conditions and project requirements.

One SER provided this rationale:

“When our projects involve working closer than 20 feet of power lines, each day begins with a safety briefing of the entire crew emphasizing the safety rules. We include in these meetings the minimum distance standards, handling a load when near power lines, and emergency procedures. The ANSI standards are minimum standards for our personnel. Additionally we will choose not to accept work near power lines when working near the power line is not absolutely necessary.”

According to one SER when its employees work closer than 10 feet of a power line it holds a meeting with all employees to review the related safety rules before beginning work on the project. This SER continued by stating that it establishes “no swing” zones, marking boundaries of these zones with safety fencing and signs and assigns a spotter to stay in communication with the operator to keep the crane boom out of the swing zone. Other SERs stated that the power line would either be de-energized or relocated until the project is completed.

According to one SER, all of this analysis is part of its personnel doing their normal job. Another SER stated that OSHA has failed to recognize the logistics of a power line situation and that meetings are held, planning done, and preparations made. This SER continued to state that often the utility company adds additional costs through delays and that the cost of this preparation is substantial and not accounted for by OSHA; also that each job is specific and it would be irresponsible to generalize on the costs to do this work. Lastly, one SER stated that OSHA’s cost estimates are too low and that OSHA omits, necessary travel time, support equipment, or the wage established is too low. This SER continued by saying based on its payroll costs and the local wage rates OSHA has underestimated the wages by 20% to one hundred and fifty seven percent (157%). Also, OSHA did not include the cost of time spent waiting for a power company owner/operator to provide the employer with information on the line or to inform the employer of the line’s energized status.

#### *Costs Associated with Inspections*

One SER stated that it currently performs many of the inspections that are included in the draft proposed rule with the major difference being the documentation requirements. Another SER stated that its operators inspect their machines daily, its cranes are inspected and certified once per year by an outside company, and its booms recertified after major repairs.

Another SER added the following:

“We do not believe the proposed standard should dictate that inspections should be performed prior to each shift. Not only do some deficiencies only become apparent after operation, but there is also a lack of time to implement remedies without impacting the work

and thereby putting the operator in a difficult situation. ANSI B30.5-2.1.2 states that frequent inspections include ‘observation during operation for any deficiencies that might appear between regular inspections.’ We would strongly recommend aligning 1412(d) with ANSI.”

One SER stated that the required inspections would make its operation safer and his company would not have difficulty accepting them.

#### *Costs Associated with Fall Protection*

According to one SER, its machines are equipped with handholds, grab rails, railings and slip resistant surfaces. This SER continued by stating that some of the equipment is manufacturer installed and some have been added by the employer; these include grab rails and nonskid surfaces at cab access and egress, walkways and railings around the entire cab. Another SER stated that its fall protection devices include some factory installed and some by its company; and none of its crane booms have walkways. Another SER stated that none of its cranes have fall protection on the booms, but do have fall protection on the working and walking surfaces of the crane. This SER continued by stating that its company does require fall protection equipment where applicable on its projects.

#### *Costs Associated with Operator Certification and Qualification*

Many SERs felt that the estimates for operator certification were much higher than those estimated in the PIRFA. One SER estimated as much as \$2,900 to train and certify one operator. Another SER commented “for an investment in our operators of approximately \$2,000 per student over the course of a five year certification, costing less than \$8 per week, you can not match the level of safety awareness or confidence with any other program out there.” According to one SER, the total cost for the initial certification is \$114,890.79 per operator.

One SER believed the costs for operator certification are overstated and provided the following perspective:

“We believe that the arguments for costs of the draft proposal related to written examination covering operational characteristics which demonstrates the ability to read, write, comprehend and use arithmetic and a load/capacity chart in the language of the crane manufacturer’s operation and maintenance instruction manuals to be moot. To be blunt, this is already a requirement under ANSI. The only area where it seems the draft proposal goes beyond ANSI is the requirement of the qualifications of the entity or individuals who confirm the operator meets the requirements. It is our belief that this requirement actually creates a savings for employers who are currently implementing the ANSI standards and a less expensive alternative to employers who aren’t.”

Some SERs argued that OSHA had neglected the productivity costs of having a crane operator away from work, e.g., that the absence of a crane operator would cause all work

needing cranes to come to a halt and thus result in costs far in excess of the costs of the crane operator.

### *Economic Impacts Associated with Operator Certification*

Some SERs in the business of renting cranes with operators to others felt that the certification requirements would improve their businesses, even though most felt it was likely to result in increased wages for crane operators. One SER from California who had experienced the implementation of certification requirements stated that these requirements had turned out well for his business.

SERs that owned and operated their own cranes or leased cranes from others were concerned that certification would significantly raise the costs of renting cranes, the pay of crane operators, and result in loss of work of experienced crane operators for such reasons as lack of training on all the cranes covered by certification examinations, inability of crane operators to handle written examinations, and inadequate English language ability.

One SER estimated that the California certification requirement had resulted in changing the hourly pay of crane operators from \$15 to \$18 per hour. Another SER pointed out that such a pay increase would result in cost to firms leasing cranes with operators far in excess of OSHA estimated impacts.

### *Costs Associated with Documentation Requirements*

One SER stated his company currently keeps documentation of employee craft and safety training, drug testing, health physicals, equipment inspections and repairs, safety violations and near misses. This SER continued by stating “additional costs of documentation will be incurred because all this documentation will have to be organized to comply with the proposed regulation and will not enhance worker safety in any way.” In this same SER’s oral presentation, he stated that his company has many older machines without operating manuals and procedures. He later asked: “How can we adjust the manufacturer’s specifications?” He also suggested grandfathering existing equipment.

Another SER stated the following:

“Our company already complies with many of the record-keeping requirements. We keep personnel files which document training, safety record, drug testing, and other employee information and history. We keep maintenance records on each piece of equipment documenting repairs and upkeep. We do not currently keep documentation of daily site conditions for each crane or daily inspections of each crane. We sometimes move a crane twenty times in one day and we do not record the ground conditions for each move. The documentation for this proposed standard will require substantial additional administration and added cost.”

Another SER stated “cut the paperwork; grandfather existing programs, and older cranes.” In agreement with this, another SER stated the paperwork will be much more and a

substantial cost; and that they already have a lot they have to do for DOT. He continued by stating that documentation for older cranes can be very difficult to attain, and there may be an increased liability on mechanics.

### **Duplicative and Overlapping Regulations**

Some SERs were concerned that it was not clear whether certain powered industrial trucks fell within the scope of the powered industrial truck standard or this draft proposed standard.

While not seeing a problem of conflicting rules, many SERs urged OSHA to study the costs, economic impacts and safety effects of California's recent implementation of operator certification requirements.

### **Regulatory Alternatives**

Most SERs seemed to support the document as a whole but raised concerns with specific sections within the C-DAC document, such as the scope and operator certification. These comments were discussed in the Provision by Provision section above. In light of the comments made by the SERs, the Panel has developed additional suggested alternatives addressing these issues in Section 4.

## **4. Panel Findings and Recommendations**

The draft proposal presented by OSHA to the Small Business Advisory Review Panel is a proposed rule developed by and reflecting a consensus reached by the C-DAC negotiated rulemaking advisory committee which was chartered pursuant to the Negotiated Rulemaking Act of 1990 (5 U.S.C. Sec. 561 et seq.). Section 563(a)(7) of that Act states:

the agency, to the maximum extent possible consistent with the legal obligations of the agency, will use the consensus of the committee with respect to the proposed rule as the basis for the rule proposed by the agency for notice and comment.

However OSHA may, in the preamble to the proposed rule, present alternatives to the negotiated rule and in issuing a final rule it may, based on the evidence and comments, adopt the alternatives presented. Therefore, the recommendations of the Panel will be presented as suggestions for discussion in the Preamble for public consideration and possible adoption depending on the evidence and comments received during the notice and comment period of the proposed rule

### **Description of Affected Small Entities**

Some SERs reported that they were unable to follow the derivation of the estimates of the number of affected small entities. The Panel recommends that OSHA provide full documentation for this and all other calculations and estimates provided in the PIRFA. (As a first step, OSHA has supplemented the PIRFA sent to the SERs with additional documentation and attached this documentation to this Report.)

SERs also questioned the accuracy of the description of affected small entities. Homebuilders argued that cranes are much more extensively used in homebuilding than estimated by OSHA. Users of truck cranes used solely to unload material on site were concerned that their cranes might be covered by the draft proposed standard. In many circumstances, such cranes are not covered, but there are some circumstances where they may be. Almost all SERs who commented on the topic agreed that OSHA's estimate of the number of crane jobs per crane was much too low. The Panel recommends that OSHA reexamine its estimate of crane use in home building, the coverage of crane trucks used for loading and unloading, and the estimates of the number of jobs per crane. Changes in these estimates should be incorporated into the estimates of costs and economic impacts.

### **Costs and Economic Impacts**

Many SERs felt that OSHA had underestimated the direct costs associated with obtaining certification of crane operators. Among the costs they felt were omitted were costs of associated medical examinations, travel, and travel time, and adequate time for training. Some SERs may not have realized that OSHA did not include costs of training already required by existing standards. The Panel recommends that OSHA review its cost estimates for operator certification and seek comment on these cost estimates.

Some SERs in the business of renting out cranes with operators felt that certification of operators had been or would be good for their business—reducing their liabilities, improving safety, and increasing the desirability of using specialty crane rental firms. Many SERs in other lines of business were concerned that there would be significant economic impacts associated with operator certification. They were concerned about reports of substantial increases in the wages of operators; and the possibility of increased market power for firms renting out cranes; and loss of jobs for existing operators due to language, literacy, or knowledge problems. The Panel recommends that OSHA carefully examine these types of impacts, as well as the direct cost of operator certification, and seek comment on these types of impacts. The Panel also recommends that OSHA consider studying the impacts of the implementation of operator certification in California.

Some SERs were concerned that OSHA had underestimated the time required for assessing ground conditions, failing to realize the number of persons involved in this assessment and the amount of coordination required. OSHA notes that assessing site conditions are necessary for the safe operation of cranes; OSHA assumes that some form of assessment is already being done. While this provision itself is new, performing this assessment is believed to be a usual and customary business practice. The Panel recommends that OSHA reexamine this issue; clarify the extent to which such assessments are currently being conducted and what OSHA estimates as new costs for this rule represent; and seek comments on OSHA's cost estimates.

Some SERs were concerned that OSHA might have underestimated the additional time associated with documenting inspections (though most agreed that the required inspections were necessary and appropriate). A few SERs were concerned that the C-DAC document contained many statements that “the employer shall ...” and that a careful employer would

need to document all such instances, and that OSHA had taken no costs for such documentation. OSHA notes that it cannot cite an employer for failing to have documentation not explicitly called for in a standard. The Panel recommends that OSHA carefully review the documentation requirements of the standard, including documentation that employers may consider it prudent to maintain; estimate the costs of such requirements; seek ways of minimizing these costs consistent with the goals of the OSH Act; and solicit comment on these costs and ways of minimizing these costs.

Some SERs argued that certain inspections required procedures not normally conducted today, such as lowering and fully extending the crane and inspections before use of the crane. The Panel recommends that OSHA examine whether such additional requirements exist, the costs of such requirements, and seek comment on these issues.

Some SERs were concerned that they could not meet the requirements for either original load charts or full manuals. The Panel recommends that OSHA consider the costs of these requirements, and solicit comments on such costs.

Some SERs were concerned that they could not follow or reproduce the benefits analysis OSHA provided. The Panel recommends that OSHA provide full documentation for the analysis and assure that it is reproducible by others. (Note: After the start of the Panel, OSHA placed additional material used in the benefits analysis in the docket for this Panel.)

### **Provisions of the Proposed Rule**

#### *Scope*

An SER noted that the C-DAC document does not contain a provision explicitly excluding coverage of machines originally designed to function primarily as fork lifts that are modified to perform tasks similar to equipment (cranes and derricks) covered by the C-DAC document. The Panel recommends that OSHA consider and solicit public comment on whether the scope language should be clarified to explicitly state whether forklifts modified in that manner would be covered.

#### *Ground Conditions*

One SER was concerned that Section 1402(e) was confusing in its allocation of responsibility for ensuring adequate ground conditions. In particular, this SER questioned the relative responsibilities of the controlling entity, and the employer of the individual supervising assembly/disassembly and/or the operator. Several SERs suggested that the controlling entity and the crane owner/operator should share responsibility for ensuring adequate ground conditions. The Panel notes that Section 1402(e) does provide for shared responsibility between the controlling entity and owner/operator by outlining the obligations relative to ground conditions placed on each. The Panel recommends that there be a full explanation in the preamble of the sharing of responsibility.

## Inspections

### Clarity:

An SER was concerned that the requirements regarding corrective action for monthly inspections was unclear. The monthly inspection provisions, with respect to corrective action requirements, incorporate by reference the corrective action requirements that are in the shift inspection. The SER recommended that these be repeated in the monthly inspection paragraph. The Panel recommends that OSHA restate the applicable corrective action provisions (which are set forth in the shift inspection) in the monthly inspection section.

An SER questioned the degree of scrutiny required for the shift inspection. In particular he indicated that it was not clear whether booming down and removal of inspection plates would be required, and did not understand the limitation relative to disassembly. The Panel believes that there could be potential cost savings if booming down were not routinely required and recommends that OSHA solicit public comment on ways to clarify this provision in these respects. Specifically, OSHA should consider and ask for public comment on whether, and under what circumstances, booming down should be specifically excluded as a part of the inspection, and whether the removal of non-hinged inspection plates should be required.

### Modified equipment

An SER suggested that the modified equipment section be changed to add an exception for transportation systems. The Panel recommends that OSHA solicit public comment on whether to include such an exception and, if so, what the appropriate terminology would be.

### Shift/monthly inspection

An SER stated that the shift inspection should not have to be performed prior to (as opposed to during) each shift. The Panel notes that 1412(d)(1) already permits the shift inspection to be completed during the shift. The Panel recommends that OSHA explain this issue in the preamble.

An SER suggested deleting the requirement to inspect equipment for “level position” because, among other reasons, the amount of tolerance that would be considered within “level” is unclear. The Panel recommends that OSHA solicit public comment about whether it is necessary to clarify this provision and if so, how that should be done.

### Annual/comprehensive inspection

An SER indicated that paragraph (f)(2)(xiv)(D) of Section 1412 should be modified to “checking pressure setting,” in part to avoid having to check the pressure at “each and every line” as opposed to “at the end of the line.” The Panel recommends that OSHA solicit comment on whether the provision should be changed to require that the inspection be of

pressure “at the end of the line,” as distinguished from pressure “at each and every line,” and if so, what the best terminology would be to meet this purpose.

An SER suggested that paragraph (f)(2)(xx) of Section 1412 be deleted because he believes that it is not always appropriate to retain originally-equipped steps and ladders, such as in instances where they are replaced with “attaching dollies.” The Panel recommends that OSHA solicit public comment on this issue.

#### Deficiencies revealed by an inspection

One SER commented that it could sometimes be difficult to obtain replacement parts for a crane, suggesting that when an inspection revealed a deficiency, the crane could be out of service for an extended period until parts could be obtained. The Panel notes that the crane must be taken out of service if the competent person determines that the deficiency constitutes a safety hazard. The Panel believes that the provision adequately balances the need for safety against the need for productivity and that OSHA should propose the provision as drafted.

#### Inspection documentation

A number of SERs believed that documenting monthly and annual/comprehensive inspections would not add to worker safety and would be unduly burdensome to their companies. The Panel recommends that OSHA solicit public comment on the extent of inspection documentation the rule should require.

An SER commented that the monthly inspection provision regarding documentation does not specify who must keep the documentation (unlike the similar provision in annual inspections). The Panel recommends that OSHA solicit public comment on whether the provision should specify who must keep the documentation associated with monthly inspections and, if so, who that should be.

#### Operational Aids

Section 1416 requires that certain operational aids that are not working properly be repaired no more than seven days after the deficiency (which has been determined to be a safety hazard) occurs and that others be repaired within thirty days. If parts need to be ordered, they must be ordered within seven days of the date the deficiency occurs. One SER stated that, with older equipment, it sometimes takes an extended period of time to determine the appropriate part number. Since a part cannot be ordered without that information, this can result in an extended delay in ordering the part. Two SERs stated that it was often difficult to obtain parts for older equipment and that parts often cannot be obtained within seven (or thirty) days.

The Panel notes that the proposal accommodates most of these problems in several ways. First, it requires that parts be ordered within seven days and sets time limits for repairs that

begin only after the parts are received. Second, the section makes special provision for older equipment by allowing certain alternative means of protection when older equipment is not equipped with certain operational aids. As to the assertion that there can sometimes be an extended delay in obtaining part number information, the Panel recommends that OSHA consider ways to account for this problem and solicit public comment on the extent to which this is a problem.

### Fall Protection:

Two SERs recommended that OSHA retain the current fall protection requirements in Subpart N in lieu of those in the C-DAC document. This issue was extensively considered by the Committee; the Panel recommends that the provision be proposed as written, and that OSHA explain in the preamble how and why the Committee arrived at this provision.

### Operator Certification/Qualification

Many SERs objected to provisions in the draft proposed requirements for Operator Certification/Qualification, though some SERs found that the C-DAC document adequately addresses a long-neglected problem for the construction industry. The Panel recommends that OSHA consider the potential advantages of and solicit public comment on allowing an operator to be certified on a particular model of crane; allowing tests to be administered by an accredited educational institution; and allowing employers to use manuals that have been re-written to accommodate the literacy level and English proficiency of operators.

One SER expressed concern that his operator, due to his difficulty in taking written tests, would not be able to pass a written exam. The C-DAC document at Section 1427(h) allows for written tests to be administered verbally as long as that employee can demonstrate the necessary level of literacy needed to use the type of written manufacturer procedures applicable to the class/type of equipment that he/she would be operating. The Panel believes that this provision accommodates the SER's concern, and that OSHA should clarify in the preamble how this concern is addressed in the proposed rule.

Some SERs indicated that the reference in 1427(b)(ii)(B) to "equipment capacity and type" is ambiguous. The Panel recommends soliciting public comment on whether "equipment capacity and type" needs clarification, suggestions on how to accomplish this, and whether the categories represented in Figures 1 through 10 contained in ANSI B30.5 (2000)(i.e., commercial truck-mounted crane – telescoping boom; commercial truck-mounted crane – non-telescoping boom; crawler crane; crawler crane – telescoping boom; locomotive crane; wheel mounted crane (multiple control station); wheel mounted crane – telescoping boom (multiple control station); wheel mounted crane (single control station); wheel mounted crane – telescoping boom (single control station)) should be used.

### Operator Training

Several SERs expressed the opinion that the C-DAC training requirements are too broad and should instead be keyed to the particular operations an operator performs and the equipment the operator uses. In particular, two SERs referred to the current OSHA forklift (powered industrial truck) operator training standards as a model for crane operator training requirements.

The Panel notes that the operator training specified in Section 1427(j)(1)(i) of the C-DAC document is geared to the “specific type of equipment the individual will operate.” Thus, the training required under the C-DAC document as written would require more limited training for operators of smaller capacity equipment used in less complex operations, as compared with operators of higher capacity, more complex equipment used in more complex situations. The Panel recommends that OSHA ask for public comment on whether this needs to be stated more clearly.

The Panel recommends that OSHA consider and ask for public comment on whether a more limited training program would be appropriate for operations based on the capacity and type of equipment and nature of operations.

The Panel recommends that OSHA consider and ask for public comment as to whether the supervisor responsible for oversight for an operator in the pre-qualification period (1427(f)) should have additional training beyond that required in the C-DAC document at 1427(f)(iii)(B).

### Floating Cranes & Land Cranes on Barges

Section 1437(n)(2) requires that land cranes and derricks used on barges and other flotation devices have their rated capacity modified only by either the equipment manufacturer or a qualified person with the necessary expertise. One SER commented that no experts were available to perform the necessary calculations for the duty cycle work performed by its cranes. However, the negotiated rulemaking committee did find that these types of cranes can be involved in serious accidents. The Panel recommends OSHA solicit comment on whether there are qualified persons in the field with the necessary expertise to assess rated capacity modification as required by Section 1437(n)(2). The Panel also recommends that OSHA solicit comment on whether it is necessary, from a safety standpoint, to apply this provision to cranes used only for duty cycle work, and if so, why that is the case, and how “duty cycle work” should be defined.

### Side Boom Cranes

One SER recommended that small side boom cranes incapable of lifting above the height of a truck bed and with a capacity of not more than 6,000 pounds not be covered by the proposed rule. The Panel recommends that OSHA consider and ask for comment on whether it would be appropriate to exempt such cranes from the rule.

### Clarity

Several SERs believed that the C-DAC document was so long and complex that small businesses would have difficulty understanding it and complying with it. The Panel recommends that OSHA solicit public comment on how the proposed rule could be simplified (without creating ambiguities) and made easier to understand.

One SER suggested that the inspection provisions in Section 1412 should be incorporated into a spreadsheet detailing what needs to be inspected and when each inspection must occur. The Panel recommends that OSHA consider outlining the inspection requirements in spreadsheet form in an Appendix or developing some other means to help employers understand what inspections are needed and when they must be done.

Some SERs requested clarification as to when documentation was required, believing that the document implicitly requires documentation when it states that the employer must “determine” or “demonstrate” certain things. OSHA notes that it cannot cite an employer for failing to have documentation not explicitly called for in a standard. The Panel recommends that OSHA consider whether use of the words “determine” and “demonstrate” would mandate that the employer keep records of such determinations and if records would be required to make such demonstrations.

The Panel recommends soliciting public comment on whether the word “days” as it is used in Sections 1416(d) and 1416(e) should be clarified to mean calendar days or business days.

### **Overlapping and Duplicative Regulations**

SERs raised two issues with respect to overlapping and duplicative standards. The first, already discussed under the issue of the scope of the standard, is the question of exactly what types of equipment are considered cranes and cranes used in construction. The Panel recommends that OSHA carefully discuss what is included and excluded from the scope of this standard.

SERs also noted that California and other states had recently implemented operator certification requirements similar to those of the proposed draft standard. The Panel recommends that OSHA gather data and analyze the effects of already existing certification requirements.

### **Regulatory Alternatives**

#### Scope

Some SERs who are in the business of supplying construction materials and who deliver those materials to construction sites believe that the proposed standard should not apply to their work. While there are many circumstances in which such businesses are not in the

scope of the standard, there may be circumstances where they would be within the scope of the standard. The Panel recommends that OSHA consider excluding and soliciting comment on whether equipment used solely to deliver materials to a construction site by placing/stacking the materials on the ground should be explicitly excluded from the proposed standard's scope.

### Certification

Some SERs favored the operator certification/qualification section and some SERs were opposed to various aspects of it. The Panel anticipates that there will be considerable public comment on the proposed rule regarding this issue. The Panel recommends that OSHA should consider the information and range of opinions that were presented by the SERs on this issue when analyzing those comments. As noted above, the Panel recommends that OSHA include, as part of its preliminary economic analysis, an analysis of the costs, economic impacts, and benefits of operator certification.

In Section 1427 (Operator qualification and certification) of the C-DAC consensus document, under Option (1) (Certification by an accredited crane/derrick operator testing organization), certification would be by a testing organization that administers written and practical tests that, among other criteria, "provide different levels of certification based on equipment capacity and type."

Several SERs described situations in which an operator is very knowledgeable and skillful with respect to one particular model of crane, but has very limited knowledge and ability regarding other models and types of cranes. These SERs were concerned that such operators would be unable to obtain a certification based on equipment capacity and type. They believe that, since these operators are well qualified to operate a particular crane model, there should be a mechanism for them to become certified for that equipment. The Panel recommends that OSHA consider and solicit public comment on expanding these levels of certification so as to allow an operator to be certified on a specific brand's model of crane.

Some SERs also described crane operators whose abilities were limited to operating particular equipment in a very limited set of circumstances. They believe that these operators are fully capable of doing that work, but would be unable to pass certification tests that required knowledge and abilities beyond those circumstances.

The Panel recommends that OSHA consider and solicit public comment on expanding these levels to allow an operator to be certified for a specific, limited type of circumstance. Such a circumstance would be defined by a set of parameters that, taken together, would describe an operation characterized by simplicity and relatively low risk. The Agency should consider and solicit comment on whether such parameters could be identified in a way that would result in a clear, easily understood provision that could be effectively enforced.

Another concern raised by SERs was that it would be burdensome for small employers in remote areas to send their operators long distances to have them tested, and may be difficult

or costly to arrange to have an accredited testing organization come to their area to administer the tests. The Panel recommends that OSHA consider and solicit public comment on allowing the written and practical tests described in Option (1) to be administered by an accredited educational institution.

Under Section 1427(j)(1)(ii), the operator would have to be able to read and locate relevant information in the equipment manual and other related materials. Some SERs were concerned that the literacy level of some operators is below that needed to be able to read equipment manuals. The Panel recommends that OSHA solicit public comment on making it clear that: (1) an employer is permitted to equip its cranes with manuals re-written in a way that would allow an operator with a low literacy level to understand the material (such as substituting some text with pictures and illustrations), and (2) making it clear that, when the cranes are equipped with such re-written manuals and materials, the “manuals” and “materials” referred to in these literacy provisions would be the re-written manuals.

Some SERs were concerned that in order to become certified or qualified under Section 1427, employees would have to be proficient in English. These SERs were concerned that, as a result, the certification/qualification requirement would be burdensome for employers who have operators who are unable to speak English.

The Panel notes that the C-DAC document does not state that the certification/qualification process be administered in English. First, the document allows employees to take the written portion of the certification/qualification test verbally; there is no requirement that this be done in English. In such a case, the operator candidate would (under 1427(h) and (j)) have to demonstrate the ability to read and locate relevant information in the equipment manual and other related materials (see above). However, the C-DAC document does not specify that such materials would have to be in English. In short, while the candidate would have to have a sufficient level of literacy commensurate with those materials, as long as they were in the candidate’s language, the terms of the provision would be met.

The Panel recommends that OSHA explain this in a Small Business Compliance Guide.

Appendix A -- Small Business Advocacy Review Panel Members and Staff Representatives  
for the Preliminary Draft OSHA Standard on Cranes and Derrick in Construction

**Robert Burt, Chairperson -- OSHA**

**Noah Connell -- OSHA**

**Audrey Rollor -- OSHA**

**Tressi Cordaro -- OSHA**

**Kathleen Martinez -- OSHA**

**Adrian Corsey -- OSHA**

**Bradford Hammock -- Office of the Solicitor, U.S. Department of Labor**

**Charles Gordon -- Office of the Solicitor, U.S. Department of Labor**

**Stephen D. Aitken-- Office of Information and Regulatory Affairs, OMB**

**Brenda Aguilar -- Office of Information and Regulatory Affairs, OMB**

**Dominic Mancini -- Office of Information and Regulatory Affairs, OMB**

**John Kraemer -- Office of Information and Regulatory Affairs, OMB**

**Thomas Sullivan -- Office of Advocacy, Small Business Administration**

**Bruce Lundegren -- Office of Advocacy, Small Business Administration**

**Charles Maresca -- Office of Advocacy, Small Business Administration**

**Radwan Saade -- Office of Advocacy, Small Business Administration**

Appendix B -- List of Small Entity Representatives

Appendix C -- Written Comments Submitted by Small Entity Representatives

## Appendix D—PIRFA w Supplements