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DEPARTMENT OF LABOR

Occupational Safety and Health Administration

29 CFR Part 1926

[Docket ID-OSHA-2007-0066]

RIN 1218-AC96

Cranes and Derricks in Construction: Operator Qualification

AGENCY: Occupational Safety and Health Administration (OSHA), Labor.

ACTION: Notice of Proposed Rulemaking.

SUMMARY: OSHA proposes to update its standard for cranes and derricks in construction by permanently extending and clarifying each employer's duty to ensure the competency of crane operators through required training, certification or licensing, and evaluation. OSHA is also proposing to remove an existing provision that requires different levels of certification based on rated lifting capacity of equipment. This proposal would clarify that while testing organizations are not required to issue certifications distinguished by rated capacities, they are permitted to do so. Finally, it would establish minimum requirements for determining operator competency. OSHA believes that this proposal would maintain safety and health protections for workers while reducing employers' compliance burdens.

DATES: *Comments:* Submit comments to this proposed rule, including comments to the information collection requirements (described under the section titled "Agency Determinations"), hearing requests, and other information by [INSERT DATE 30 DAYS

AFTER DATE OF PUBLICATION IN THE FEDERAL REGISTER]. All submissions must bear a postmark or provide other evidence of the date submitted.

Informal public hearing: A hearing can be requested by following the procedures listed under ADDRESSES. If a hearing is requested, OSHA will announce the hearing on its website, www.osha.gov, and publish a hearing notice in the Federal Register.

ADDRESSES: Submit comments, hearing requests, and other material, identified by Docket No. OSHA-2007-0066, using any of the following methods:

Electronically: Submit comments and attachments, as well as hearing requests and other information, electronically at <http://www.regulations.gov>, the Federal e-Rulemaking Portal. This docket may include several *Federal Register* notices for active rulemakings; therefore it is necessary to select the correct notice, or its ID number, to submit comments for this rulemaking. After accessing the docket (OSHA-2007-0066), check the “proposed rule” box in the column headed “Document Type,” find the document posted on the date of publication of this document, and click the “Submit a Comment” link. Additional instructions for submitting comments are available on the <http://www.regulations.gov> homepage.

Facsimile: OSHA allows facsimile transmission of comments that are ten pages or fewer in length (including attachments). Fax these documents to the OSHA Docket Office at (202) 693-1648. OSHA does not require submission of hard copies of these documents. For additional attachments that supplement comments submitted by facsimile (e.g., studies, journal articles), commenters must submit these attachments to the OSHA Docket Office, Technical Data Center, Room N-3653, OSHA, U.S. Department of Labor,

200 Constitution Ave., NW, Washington, DC 20210. These attachments must clearly identify the sender's name, the date, subject, and the docket number (OSHA-2007-0066).

Regular mail, express delivery, hand delivery, and messenger (courier) service:

Submit comments and any additional material to the OSHA Docket Office, RIN No. 1218-AC86, Technical Data Center, Room N-3653, OSHA, U.S. Department of Labor, 200 Constitution Ave., NW, Washington, DC 20210; telephone: (202) 693-2350, TTY number: (877) 889-5627. Contact the OSHA Docket Office for information about security procedures concerning delivery of materials by express delivery, hand delivery, and messenger service. The Docket Office will accept deliveries (express delivery, hand delivery, messenger service) during the Docket Office's normal business hours, 10:00 a.m. to 3:00 p.m., ET.

Information Collection Requirements: OSHA welcomes comments on the information collection requirements contained in this rule on the same basis as for any other aspect of the rule. Interested parties may also submit comments about the information collection requirements directly to the Office of Information and Regulatory Affairs, Attn: OMB Desk Officer for DOL-OSHA (RIN 1218-AC96), Office of Management and Budget, Room 10235, 725 17th Street, NW, Washington, DC 20503, Fax: (202) 395-6881 (this is not a toll-free number), email: OIRA_submission@omb.eop.gov. See Paperwork Reduction Act section of this preamble for particular areas of interest.

Instructions: All submissions must include the Agency's name, the title of the rulemaking (Cranes and Derricks in Construction: Operator Qualification), and the docket number (OSHA-2007-0066). Absent copyright protections or other restrictions,

OSHA will place comments and other material, including any personal information, in the public docket without revision, and the comments and other material will be available online at <http://www.regulations.gov>. Therefore, commenters should not submit statements they do not want made available to the public, or submit comments that contain personal information (either about themselves or others) such as Social Security numbers, birth dates, and medical data.

Docket: To read or download comments or other material in the electronic docket, go to <http://www.regulations.gov> or to the OSHA Docket Office at the above address. Some information submitted (e.g., copyrighted material) is not available publicly to read or download through this website. All submissions, including copyrighted material, are available for inspection at the OSHA Docket Office. Contact the OSHA Docket Office for assistance in locating docket submissions.

FOR FURTHER INFORMATION CONTACT:

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Copies of this Federal Register notice and news releases: Electronic copies of these documents are available at OSHA's Web page at <http://www.osha.gov>.

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I. Executive Summary

OSHA proposes to amend 29 CFR 1926 subpart CC to revise sections that address crane operator training, certification/licensing,¹ and competency. The purposes of these amendments are to: require comprehensive training of operators; remove certification by *capacity* from certification requirements; clarify and permanently extend the employer duty to evaluate potential operators for their ability to safely operate equipment covered by subpart CC; and require documentation of that evaluation.

This proposed rule is based on extensive feedback received from the construction industry, which can be found in the docket, who informed OSHA that merely ensuring crane operators are certified does not verify that certified operators have sufficient crane knowledge and operating skills to safely perform crane operations at construction sites. OSHA heard testimony and collected other evidence that indicates an employer's evaluation of a crane operator's experience and competency is essential to ensuring the safe operation of cranes on construction sites. Similarly, this evidence confirmed that employers must continue to provide operators with comprehensive training, which supplements the kind of training needed to obtain certification.

OSHA's preliminary economic impact analysis determined that the most significant costs of the proposal are associated with the requirements to perform the operator competency evaluation, document the evaluations, and provide any additional training needed by operators. OSHA estimates employers impacted by this proposed rule employ approximately 117,130 crane operators. OSHA accordingly estimates the annual cost to the industry would be \$1,425,133 for the performance of operator competency

¹ The term "certification/licensing" covers each of certification options in the proposed rule (third-party certification or an audited employer certification program) as well as state or local operator licensing requirements.

evaluations, \$59,479 for documenting those evaluations, and \$90,649 for any additional training needed for operators. OSHA's preliminary estimate of the total annual cost of compliance is \$1,583,169.

OSHA also expects some cost savings from the proposed rule. In particular, OSHA estimates a large one-time cost savings of \$25,560,840 from dropping the requirement that crane operators be certified by capacity because that change would eliminate the need for a very large number of operators to get an additional certification. OSHA also estimates that a small number of ongoing annual certifications due to an operator moving to a higher capacity crane would also no longer be needed, producing an additional annual cost savings of \$414,172. These various elements lead, at a 3 percent discount rate over 10 years, to net annual cost savings of \$1,827,513. At a discount rate of 7 percent there are annual cost savings of \$2,468,595.

The Agency has preliminarily concluded that, on average, the impact of costs on employers would be low, because most employers are currently providing some degree of operator training and performing operator competency evaluations to comply with existing 29 CFR 1926.1427(k), and were previously doing so to comply with §§ 1926.550, 1926.20(b)(4), and 1926.21(b)(2). Employers who currently provide insufficient training would incur new costs to comply. Although OSHA anticipates that a few employers might incur significant new costs, the Agency has preliminarily concluded that, for purposes of the Regulatory Flexibility Act, the proposed rule would not have a significant economic impact on a substantial number of small entities.

The Agency has preliminarily determined that the proposal is technologically feasible because many employers already comply with all the provisions of the proposed

rule and the proposed rule would not require any new technology. In addition, since the vast majority of employers already invest the resources necessary to comply with the provisions of the proposed standard, the Agency preliminarily concludes that the proposed standard is economically feasible.

II. Background

Explanation of record citations in this document. References in parentheses in this preamble are to exhibits or transcripts in the docket for this rulemaking. Documents from the subpart CC—Cranes and Derricks in Construction rulemaking record are available under Docket OSHA-2007-0066 on the Federal eRulemaking Portal at <http://www.regulations.gov> or in the OSHA Docket Office. The term “ID” refers to the column labeled “ID” under Docket No. OSHA-2007-0066 on <http://www.regulations.gov>. This column lists individual records in the docket. This notice will identify each of these records only by the last three digits of the record, such as “ID-0032” for OSHA-2007-0066-0032. Identification of records from dockets other than records in OSHA–2007–0066 will be by their full ID number. In addition, the transcript for the public hearing OSHA held on May 19, 2014, for the rulemaking that extended the certification deadline by three years, are identified by the docket under Docket No. OSHA-2007-0066-0521. To aid readers in locating citations to the transcripts, this notice refers to these citations using the abbreviation “Tr.” and the corresponding page numbers (e.g., ID-0521, Tr. pp. 10-15).

A. Operator Competency Requirements

OSHA promulgated a new standard for cranes and derricks in construction, referred to in the Background section as the “new cranes standard,” on November 10,

2010 (75 FR 47905). It was based on a proposal drafted as the result of negotiated rulemaking and issued on October 9, 2008 (73 FR 59714). Under the new cranes standard, except for employees of the U.S. military and the operation of some specified equipment, employers were required to allow only certified operators to operate equipment after November 10, 2014.² In lieu of certification, the rule also allowed operators to operate cranes if licensed by state or local governments whose programs met certain minimum requirements.

The new cranes standard included a four-year, phased-in effective date for the certification requirements. That phase-in period was intended to provide time for existing accredited testing organizations to develop programs that complied with the requirements; for operators and employers to prepare for certification testing; and for more testing organizations to become accredited to make certifications available for the operation of the wide variety of cranes used in construction. During the phase-in period, employers were required to continue complying with two broad provisions: to ensure that crane operators were competent to operate the equipment safely and, if necessary, to train and evaluate employees who did not have the required knowledge or ability to operate the equipment safely (§1926.1427(k)(2)(i) and (ii)) (“employer duties”). These employer duties are essentially the same as those required by §1926.20(b)(4) and §1926.21(b)(2), which are discussed in more detail in the “Operator Certification Requirement” section that follows.

B. Operator Certification Requirement

² The term “equipment” was used in the cranes standard’s regulatory text because the rule covers cranes, derricks and other types of equipment. When OSHA uses “cranes” in this preamble, it is meant to apply to all covered equipment.

In 1979, OSHA published 29 CFR 1926.550, which specified requirements for crane and derrick operation that were adopted from existing consensus standards. Among these requirements was an employer's duty to comply with manufacturer specifications and limitations (§1926.550(a)(1)). In addition, employers were subject to general requirements elsewhere in the OSHA construction safety standards that required employers to permit only those employees "qualified by training or experience" to operate equipment (§1926.20(b)(4)) and to "instruct each employee in the recognition and avoidance of unsafe conditions" (§1926.21(b)(2)). However, crane incidents continued to be a significant cause of injuries and fatalities in the construction industry over the next few decades. In response, industry stakeholders called on OSHA to update its existing construction crane standard, including addressing advances in equipment technology and industry-recognized work practices.

Between 1998 and 2003, OSHA's Advisory Committee for Construction Safety and Health (ACCSH) tasked a workgroup with studying crane issues and ultimately recommended that OSHA revise the construction crane standard through negotiated rulemaking. The ACCSH workgroup reviewed the requirements of the most recent American Society of Mechanical Engineers (ASME)/American National Standard Institute (ANSI) B30 series standards applicable to various types of cranes and recommended that OSHA include work practices and protections from the ASME/ANSI B30 series standards in the new crane standard to the extent possible. The workgroup's recommendations included a request that OSHA require training and qualification provisions specific to crane operators, such as those of the ANSI B30 series, to supplant

and augment the general provisions under §§1926.21(b)(2) and 1926.20(b)(4) (see ACCSH transcript Docket ID OSHA-ACCSH2002-2-2006-0194; pp. 129-135).

In 2003, OSHA commenced rulemaking by establishing a federal advisory committee, the *Cranes and Derricks Negotiated Rulemaking Advisory Committee* (C-DAC), to develop a proposal through consensus (see OSHA-S030-2006-0663-0639). C-DAC met eleven times between July 30, 2003, and July 9, 2004, and produced a consensus document that OSHA proposed for comment. Like the ACCSH workgroup, C-DAC acknowledged that the qualification and training requirements of §§1926.20(b)(4) and 1926.21(b)(2) were ineffective and it proposed that OSHA require written and practical testing of crane operators (73 FR 59810). C-DAC also concluded that significant advances in crane/derrick safety would not be achieved without operator testing verified by accredited, third-party testing. Therefore, per C-DAC's recommendation, OSHA's proposal included a requirement for operator certification by "type and capacity" of the equipment in lieu of the previous general requirement that employers ensure their operators were competent to operate the machinery. However, OSHA proposed to retain the general employer duty during a four-year phase-in period for the operator certification (see 2008 proposal at §1926.1427(k)).

On October 12, 2006, ACCSH supported the C-DAC consensus document and recommended that OSHA use it as the basis of a proposed rule (see Docket ID OSHA-ACCSH2006-1-2006-0198-003).

On October 17, 2006, the Small Business Advocacy Review Panel (SBAR) submitted its final report on OSHA's draft proposal (OSHA-S030A-2006-0664-0019). The SBAR recommendations included a suggestion that OSHA solicit comment on

whether “equipment capacity and type” needed clarification, which OSHA did (see 73 FR 59725). Regarding operator training, many Small Entity Representatives (SERs) thought the C-DAC’s training requirements were too broad and should be focused on the equipment the operator will use and the operations to be performed. Two SERs recommended OSHA’s powered industrial truck standard as a model for crane operator training requirements.

OSHA published its proposal on October 9, 2008 (73 FR 59714) and received over 350 public comments. The comments discussed a wide range of topics addressed by the crane standard. In response to requests from several public commenters, OSHA conducted a public hearing in March 2009. None of the commenters or hearing participants asked OSHA to remove the requirement that operators be certified by equipment capacity in addition to type. There were a few stakeholders who expressed some concern about the proposal to phase-out the employer duty and replace it with the requirement for employers to ensure operator competence through third-party testing (see Docket IDs OSHA-2007-0066-0341-March 19, 2009, page 41 and OSHA-2007-0066-0445). However, most stakeholders overwhelmingly supported the certification requirements in the rule as proposed.

On November 8, 2010, the final rule for cranes and derricks in construction became effective, and it includes four “options” for crane operator certification. Unless excluded from the requirements of 29 CFR 1926.1427, all operators must obtain at least one of the following: a state or local license to operate cranes within a state or local jurisdiction with acceptable requirements; a certification issued by an accredited, third-party testing organization that meets OSHA certification requirements; a qualification

issued under an audited employer program that meets OSHA's certification requirements; or a qualification issued by the U.S. Military (see 29 CFR 1926.1427(b) through (e)).

C. Certification by Crane Rated Lifting Capacity

The final rule for cranes and derricks in construction required operators to become certified and permitted four options for doing so, one of which was certification by a third-party organization. A third-party certification could be portable (a new employer could rely on it), but in relying upon a third-party certification alone as confirmation of an operator's knowledge and operating skills, all employers must know to what kind of equipment the certification applies when making determinations about which equipment an operator can operate at the worksite. Therefore, C-DAC proposed the requirement, which was included in the final rule, that third-party certification must indicate the equipment types and the rated capacities that an individual is certified to operate. The other certification options, which are not portable, do not require certification by capacity.

To address the concerns of testing organizations that were not specifying the rated lifting capacities on certifications they issued, OSHA added subparagraph §1926.1427(b)(2) to clarify that an employer could comply with the capacity requirement if the certification stated the type and rated lifting capacity of the crane in which the operator was tested. For purposes of complying with the new crane standard, the operator would be "deemed qualified" to operate cranes of the same type, that have equal or lower rated lifting capacity of the crane in which they were tested.

D. Post-Rulemaking Concerns

In OSHA outreach sessions following the publication of the final rule, two accredited testing organizations that did not offer certifications by capacity questioned the need for specifying rated lifting capacities of equipment on their certifications to comply with the new crane standard. They expressed that meeting the capacity requirement would require significant changes from their existing certification practices without resulting in any real safety benefit. They asserted that employers will still take steps to ensure that certified operators are capable of safely operating the cranes at their worksites, regardless of the rated lifting capacities of those cranes. Thus, these testing organizations expressed the view that the certification by capacity requirement is unnecessary.

Those two testing organizations and many other stakeholders also expressed surprise and concern that on November 10, 2014, when OSHA's operator certification requirements were to take effect, the temporary requirements of §1926.1427(k)(2)—the employer duty to ensure that operators are competent—would no longer be in effect.

U.S. Small Business Administration (SBA) Roundtable.

SBA's Office of Advocacy held a Small Business Labor Safety (OSHA/MSHA) Roundtable discussion about the type and capacity issues of OSHA's crane standard on November 16, 2012. At this meeting, major stakeholders, including a labor union, construction trade associations, crane manufacturers, and safety professionals, warned of the negative impact on the regulated community that would occur if OSHA did not continue to require employers to ensure the competency of crane operators, as well as recognize certifications acquired by operators from testing organizations that do not issue certifications by rated lifting capacity. Though they had not made such comments in the

rulemaking, industry representatives, who were still in support of requiring operator certification, likened operator certification to a learner's permit to drive a car, suggesting that passage of the certification test meant an individual could operate a crane, but was not necessarily competent to perform the specific tasks required by an employer. They cautioned that an employer should weigh factors in addition to whether an employee has an operator certification before allowing an employee to operate a crane.

November 29, 2012, ACCSH Meeting and Subsequent Actions.

At a November 29, 2012, ACCSH meeting, a representative from one of the organizations not providing certifications by capacity said that his organization had issued most of the operator certifications acquired by operators in construction (hundreds of thousands) and warned OSHA of an imminent disruption of construction projects should OSHA consider that organization's certifications to be noncompliant (OSHA-2012-0011-0087). In addition, individual employers wished to ensure that their operators' certifications would be recognized as valid by OSHA as they approached the November 10, 2014, effective date for certification/qualification requirements. In response, OSHA engaged in detailed discussions with a variety of stakeholders about their experience using certifications and the relevance of equipment rated lifting capacities to operator competency, safety, and certification testing.

OSHA also continued to engage in conversations with the four accredited testing organizations and two industry-recognized accrediting agencies to assist them in their efforts to meet the criteria specified by the new crane standard. OSHA clarified that these organizations need only specify the rated lifting capacity of the crane in which an operator was tested to meet OSHA certification requirements. The rated lifting capacity

on the certification would specify the maximum rated capacity for which the operator was certified and, in combination with the rule, allow operators certified at one capacity to also operate cranes with lower capacities. Nevertheless, construction employers contacted OSHA to express frustration about receiving conflicting information from various outside groups about whether existing certifications would meet the new crane standard's requirements.

Stakeholder Meetings (April 2013).

In response to mounting frustrations of many in the construction industry, OSHA conducted three stakeholder meetings on April 2-3, 2013, to gather additional information about the issues of operator qualification and the "type and capacity" requirement for certification, in particular. Participants included representatives of construction contractors, labor unions, crane manufacturers, crane rental companies, accredited testing organizations, one of the accrediting bodies, insurance companies, crane operator trainers, and military employers. Detailed notes are available in the docket for this rulemaking (see ID-0539). The two testing organizations that did not certify by capacity and some stakeholders in the crane industry again questioned the purpose of C-DAC's recommendation requiring different levels of certification be made available by rated lifting capacity and requested that OSHA remove the requirement.

In addition, various parties informed OSHA that, in their opinion, the operator certification option would not adequately ensure that crane operators could safely operate their equipment to perform work at a construction site. They stated that, for an employer to ensure operator competence, additional training, experience, and evaluation would be needed that goes well beyond the level of training and experience needed to obtain a

certification. Most of the meeting participants agreed that an operator's certification by an accredited testing organization does not mean that the operator is competent or has enough experience to operate a crane to do construction work.

OSHA heard from many stakeholders that the employer should play a direct role in ensuring that their operators are competent because a standardized test cannot replicate all of the conditions that operators will face on the jobsite. They indicated that the employer is typically in a better position than a certifying organization to ensure that an operator has the skills, knowledge, and judgment required for a particular assignment on a particular crane. Again, many stakeholders likened operator certification to a learner's permit to drive a car. They cautioned that certification should be one of several factors to be weighed by an employer before allowing an employee to operate a crane. Most participants said that the operator's employer should always be made responsible for ensuring that an operator is competent to safely operate a particular crane to do construction work. Others indicated that employers will confirm operator competence regardless of OSHA requirements because the risk is too great and other influences like contracts and insurance premiums drive them to do so. Overall though, all stakeholders reiterated that operator certification is beneficial in establishing a minimum threshold of operator knowledge and familiarity with very basic crane operation.

May 24, 2013, ACCSH Meeting.

ACCSH met on May 24, 2013 (OSHA-2013-0006-0025). OSHA presented the issues surrounding operator competency and certification to the committee, and the committee heard comments from stakeholders and the public. At this meeting, representatives from two accredited testing organizations provided conflicting public

comments regarding the capacity-certification requirement. One of the two testing organizations that does not certify by capacity again warned of the potential impact on the industry should OSHA enforce the crane certification requirements as published in the final rule. On the other hand, a testing organization that offers certification by capacity noted that certifications by type and capacity were already available to employers and operators, confirming that it is feasible to meet the capacity requirement. Other public stakeholders expressed concerns about the potential impact on crane safety in construction should OSHA not enforce the crane certification requirements when scheduled to come into effect on November 10, 2014, but asked that OSHA quickly resolve the “type and capacity” issue.

ACCSH considered a proposal that OSHA suspend the certification requirements of the crane standard indefinitely until a new rule could be proposed. One ACCSH member representing a major trade association explained that many employers were not sure whether it was wise to invest in the certification of their operators to meet OSHA requirements that may change as result of the pending rulemaking (see OSHA-2013-0006-0025, p. 16). A suspension of the requirements, it was argued, would end confusion among employers about what certification requirements had to be met by a new effective date. The proposal also suggested that OSHA remove the certification/qualification requirements altogether. Until OSHA adopted a revised certification requirement, however, the proposal would require employers to train, evaluate, and ensure the operating competency of their operators in accordance with the transitional requirements in current §1926.1427(k). Following the ACCSH meeting, OSHA announced that it would initiate a rulemaking to explore extending the certification deadline and the

“phase-out” of the employer duty to ensure operator competency and the deadline for operator certification (see ID-0671 or https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=NEWS_RELEASE&p_id=24090).

E. Extending the Effective Dates for the Employer Duty and Certification

As noted above, OSHA received significant stakeholder feedback between 2010 and 2013 indicating that employers should not be able to rely solely on certification as the means of ensuring operator competency, primarily because the certification programs only examine a basic level of general crane operation knowledge and skills without assessing an operator’s ability to operate the equipment they will actually use or the various types of operations that they will need to perform on a particular jobsite. In response, OSHA completed a follow-up rulemaking to extend the deadline for operator certification by three years until November 10, 2017, and also to extend for the same time period the existing employer duties (see 79 FR 57785 (September 26, 2014)). OSHA subsequently extended both the deadline and the employer duties by a further year to November 10, 2018 (see 82 FR 51986 (November 9, 2017)). The main reason for these extensions was to provide OSHA with additional time to determine whether it would be necessary to undergo additional rulemaking regarding crane operator competency requirements. This rulemaking reflects OSHA’s decision to do so.

F. Discussions with the Construction Industry Stakeholders

Discussions with companies, unions, and organizations who train, assess, and/or contract crane operators.

In order to gather factual information, OSHA conducted more than 40 site visits, conference calls, and meetings with stakeholders between June 6, 2013 to March 27, 2015, regarding their experiences with training, evaluating, and ensuring the competency of crane operators. Among these stakeholders were:

- 3 crane rental companies [1 large (more than 100 cranes), 1 medium (more than 20 cranes), 1 small (less than 20 cranes)]
- 10 construction companies that own/operate cranes [homebuilders, tank builders, propane delivery, steel erector]
- 3 large construction/operator training companies
- 5 crane manufacturers
- 3 construction labor unions
- 2 safety consultants/trainers
- 4 state agencies
- British Columbia's qualification program
- 1 sole proprietor/owner operator homebuilding company
- 3 crane insurers
- certification testing bodies and accrediting entities

During discussions with stakeholders, OSHA personnel took notes that were consolidated into draft reports, which were provided to the employer or organization for their corrections or comment before the reports were finalized. Twenty-eight of the discussions were drafted into written reports. The other conversations were not documented because they were either informal or the organization's representatives did not want their comments to be cited in the rulemaking record other than being referenced

anecdotally. The twenty-eight reports, as well as a detailed summary of the reports, are in the docket for this rulemaking (ID-0673). Overall, the stakeholders described their business models for bringing cranes to construction sites, operator competency programs, methods for ensuring that cranes brought to the worksite are safely run by competent operators, and views on the use of operator certification in their operator competency programs.

During conversations with stakeholders, OSHA confirmed that most industry representatives did not understand that the crane standard requires employers only to ensure that their operators are certified and does not require further evaluation of a certified operator's competency. Several industry representatives said that regardless of what OSHA's crane standard requires, construction and insurance industry influences would prevent many employers of crane operators from relying solely on certification to verify the competence of their crane operators. Furthermore, all of the company representatives stated that they would not let an operator run any of their cranes based solely on his/her possession of an operator's certification. And although most general contractors require their subcontractors to verify that operators are certified, they intervene when there are indications that the actions of a crane operator could compromise the safety of a worksite. OSHA confirmed from these discussions that, regardless of whether an operator has a certification, all of the employers contacted evaluate their operators to ensure competency.

Most employers stated that they value third-party certification, but do not treat it as sufficient, by itself, to establish competency. Many employers expect operators to get certified early in their competency programs as a gauge for confirming whether an

operator has the skills and abilities to obtain and use knowledge that is essential to safely operate cranes. One company explained that it uses certification as more of an administrative tool and only sends employees who have been trained and demonstrate, through closely monitoring on job performance, the knowledge and ability to operate a crane to earn a third-party certification. Most stakeholders viewed certification only as a verification of an operator's basic operating skills and crane knowledge such as:

- reading load charts,
- recognizing basic crane hazards,
- inspecting the equipment,
- knowledge of applicable regulations, and
- familiarity with basic crane functions to control the boom and load line.

In addition, insurers explained they award reduced rates to employers whose operator competency programs include operator certifications.

In sum, many in the industry have concluded that the degree of training and operating experience needed to successfully pass certification testing may help to increase the baseline crane safety on construction sites. They often referenced their successes in states or localities that require similar certifications. But all stakeholders said it is essential that the operator's employer determine whether the operator is competent to safely operate a crane for a particular construction activity.

While operator competency programs vary based on business model, equipment used, and work performed, there are strong similarities in the programs identified by the stakeholders as effective. Typical operator competency programs for operators-in-training (employees who have not been certified/licensed and evaluated to operate

assigned equipment) begin with classroom training and dialogue to gauge what additional training and experience is needed. At some point, the operator-in-training demonstrates that he or she is ready to begin training-related operation of the equipment, which may eventually include, for example, practice in the cab at storage yards or in open areas at job sites where equipment is already set up. For more experienced operators-in-training, the types of knowledge and operations for which they are asked to demonstrate proficiency typically include doing crane-related inspections, reading load charts, calculating loads, and smoothly operating the crane to handle loads. Typically, novice operators-in-training start out on smaller cranes/shorter boom lengths and their assigned practice/work eventually includes the performance of simple, low-priority jobs and lifts where they have plenty of time to practice and ask questions of the trainer or more experienced operators as needed.

Most stakeholders explained that their evaluation of each operator is ongoing from the time they begin checking the operator-in-training's credentials and references until they confirm the operator's experience by observing them operate construction cranes. The evaluation is also based on the often daily informal evaluations of an operator's performance by the employer and other people that work around a crane operated by the operator-in-training. Several stakeholders explained that operator competency programs are often supplemented by the operator's completion of union apprenticeships (about one-half of the employers who operated cranes described that they employ union operators).

A few employers explained how they verified operator competency based on their prior experiences with the operator or references from organizations for which the

operator has previously completed crane work. Every employer with whom OSHA spoke stated that the employer's role in ensuring the competency of crane operators should be allowed to continue.

Through these conversations, OSHA also gained a better understanding of the many ways in which cranes and operators are brought to construction work sites. Cranes may be owned or leased; operators may be long-term employees, hired from a crane rental company, or hired out of a labor organization's hiring hall for a few days. To minimize the cost of crane use, construction employers may rent a crane with an operator provided by the rental company, rent only the equipment because the employer already has an operator on staff, or hire a short-term employee or a contractor separately to operate the crane.

G. Consulting ACCSH--Draft Proposal for Crane Operator Requirements

OSHA presented draft revisions to the Cranes and Derricks in Construction standard to the Advisory Committee for Construction Safety and Health (ACCSH) at a special meeting conducted March 31 and April 1, 2015, in Washington, DC. The draft revisions included proposals to remove the capacity requirements for operator certification and to retain permanently an employer duty to ensure operator competency. ACCSH heard public comment on the draft proposed rule at the meeting before it considered any recommendations (OSHA-2015-0002-0036).

OSHA's draft included substantive requirements that employers would be required to follow to ensure operator competency. Operators would not have been permitted to operate a crane independently until the employer qualified them as competent. It also re-organized the provisions of §1926.1427 to clarify its requirements by re-ordering and re-grouping a number of the certification/licensing requirements. The

draft also included new provisions designed to eliminate employee exposures to the hazards presented by cranes operated by unqualified crane operators on multi-employer worksites.

Several ACCSH members and some public commenters expressed strong concerns about OSHA making any changes to the crane standard beyond those necessary to extend permanently the employer duty to determine operator competency and to eliminate the requirement that certifications be by capacity. Many of these ACCSH members and public commenters were concerned that additional provisions would slow down the process, and that the draft documentation provisions for employer evaluations of operators were too extensive and restrictive. After considering the public comments, ACCSH expressed confidence that OSHA would address those concerns before proposing a rule. In addition, ACCSH made the following recommendations that OSHA:

- Move forward with certification by the means in the existing standard and pursue employer qualification of crane operators.
- Clarify the requirement for certification so that certification can be by type, or by type and capacity.
- Reconsider the language in the proposed text that appeared to require the employer to observe the operator operate the crane in each and every configuration to determine whether the operator was competent.

- Use the text submitted by William Smith (Exhibit 12) as a substitute for the draft language on evaluation in the proposed text.³
- Delete the annual re-evaluation provision in the proposed rule, and instead consider employer re-evaluations that coincide with the re-certification period.
- Consider adding a provision that if the operator operates the equipment in an unsafe manner, the operator must be re-evaluated by the employer.

H. National Consensus Standards

In adopting a standard, the Occupational Safety and Health (OSH) Act requires OSHA to consider national consensus standards, and where the agency decides to depart from the requirements of a national consensus standard, it must explain why the departure better effectuates the purposes of the Act. OSH Act 6(b)(8). As OSHA explained when adopting the updated crane rule in 2010, the ASME B30 Standard is a series of voluntary consensus standards that apply to most of the types of equipment, including cranes and derricks, covered by subpart CC as a whole (75 FR 48129-48130). The B30 standards each have chapters that address the operation of the equipment, which typically include a section on crane operator qualification and crane operator responsibilities. OSHA considered these provisions in drafting this proposed rule. Similarly, OSHA considered the general requirements of ANSI/American Society of Safety Engineers (ASSE) Z490.1, which generally addresses the requirements of occupational safety and health training.

³ William Smith, commenting as a private citizen, presented revisions to 29 CFR 1926.1427(a) by the Coalition for Crane Operator Safety (OSHA-2015-0002-0051). The document recommended revising §1926.1427(a) by adding provisions that an operator must meet OSHA's qualified person standard and mandating training if an operator cannot safely operate the equipment. In 1427(b), he recommended removing the language that an operator will be deemed qualified if he or she is certified. Throughout §1926.1427, he recommended removing references to capacity.

This proposal takes many of the underlying concepts regarding operator qualification that are consistent across the B30 standards and ANSI/ASSE Z490.1, and it places them in one standard. This move will allow employers and crane operators to look to one place for OSHA requirements for operator competence and safety, rather than throughout fourteen relevant B30 standards. The proposal rewrites the standards as enforceable employer duties, as the OSH Act requires, rather than as employee responsibilities or non-mandatory suggestions. The proposal also expands on operator training requirements, which are not discussed at length in the B30 standards and ANSI/ASSE Z490, and third-party certification/license requirements, which are not required by the B30 standards or ANSI/ASSE Z490.

OSHA believes this proposal will better effectuate the purposes of the OSH Act than any applicable national consensus standard because it will retain certification, training, and operator qualification requirements in a manner that OSHA can enforce under the Act and consolidate all crane operator qualification requirements for ease of reference. OSHA requests comment on whether this proposal will better effectuate the purposes of the OSH Act than any applicable national consensus standard.

I. The Need for a Rule

Based on the information collected from stakeholders and the recommendations of ACCSH, OSHA proposes to amend 29 CFR 1926 subpart CC by revising sections that address crane operator training, certification/licensing, and competency. The purposes of the amendments are to clarify training requirements for operators; to remove certification-by-capacity from certification requirements; to clarify and permanently extend an employer's duty to evaluate potential operators for their ability to safely

operate assigned equipment covered by subpart CC; and to require that employers document the evaluation. Because these revisions required some re-working of the crane standard, OSHA also took the opportunity to reorganize and clarify the operator certification requirements in §1926.1427.

Employer's Duty to Evaluate its Operators

OSHA is proposing to revise the crane rule to add a permanent employer evaluation duty based primarily on the extensive feedback received from the construction industry, which warned that certification does not establish that operators have sufficient crane knowledge and operating skills to safely perform crane operations at construction sites in all circumstances going forward. As previously explained in more detail in the background section, industry representatives stated that to ensure crane safety on construction sites, it is necessary for employers to continue to evaluate the operating competency of potential operators and provide training beyond that which is merely sufficient for those individuals to obtain certifications.

The key difference between this proposal and the existing standard is that the proposal would permanently maintain the employer's duty to evaluate its operators, and provide greater specificity as to what that duty entails in order to provide a clear and enforceable standard. Under the existing standard, operator certification becomes *de facto* qualification once the employer duty to ensure operator competence (§1926.1427(k)(2)(i)) ends in November 2018. There are no other requirements for operator safety qualifications beyond certification after that date. Under the proposed rule, the employer's evaluation is established as a critical step to ensure safe equipment operations on construction work sites. While certification (or licensing in states or

localities with acceptable licensing schemes) and training may occur under different, prior employers, the proposal would require that every employer evaluate an employee first as an operator-in-training before permitting him or her to operate equipment without oversight. The process of the evaluation is performance-oriented and discussed in more detail in the explanation for proposed paragraph 1427(f).

An employer's evaluation would assess different operator skills than the existing certification tests. IUOE has pointed to a number of activities that require specific skills that are not evaluated during the certification practical exam: inspecting the equipment; assessing unstable loads; hoisting loads of irregular size; operation from a barge; personnel hoisting; rigging the load; leveling the crane; hoisting in tight spaces where there is greater opportunity for damaging parts of the crane other than the load line; making judgments about wind speed and other environmental factors that can impact the performance of the equipment; performing multiple crane lifts; traveling with or without a load; operating near power lines; hoisting light loads; and hoisting blind picks where the operator cannot see the load (Docket ID 0527, p. 3). IUOE has also noted that different skills are required to operate equipment with different attachments and identified in particular the unique skills required to operate with clam bucket or drag line attachments (Id.). By way of contrast, the IUOE stated, the operator certification practical test covers only basic operation functions (hoisting and lowering a load and guiding it through a course), and "does not test on the breadth of activities that are involved in the operation of cranes" (Id.). Without the proposed employer duty to evaluate operators, an employer could permit a certified operator to operate tower cranes and other large equipment in any configuration with any number of attachments without determining if

the operator possesses the requisite knowledge and skills necessary to address the issues identified by IUOE and others.

Some employers describe certification as a “learner’s permit” (Stakeholder Notes, Reports # 15, 26 of ID-0673), and a number of employers with whom OSHA spoke stated that they would not allow a certified operator to use their equipment without first also evaluating the operator to verify competence (Reports # 1, 6, 18, 20, 22 of ID-0673). A training company for crane operators stated that “only a fool” would rely on certification alone as an assessment of an operator’s ability to safely operate a crane at the worksite (Report 20 of ID-0673). Boh Bros. Construction Co., commented during the 2014 rulemaking that “a certification is only an indication of basic skills. . . . Certification is good, but does not equal qualification.” [ID-0464]. Another training company representative stated that operators with very little experience can acquire a sufficient basis of knowledge of the crane to pass a certification exam without being truly qualified to operate independently and safely on a construction work site (Report # 21 of ID-0673). Two stakeholders expressed concern that relying solely on certification could be dangerous because it would create a false sense of qualification, leading some contractors to be less vigilant in evaluating the competence of operators to safely operate equipment for all of their tasks (Reports # 9, 11 of ID-0673).

OSHA heard from many stakeholders that the employer should play a direct role in ensuring that their operators are competent (Stakeholder Notes, Reports # 1, 2, 3, 4, 6, 9, 10, 11, 12, 14, 15, 16, 18, 19, 20, 21, 22, 25, 26 of ID-0673). Because a standardized test cannot replicate all of the conditions that operators will face on the jobsite, the employer is typically in a better position than a certifying organization to fully evaluate

an operator to ensure that he or she has the skills, knowledge, and judgment required for a particular assignment on a particular crane.

Many stakeholders indicated that in their experience operator competency needed to be crane-specific (Reports # 1, 2, 3, 4, 6, 16, 19, 21 of ID-0673). Some of the stakeholders raised concerns about the importance of these different crane characteristics in discussing whether OSHA should require certification to be by type and capacity or just by type. For example, one employer told OSHA that certification could be by type alone, provided the employer was responsible for evaluating operator competency on assigned equipment (Report # 1 of ID-0673). A crane operator training company that OSHA interviewed noted that no one certification test could ever capture all of the types, configurations, and capacities of cranes and the activities they may be used to perform at the jobsite. Therefore, it is important that the employer typically verify the operator's skill level through an experienced assessor (Report # 20 of ID-0673).

An extensive analysis of crane accidents published by HAAG Engineering in 2014 concluded that crane incidents are more likely to be reduced if a company ensures that an operator possess equipment-specific skills and knowledge in addition to certification:

The certification process ensures that an operator has demonstrated a core knowledge set of the principles of cranes and crane operations, OSHA regulations, and ASME standards requirements ... has successfully demonstrated both knowledge and the physical skill set to operate a type of crane

Comparing responsibility failure trends between crane types gives strong evidence that crane model-specific training is an overwhelmingly good idea. . . . In order for the industry to theoretically provide a quality certification for each model crane, the process would take decades just to develop certifications for existing model cranes, and with new models coming out every year, that development process would also be never-ending. Each time a new model crane

was released, its use would be prohibited until a qualified certification process was developed if model-specific certification was required. Model specific qualification is an issue that cannot and should not be done by the certification process, but should be done through training and examination by the individual company and corresponding operator in addition to earning type-specific certifications which ensure the knowledge and skill sets discussed above.

Understanding of crane principles, general crane characteristics, individual responsibilities, and national standard guidelines is the basis for certification; however, an operator's familiarity with the particular unit is invaluable in the goal to reduce operator associated incidents.⁴

The proposed evaluation requirement is a mechanism to help ensure that operators possess the skill to account for the variations within even a single type of crane; without the evaluation requirement there would be no distinction between the competency required to operate the smallest, simplest mobile crane and the largest, most complex mobile crane. It is our intent with this proposal to avoid a repeat of a tragedy like the *Deep South* collapse, in which an operator was assigned to a crane of a type for which he was certified, but the controls and operations were substantially different from those with which he was familiar (see *Deep S. Crane & Rigging Co.*, 23 BNA OSHC 2099 (No. 09-0240, 2012), *aff'd Deep S. Crane & Rigging Co. v. Harris*, 535 F. App'x 386, 390 (5th Cir. 2013)).

Most concerns expressed about the evaluation requirement focused on the specifics of the requirement, not the proposition that an employer should have a duty to ensure operator competency. Indeed, only one employer stated that it does not believe a formal evaluation requirement should be part of the rule, expressing concern that it might

⁴ Wiethron, Jim D., *Crane Accidents: A Study of Causes & Trends to Create a Safer Work Environment*, 1983-2013, pp. 105-106 (HAAG Engineering, 2014)

be something compliance officers cite when there are not obvious violations, and even that employer acknowledged that the employer's role in ensuring operator competency is important. (Interview # 15). But unless OSHA includes the evaluation duty in the regulatory text, employers would have no enforceable duty to conduct any assessment of their operators. Other employers questioned the practicality of a formal evaluation requirement, but OSHA believes that requirement to be necessary for effective enforcement of an employer's duty to conduct any assessment of their operators. Finally, one employer told OSHA that a formal rating system or checklist for evaluating a new operator's competency would be impractical (Report # 1 of ID-0673), while another employer told OSHA that one cannot write a procedure to qualify someone because it is all knowledge and experience (Report # 6 of ID-0673).

OSHA appreciates the concerns that inflexible procedural requirements would cause unnecessary interference with existing work practices. For this reason, as discussed more fully in the preamble for paragraph 1427(f) of the proposed rule, OSHA has addressed these concerns by carefully tailoring its proposed evaluation requirements to provide significant flexibility for the employers. But it is also important to note that OSHA is not proposing to create a totally new duty. All employers were required to assess their operators prior to the 2010 rulemaking, continue to have such a duty under existing §1926.1427(k), and OSHA is not aware of any significant difficulties complying with those requirements. This rulemaking would simply clarify what that evaluation involves, and would make the duty permanent.

Generally, stakeholders supported making permanent an employer's duty to verify operator competency. During its testimony in support of retaining an employer duty to

assess operators, the IUOE stated that removal of that duty would endanger operators and workers in the vicinity of cranes, “[c]rane operators would be in a far worse position than they were before issuance of the final rule in August 2010.” (ID–0486). William Smith of Nations Builders Insurance Services (NCCCO board member and C-DAC member) agreed, commenting that “[l]eaving the rule as written [with certification but without a continued employer duty after November, 2014] would take us back in time not forward in protecting lives” [ID–0474]. A U.S. crane manufacturer stated that the lack of employer evaluation of an operator would be a problem, and certification is a foundation, but should not be a substitute for an employer competency evaluation. (Report # 4 of ID-0673). Similarly, a training company representative stated that certification plays a vital role in the operator competency process, but sufficient training and months to years of actual operating experience are needed to ensure the operator’s competency (Report # 20 of ID-0673).

Other employers agreed that, depending on a number of factors, determining the competency of a new, inexperienced operator to become an independent, safe, and efficient operator is a process that can vary in time depending in part on the employer needing a new operator, having a crane available, and demand for the crane services (e.g., Reports # 2, 11 of ID-0673). This competency process is often informal and integrated in day-to-day work, with operators-in-training working closely with experienced operators in on-the-job training who mentor them and show them how to use equipment (Reports # 1, 2, 3, 6, 11, 15, 16, 18, 19, 23 of ID-0673). Operators receive experience not only in the cab, but also in many tasks or operations related to hoisting, such as rigging, assembly/disassembly or set-up, or inspections.

A crane insurance representative suggested that the industry is moving away from assigning two employees to work on a crane, where the less experienced employee is mentored by the other, and expressed concern that this shift may impact the availability of sufficiently qualified operators and the safety of the industry (Report # 25 of ID-0673). If true, such a trend would increase the importance of an employer evaluation requirement because the informal monitoring would be less frequent. Requiring certification by crane type and retaining the existing employer duty to evaluate operators should ensure that crane operators have sufficient training to maintain safety, even if the industry is moving away from assigning two employees to work on a crane. The existing certification requirement ensures baseline knowledge and skills to operate a crane, while retaining the employer duty to evaluate operators provides some assurance that the operator can handle the specifics of operating particular equipment and performing more challenging tasks. Many industry stakeholders told the agency that this combination is necessary to fully ensure that operators are truly qualified to operate the equipment for their assigned tasks.

Based on all of the reasons in the foregoing discussion, OSHA is proposing to clarify and make permanent the requirement for employers to evaluate their operators and operators-in-training in addition to ensuring that they are certified in accordance with the existing standard. The specific evaluation requirements are set out in proposed paragraph §1926.1427(f) and are explained later in this document in the preamble discussion of that paragraph. OSHA requests comment on this proposal to retain the evaluation requirement in addition to certification. Are there more effective ways of ensuring that operators are

fully qualified to use cranes for the specific activities that the operator will be required to complete, such as independent third-party evaluations?

Elimination of the Requirement to Certify Based on Capacity of Crane

As discussed above, OSHA's research suggests that while certification by type of crane establishes that an operator has a basic level of skill and knowledge about the operation of that type of crane, it is the employer's evaluation that best ensures the operator has the skill and knowledge necessary to operate a crane in a particular configuration. While testing organizations differed over whether a certification by capacity provided any useful information to an employer, most agreed that capacity is just one factor to be considered in the employer's overall evaluation of the operator's ability. OSHA is unaware of any direct evidence establishing a safety benefit for requiring certification by capacity. For these reasons, OSHA has preliminarily determined that, if the employer duty becomes a permanent requirement, employee certification by capacity of crane should no longer be required; rather, it should merely be an option for those employers who wish to use it.

OSHA requests comment on its proposal to eliminate the requirement that crane operators be certified by capacity in addition to type of crane. Do you or your employer currently require certification by both type and capacity? If so, how do you use the certification on capacity in determining whether an employee may operate a particular crane or conduct a particular lift? Please provide any other information of which you are aware showing safety benefits from certification by capacity.

J. Significant Risk

Section 3(8) of the OSH Act requires that OSHA standards be "reasonably necessary or appropriate to provide safe or healthful employment" (29 U.S.C. 652(8)),

which the Supreme Court has interpreted as requiring OSHA to show that “significant risks are present and can be eliminated or lessened by a change in practices” (Indus. Union Dep’t, AFL–CIO v. Am. Petroleum Inst., 448 U.S. 607, 642 (1980) (plurality opinion) (“Benzene”)). The Court clarified that OSHA has considerable latitude in defining significant risk and in determining the significance of any particular risk, noting that “[i]t is the Agency’s responsibility to determine, in the first instance, what it considers to be a ‘significant’ risk” (Benzene, 448 U.S. at 655).

Although OSHA makes significant risk findings for both health and safety standards, the methodology used to evaluate risk in safety rulemakings is more straightforward. Unlike the risks related to health hazards, which “may not be evident until a worker has been exposed for long periods of time to particular substances,” the risks associated with safety hazards such as crane tipovers, electrocution, and striking or crushing workers with a hoisted load, “are generally immediate and obvious.” Benzene, 448 U.S. at 649, n.54. OSHA’s 2010 Cranes and Derricks in Construction standard was accompanied by an extensive analysis in which the Agency examined fatality and injury data available in 2008 and concluded that employees working in or around cranes and derricks face a significant risk of death or serious injury (see 75 FR 48093).

When, as here, OSHA has previously determined that its standard substantially reduces a significant risk, it is unnecessary for the Agency to make additional findings on risk for every provision of that standard (see, e.g., *Public Citizen Health Research Group v. Tyson*, 796 F.2d 1479, 1502 n.16 (D.C. Cir. 1986) (rejecting the argument that OSHA must “find that each and every aspect of its standard eliminates a significant risk”). Rather, once OSHA makes a general significant risk finding in support of a standard, the

next question is whether a particular requirement is reasonably related to the purpose of the standard as a whole. (*Asbestos Information Ass'n/N. Am. v. Reich*, 117 F.3d 891, 894 (5th Cir. 1997); *Forging Indus. Ass'n v. Secretary of Labor*, 773 F.2d 1436, 1447 (4th Cir. 1985); *United Steelworkers of Am., AFL-CIO-CLC v. Marshall*, 647 F.2d 1189, 1237-38 (D.C. Cir. 1980)).

As explained elsewhere in this preamble, the proposal meets this test. OSHA previously concluded that the standard would substantially reduce risk through a combination of mandatory operator certification and other requirements, but OSHA did not claim that the standard would eliminate the significant risk entirely. The employer evaluation is reasonably related to the reduction of significant risk because it reduces employee exposure to the previously identified hazards. It reflects current industry best practices and helps to ensure the employee has the skills and knowledge to operate the crane safely during the lifts to which he or she is assigned.⁵

The Agency notes that there is ample evidence in the record that workers could continue to be exposed to the hazards that OSHA sought to reduce through the cranes standard. OSHA relied on fatality data available in 2008 when it promulgated the crane standard, but unfortunately crane-related fatalities have continued to occur. According to the Census of Fatal Occupational Injuries, 47 crane operators were killed between 2011 and 2014 (this does not include accidents with non-fatal injuries or crane incidents causing fatalities or injuries to workers other than the crane operator).⁶

⁵ The proposed removal of the requirement for certification by crane lifting capacity is not implicated in this significant risk discussion because it removes a requirement and does not impose any new duties.

⁶ Bureau of Labor Statistics, *Census of Fatal Occupational Injuries (2011 forward)*, Fatalities to Crane and Tower Operators, series ID FWU50X53702X8PN00, available at <http://www.bls.gov/iif/data.htm>.

Another useful data source is a report by an engineering forensics firm, HAAG Engineering, of a large dataset of crane accidents that it has investigated over a period of 30 years (Wiethorn, 2014, the “HAAG Report”) (ID-0674). The final dataset has 507 incidents, covering all types of cranes and accidents. This dataset is likely biased towards larger accidents since these are more likely to warrant significant investigation for insurance and litigation issues. But while it cannot be said to be a representative sample of all crane accidents, it is a large sample and hence suggestive of more general trends. The HAAG report states that of 147 fatalities among its reported crane incidents, 28 were operators, meaning there were over 4 times more non-operator employees killed than operators from crane accidents in this sample $((147-28)/28=4.3)$.⁷ Similarly for injuries, out of 281 injuries, 29 were to operators, so that there were 8.7 non-operator injuries for every operator injury $((281-29)/29=8.7)$.⁸ Of course these two categories are not mutually exclusive (there will often be injuries when there is a fatality).

As noted in more detail in the *Benefits* section of the Preliminary Economic Analysis for this rule, three recent fatalities in particular illustrate the dangers from improper equipment operation that OSHA posits could be prevented by the evaluations included in this proposed amendment to the standard. In one instance, the crane operator was not familiar with the controls of the equipment. In another incident, an operator hoisting pipes longer than he had previously hoisted used an improper boom angle, indicating that he did not possess adequate knowledge and skills to address the additional challenges of the task he was required to perform. In the third incident, a fatality occurred when an employee operated a new, unfamiliar machine with controls in different

⁷ The HAAG report, p. 31.

⁸ Id.

locations than the machines with which the operator was accustomed. While the employee's use of that equipment arose from unexpected circumstances, the result nonetheless demonstrates the risk inherent with operating a crane without a method to ensure the operator knows how to use the particular crane to which he or she is assigned.

As explained in the Background and Need for Rulemaking sections of the preamble, stakeholders have raised serious concerns that the current level of risk will increase if OSHA does not make permanent the employer duty to ensure operator competency on the actual equipment they operate. The nearly unanimous message to OSHA is that crane operator certification is designed to ensure a basic level of general operating competency, but is not by itself sufficient to ensure that operators have the necessarily skills and knowledge to operate all assigned equipment or to perform all assigned tasks safely.

III. Summary and Explanation of the Proposed Amendments to Subpart CC

Discussion of the Proposed Rule's Organization and General Terms used in its Summary and Explanation.

The following discussion summarizes and explains each new or revised provision in the proposal and the substantive differences between the proposal and OSHA's current crane operator requirements in subpart CC of 29 CFR 1926. In general, OSHA proposes to reorganize this section of the current rule to improve comprehension of the requirements. In the *Background* section of this notice, OSHA summarizes revisions to the current rule that would clarify crane operator requirements and address concerns raised by stakeholders and through enforcement activity. OSHA asks for public comment

on the potential impact and necessity of those revisions and for alternatives to these revisions that should be considered.

OSHA applies the term “qualification” within the proposed regulatory text for operators working for the U.S. military. This has been carried over from the existing provisions. OSHA has retitled §1926.1427 as “Operator training, certification, and evaluation.” When OSHA uses “qualification” or “qualified operator” in this preamble, it means an individual who is fully trained, certified, and passed an evaluation by the employer, or the process of completing all three of those steps.

Paragraph (a) - Duty to Train, Certify or License, and Evaluate Operators

Proposed paragraph (a) sets out the employer’s responsibility to ensure that each operator completes three steps before the employer permits him or her to operate equipment covered by subpart CC without continuous supervision. Each operator must be trained to do the construction activity that will be performed, be certified/licensed in accordance with subpart CC, and be evaluated on his or her competence to safely operate the equipment that will be used. In addition, paragraph (a) sets out exceptions to these requirements for certain equipment, as well as continuing to note that qualifications issued by the U.S. Military to its non-uniformed employees satisfy OSHA’s crane standard. The proposed new approach provides a clearer structure than the existing standard, which was not designed to accommodate both certification and evaluation.

In addition, the proposal makes clear that post-certification training is required.

OSHA acknowledges that the existing standard could be clearer regarding ongoing training requirements for certified operators. OSHA anticipated, and the existing rule reflects the notion, that certification would supplant the employer’s evaluation, and

that employers would train their operators on the equipment for which they were certified, so therefore the employer would have met the training requirements specified under §§1926.1427(f) and 1926.1430(c)(2) at or around the time the operator was certified. Therefore, OSHA did not spell out the ongoing training necessary for certified operators to learn to operate new equipment or perform new tasks. The proposed rule contemplates operators still needing additional training after they are certified, such as training to operate a new type of crane, perform new tasks, or handle new controls in a new model of crane.

The training components in the proposed and existing standards are similar. The proposed standard differs from the existing standard in that it clarifies that the employer would be obligated to train employees, as necessary, even after they are certified, until the employer has evaluated them in accordance with proposed paragraph (f). As under the existing standard, (see current §1926.1430(g)(2)), refresher training would also be required when indicated by deficiencies in the employee's demonstrations of crane knowledge and equipment operation.

The current certification/licensing requirement, which is the centerpiece of the existing operator requirements, would remain largely unchanged under this proposal, with the exception that different certifications for different capacities of cranes would no longer be required. The reference to "certified/licensed" is intended to encompass each of the certification options in the standard (third-party certification or an audited employer certification program) as well as state or local operator licensing requirements.

The third element in the introductory text of proposed paragraph (a) refers to the employer's duty to assess the operator to ensure that an operator has the skills,

knowledge, and judgment to safely operate equipment. The proposed duty to evaluate operators is similar to the duty in the existing standard at §1926.1427(k)(2)(i), which specifies interim duties that are required until they are scheduled to be phased out once operator certification requirements become effective on November 10, 2018. OSHA is proposing to maintain this employer duty permanently but re-locate it to paragraph (a) to clarify the standard's requirements. In addition to the existing requirements in §1926.1427(k)(2)(i), the proposal has requirements for the individual who performs the evaluation and requirements for documenting the evaluation. The proposal retains the existing standard's duty for employers to re-evaluate operators when necessary (see current §1926.1430(g)(2)), but moves it to the evaluation section to clarify the requirements (see full discussion of proposed paragraph (f)---*Evaluation* below.)

Proposed paragraphs (a)(1)-(3) provide limited exceptions to the general requirement in paragraph (a) that operators must be trained, certified, and evaluated before operating equipment.

Proposed paragraph (a)(1) would permit an employee to operate equipment as an "operator-in-training" prior to being certified and evaluated, provided that he or she is supervised and operates the equipment in accordance with the training requirements in paragraph (b). This is the only means by which an individual may operate equipment prior to being trained, certified, and evaluated as competent to do so. This exception is substantively similar to the requirement in the existing crane standard at §1926.1427(a), which permits uncertified operators to operate equipment only when the employer complies with the requirements specified under existing §1926.1427(f)—*Pre-qualification/certification training period*. But it would also permit certified/licensed

operators to operate equipment as operators-in-training before successfully completing an evaluation. For example, this provision would allow experienced and certified operators to become accustomed to performing new crane operations or operating somewhat different equipment while being evaluated by the employer for that purpose, or to allow a newly hired operator to run the equipment while a new employer gauges the operator's crane knowledge, operating skills, and training needs. In addition, experienced operators who are not certified could operate the equipment when all operator-in-training requirements are met.

The proposal recognizes that on-the-job training is an important component of gaining the practical operating experience necessary to safely operate a crane and to pass a competency evaluation. Moreover, based on the stakeholder discussions noted above, many employers who train new operators require them to complete operator certification at the beginning or in the middle of their training program, while employer evaluation of competency is generally a later step in the process and may occur many times over an operator's career. Therefore, OSHA believes that permitting an operator-in-training to operate equipment under the conditions specified in paragraph (b) is appropriate and necessary to ensure the safety of operators-in-training while they train for competency evaluations by employers.

In addition, proposed paragraph (a)(1) expressly states that an operator-in-training may only operate equipment *under supervision* to ensure that employers understand that supervision is a mandatory component of operating in accordance with proposed paragraph (b), and therefore under this exception. Because the existing crane standard also requires operators-in-training to be supervised, including the supervision

requirement in proposed paragraph (a) as well as proposed paragraph (b) is a non-substantive, clarifying amendment (see paragraph (b) for a more thorough discussion of on-the-job and general training requirements).

Proposed paragraph (a)(2) retains the exemptions for derricks, sideboom cranes, and equipment with a maximum manufacturer-rated hoisting/lifting capacity of 2,000 pounds or less from the training and supervision requirements in proposed paragraph (b) and the certification/licensing requirements in proposed paragraphs (c)-(d). OSHA considered, but has declined to include in this proposal, other requests for certification exemptions for operators of other types of equipment, including cranes with a rated maximum lifting capacity in the 5,000-35,000 pound range and cranes that are typically used for repetitive lifts, or are only used intermittently. In adopting the existing rule, OSHA considered exempting such equipment and concluded that “many of the same hazards presented by larger cranes are present for cranes in [the 5,000-35,000 lb.] capacity range” (75 FR 48016). Similarly, OSHA concluded that the underlying causes of crane fatalities and injuries did not necessarily decrease for cranes used for duty cycle work (Id.).

Proposed paragraph (a)(3) would preserve an existing provision that states that non-uniformed personnel employed and qualified as operators by the U.S. military meet the licensing/certification requirements of §1926.1427. OSHA moved this provision from the other certification/qualifications options because it operates as an exception: it specifies that no certification/licensing or training obligation for construction employers is needed beyond verifying that the employee is employed by, and qualified by, the military. For the purpose of confirming that a military operator has the basic crane

knowledge and operating skills required through licensing and certification, OSHA defers to the operator qualification process of the U.S. military as the employer. However, the military qualification is not portable: an operator must comply with all of the provisions of the crane standard whenever he or she operates equipment for an employer other than the U.S. military. OSHA requests comment on this proposed paragraph regarding whether the relocation of this provision is appropriate and if it is clear that this is an exclusion from all qualification and training requirements of this standard, not just certification.

Paragraph (b) Operator Training

The requirement for employers to train and evaluate operators before permitting them to operate equipment is contained in paragraph (a) of the proposal. Proposed paragraph (b) would set forth minimum requirements for training, specify requirements for trainers, and establish limitations on the scope of activities for operators-in-training. This proposed paragraph would specify the conditions under which an individual may operate a crane prior to acquiring certification or successfully completing an employer evaluation. These training provisions are intended to provide a safe avenue for employees to gain experience operating cranes.

The proposed training requirements of paragraph (b) would clarify that employers must continue to address operator training needs after the operator has been certified and demonstrated competency through employer evaluation on specific equipment. Proposed paragraph (b) differs from the training requirements in the existing standard because the proposal would clarify that the employer's training duty is both equipment-specific and task-specific, and extends until the employer has satisfactorily evaluated the operator-in-

training in accordance with proposed paragraph (f)—*Evaluation*, or if any retraining or subsequent training is required to perform the assigned tasks. The proposal recognizes that even a certified and evaluated operator may need additional training to safely operate new equipment or perform significantly different types of lifts. Therefore, the employer’s duty to train remains an ongoing responsibility that must be met as the operator’s operating experiences expand. In contrast, the existing standard is not as clear (except when an individual’s deficient operating performance or crane knowledge triggers re-training) that the employer’s duty to train extends beyond when the individual is certified and evaluated. This proposal clarifies that the employer’s duty to train is aimed at ensuring that the employee can safely use the equipment that will be operated.

Existing training requirements are distributed between two sections. First, §1926.1427(f)—*Pre-qualification/certification training period*, sets forth the limited conditions under which an operator-in-training can safely operate equipment before being certified. Secondly, §1926.1430—*Training Requirements*, centralizes the triggers for operator training requirements, including those for re-training. As discussed in the explanation for this section, OSHA is proposing to remove the substantive operator training requirements from §1926.1430 and replace them with a cross-reference to proposed §1926.1427(b) so that the substance of the training requirements for operators, as well as all operator-in-training requirements, would be under one section. Relocating the requirements of §1926.1427(f) would also ensure that the organization of the crane operator requirements corresponds with the order of a typical operator competency program—i.e. initial training generally precedes certification and an operator being determined competent by employer evaluation.

The introductory text in proposed paragraph (b) would require the employer to provide operators-in-training with sufficient training to ensure that they develop the skills, knowledge, and judgment necessary to safely operate equipment to perform work. In addition, this proposed requirement would specify that training must include a combination of formal and practical instruction.

OSHA notes that this paragraph (b) does not mean that employers must provide novice-level or redundant training when they hire an experienced operator as a new employee. Employers must determine what level of practical and formal training an operator-in-training would need under proposed paragraph (b). Ultimately, the methods chosen must be effective and responsive to each operator's training needs.

OSHA is proposing to remove the introductory text in existing paragraph (f). The existing introductory paragraph contains the requirement that a non-certified employee may only operate as an operator-in-training within the limitations of paragraph (f), which would be supplanted by the language in proposed paragraphs §1926.1427(a)(1) and (b).

Most of the specific training requirements in proposed paragraph (b) would be identical or similar to the existing training requirements. Proposed paragraph (b)(1) requires the employer to provide the operator-in-training with instruction on the subjects in paragraph (j). This requirement is identical to the requirement in existing §1926.1430(c)(1)—*Operators-in-Training for equipment where certification or qualification is required by this subpart*, although under the proposed standard this duty continues after the operator-in-training is determined competent by employer evaluation when the operator operates new equipment or performs tasks that require new skills or knowledge. An individual may be a fully certified and evaluated operator with respect to

one piece of equipment such that he or she is allowed to operate that equipment independently, but simultaneously be an operator-in-training (and thus subject to the operating restrictions in the standard) with respect to different equipment or tasks that require significantly different skills or knowledge.

Current section 1926.1427(j)—*Certification criteria* specifies the mandatory subject matter for third-party licensing and certification, as recommended by C-DAC. It requires a written and a practical test. Subparagraph (j)(1)(i) specifies areas of information that must be covered by the written certification test for the type of crane that an individual will operate, such as controls, operational/performance characteristics, load calculations, and ground conditions. This subparagraph also references a more comprehensive list of areas of technical knowledge in Appendix C—*Operator Certification: Written Examination: Technical Knowledge Criteria*. Subparagraph (j)(2) identifies the operating skill areas that must be covered by the practical certification test.

OSHA preliminarily concludes that operators-in-training should continue to receive training in the subject matter identified in this section as recommended by C-DAC. However, OSHA is proposing to relocate the requirement in §1926.1430(c)(1) to proposed §1926.1427(f) so that the requirements for operators-in-training may all be found in one place. New language in proposed §1926.1430—*Training*, discussed separately below in this preamble, would reference proposed paragraph §1926.1427(a) and (b) rather than repeat the same requirement.

Proposed paragraph (b)(2) requires the employer to ensure that a trainer continuously monitors operators-in-training during all crane operation. This requirement

is identical to the existing requirement for continuous monitoring under existing paragraph (f)(3).

Proposed paragraph (b)(3) requires the employer to assign the operator-in-training only tasks that are within his or her ability. This requirement is substantively identical to the requirement under current paragraph (f)(2). OSHA is proposing minor changes to the language of this requirement to clarify that it is the employer's duty to assign tasks to the operator-in-training. OSHA is also proposing to relocate the requirements of existing paragraph (f)(1). The existing paragraph requires the employer to provide each operator-in-training with training sufficient to operate safely under the limitations of existing paragraph (f). Its requirements are retained in proposed paragraphs (b)(1) and (b)(3), which state that the operator-in-training must be trained on the subject matter specified in paragraph (j) of this section and may only perform tasks that are within his or her abilities.

Proposed paragraph (b)(3) retains the limitations specified in existing paragraph (f)(5), which preclude operators-in-training from operating equipment next to energized power lines; from hoisting personnel; or from performing multiple-equipment lifts, multi-lift rigging operations, or lifts over shafts, cofferdams or in a tank farm. OSHA previously determined in the 2010 final rule that these equipment operations and worksite conditions are too complex, or present such heightened risks, that it would be unreasonably dangerous if an operator-in-training were to operate the equipment in these circumstances (75 FR 48024). However, OSHA is considering revising these limitations because they may have the effect of preventing operators from gaining the experience necessary to conduct these lifts. It appears that even certified operators may lack the

experience to perform crane operations listed in §1926.1427(b)(3), particularly if the operator is subject to the operator-in-training prohibitions until he or she is evaluated for competence at that skill. OSHA requests public comment on whether such restrictions are still appropriate or whether they unduly restrict the employer's discretion to allow experienced but uncertified, or certified but unevaluated operators, the opportunity to participate in even monitored, on-the-job training for those activities. The agency is particularly interested in comments addressing how employers have identified and evaluated operators for these tasks, both before and after the 2010 rule took effect.

Proposed paragraph (b)(4) prescribes minimum requirements for monitored training of operators-in-training and trainers who monitor operators-in-training. Proposed (b)(4)(i) specifies requirements for the required trainer which are similar to requirements in paragraph (f)(3) of the existing standard. Proposed paragraph (b)(4)(i)(A), which requires the trainer to be the employee or agent of the operator-in-training's employer, is identical to existing subparagraph (f)(3)(i).

Proposed paragraph (b)(4)(i)(B) requires that the trainer must "have the knowledge, training, and experience necessary to direct the operator-in-training on the equipment in use." This requirement is different from the requirements of existing paragraph §1926.1427(f)(3), which requires a trainer to either be a certified operator or to have passed the written part of a certification test and have familiarity with the equipment's controls. This proposal recognizes that some trainers without certification may be competent to teach or monitor the equipment operations of an operator-in-training.

OSHA is proposing this change for three reasons. First, OSHA has preliminarily concluded that merely requiring the trainer to have passed the written part of a certification test is insufficient to confirm a trainer's ability to train other operators. Existing paragraph (f)(3) presumes that all certified operators or individuals who passed only written certification tests have the skills to monitor an operator-in-training, but as explained above, OSHA now believes that certification alone is insufficient to ensure that operators are competent to safely operate a crane. Under this proposed rule, even after the basic crane knowledge and operating skills of operators have been confirmed through certification testing, employers must still determine through evaluation if operator training already provided is sufficient or if more is necessary, based on the complexity of equipment that will be used and activity that will be performed. Thus, requiring an individual to pass a written certification exam appears to be likewise insufficient as the sole criterion for confirming a trainer's ability to monitor and train an operator-in-training.

Second, OSHA has preliminarily concluded that, using certification as the sole criterion could actually impose barriers to proper training to the extent it excludes individuals who have extensive operating experience and familiarity with the controls of particular equipment operated but may not possess a certification for it. . The careers of experienced operators may naturally progress to training other operators as their physical abilities begin to diminish. Under the existing trainer requirements, an experienced but uncertified operator may have to be monitored by less experienced but certified individual or one that has merely passed the written certification exam. For these reasons, allowing only certified operators in these training roles, on its face, appears to be

inconsistent with an industry practice of pairing inexperienced operators with experienced trainers who monitor the safety and professional development of the inexperienced operator.

Third, OSHA concluded that passing a written certification test is not a definitive indicator of safe training practices in the industry and requiring certification of all trainers could significantly alter many existing work practices in the industry. Stakeholder feedback suggests that many different employees or agents of an employer fill the role of a trainer under certain circumstances. Some formal training might be administered by someone with extensive knowledge of a particular make and model of crane. For example, some crane manufacturers offer technical training to their customers regarding the operation, maintenance, and troubleshooting of cranes they sell (see Reports # 4, 5, 13 of ID-0673). On-the-job training, by contrast, is often administered by a seasoned crane operator with years of experience (see Reports # 1, 2, 19, 23, 28 of ID-0673) or in some cases by a retired operator (see Report # 26 of ID-0673). In addition, an employer might employ an experienced safety manager, foreman, or site manager to monitor some work activities, or an experienced small business owner might fill the role of trainer in some cases (see Reports # 1, 2, 15, 26 of ID-0673). And OSHA spoke with three companies that offer other employers private training from experienced operators who are also qualified instructors (see Reports # 20, 21, 22 of ID-0673). In sum, stakeholders reported that some individuals who have the necessary knowledge, training, and experience to direct the operator-in-training do not possess a certification and possibly could not pass formal testing for a variety of reasons.

Thus, although some public commenters at the March 31- April 1, 2015 ACCSH meeting supported requiring trainers to possess a certification, OSHA proposes to adopt language similar to the requirement in ASME B30.5 (2014) at 5-3.1.2(e) that training be performed by a “designated person who, by experience and training, fulfills the requirements of a qualified person.” Under the proposed language, employers would have some flexibility in determining the level of knowledge and experience that the trainer must possess based on the skill level of the operator-in-training and the nature of the activity performed. OSHA expects that in many cases, the trainer will possess a certification. However, the proposal leaves open the possibility that the trainer’s experience with the task and equipment used could be sufficient for experienced personnel to provide training even absent a certification. For example, an uncertified person who has significant experience operating the particular equipment used during the training may have more insight into the function of its controls and the nuances of its operation than someone who is certified for that type of equipment but has never operated that particular equipment. OSHA concludes that this performance-based language, which is similar to the qualified person definition that is familiar to the construction industry, could give employers the flexibility to select and assign trainers who are appropriate to the skills and needs of their operators-in-training, while ensuring that these trainers possess an ability to train operators-in-training that goes beyond mere certification.

OSHA requests comment on this proposed revision of existing trainer requirements. Should OSHA retain the requirement that trainers possess a certification or at least pass the written certification exam while adding a new additional requirement that the trainer possess the knowledge, training, and experience to direct the operator-in-

training? Should trainers also be evaluated under proposed paragraph (f)? Should certification alone be considered sufficient evidence that an individual has the knowledge, experience, and training to be a trainer? Why or why not? If certification is not sufficient, please provide specific recommendations for additional qualifications. For example, if the assertion is that a trainer should have previous experience operating equipment, it would be helpful to specify what kind of experience and how much: should a specific number of seat hours be required? Should experience with the same type of equipment be sufficient, or should the trainer have previously operated that particular equipment (and if so, for how long)?

Proposed paragraph (b)(4)(ii) prohibits the trainer from performing any task that detracts from his or her ability to monitor the operator-in-training. It is identical to existing paragraph (f)(3)(iii).

Proposed paragraph (b)(4)(iii) requires the operator's trainer and the operator-in-training to be in each other's direct line of sight, and that they communicate verbally or with hand signals. This requirement is substantively the same as existing paragraph (f)(3)(iv), with minor simplifying language changes. The proposal relocates this provision to an independent subparagraph to clarify that the employer has the ultimate responsibility for ensuring compliance with this requirement. This proposed paragraph also provides an exception for tower cranes; the trainer and operator-in-training must be in direct communication with each other, but are not required to maintain a direct line of sight because the height of the operator's station may make it infeasible. (See also, the discussion of existing paragraph (f)(3)(iv) in the preamble to the final cranes standard at

75 FR 48024). This exclusion is also substantively the same as existing paragraph (f)(3)(iv), with minor simplifying language changes.

Proposed paragraph (b)(4)(iv) requires that an operator-in-training be monitored while operating the equipment at all times except for short breaks and retains the conditions specified under existing paragraph (f)(4) for that monitoring. Proposed paragraph (b)(4)(iv)(A) requires that a break can last no longer than 15 minutes and can occur no more than once per hour. Proposed paragraph (b)(4)(iv)(B) requires the employer to ensure that the trainer and operator-in-training communicate about the tasks, if any, that can and cannot be performed in the trainer's absence while on break. Proposed paragraph (b)(4)(iv)(C) limits tasks performed during the trainer's break to only those that are within the abilities of the operator-in-training.

Proposed paragraph (b)(5) requires the employer to provide retraining when, based on the performance of the operator or an assessment of the operator's knowledge, there is an indication that retraining is necessary. This language is identical to the requirement in existing §1926.1430(g)(2) but would be included in proposed paragraph (b) to consolidate all substantive training requirements to the extent practical for operators covered under §1926.1427. Because the requirements of §1926.1430(g) apply more broadly to all employees covered by this standard, however, OSHA is not proposing to delete that requirement from §1926.1430(g). Thus, identical language will appear in two different paragraphs of the proposed standard. This retraining requirement is consistent with the retraining described as already implemented by employers who spoke with OSHA during interviews and site visits (see Reports # 1, 2, 3, 15, 18, 19, 22, 26 of ID-0673). Note that the need for retraining under proposed paragraph (b)(5) would

also trigger the requirement for reevaluation under proposed paragraph (f)(5) (see also preamble discussion below of paragraph (f)—*Evaluation*).

Paragraph (c) Operator Certification and Licensing

At the ACCSH meeting on March 31-April 1, 2015, ACCSH members unanimously recommended that OSHA move forward with a rulemaking that retained certification while permanently extending the employer’s duty to ensure the competency of operators. Proposed paragraph (c) retains the certification and licensing structure of the existing standard with only a few minor modifications intended to improve comprehension of certification/licensing requirements.

First, OSHA proposes to move the military qualification provisions of existing §1926.1427(e)(4) to the proposed exception in paragraph (a), as noted earlier.

Second, OSHA proposes to remove the somewhat misleading reference to an “option” with respect to mandatory compliance with existing state and local licensing requirements. When a state or local government issues operator licenses for equipment covered under subpart CC, and that government licensing program meets the requirements specified in the standard, then employers must ensure that equipment operators are properly licensed when working in the state or local jurisdiction, even if the operator is also certified by a nationally accredited certification organization.

The content of proposed paragraph (c)(1) is virtually identical to provisions in existing §1926.1427(e)(2), with one exception: proposed (c)(1)(v). For a more detailed explanation for the other provisions in this paragraph, see the preamble to the final subpart CC rule for §1926.1427(e)(2) at 75 FR 48021-23 (August 9, 2010).

Proposed §1926.1427(c)(1)(v) states that licensing must specify the “type, or type and capacity” of equipment for which the certification is applicable. OSHA is proposing this specification that state and local licenses specify the type of crane in order to clarify the obligation under the existing standard and facilitate enforcement. In existing §1926.1427(e)(2)(i), OSHA requires a licensing program to include at minimum, an assessment of the knowledge and skills listed in paragraph (j). Paragraph (j)(1)(i) requires an individual to know the information necessary for safe operation of the specific type of equipment the individual will operate. If the license does not identify a specific type of equipment, it is more difficult to determine whether the operator possesses the knowledge required under (j)(1). OSHA solicits comments on whether compliance with this requirement would necessitate a significant change to any state or local licensing program.

The “type, or type and capacity” language was requested by Crane Institute Certification and recommended by ACCSH. The language was proposed to make clear that while all certifying bodies must certify by type of crane in order for their certifications to meet OSHA’s requirements, they may also choose to specify different levels of crane capacity for their certifications.

Although OSHA is proposing this language as requested, it invites comment on whether the language “or type and capacity” should be removed in the final rule. OSHA would recognize a certification that lists the type of crane on which an operator has been certified, whether or not it also lists a capacity, as a compliant certification (assuming that the certification also meets the requirement of this standard). For example, if a crane operator certification showed that an operator was certified to operate a tower crane, the

certification would be valid because it lists the type of crane on which the operator was certified. Whether the capacity of the crane was also listed would not affect whether OSHA would consider the certification compliant. OSHA invites comment in particular on whether including “capacity” in this provision could confuse the industry as to whether capacity is required for a state or local license to be valid under §1926.1427, particularly in light of the fact that one purpose of this proposal is to remove the capacity requirement from certification (see the Need for a Rule section above).

In the existing standard, OSHA frames the state/local licensing process through a structure parallel to the model in which third-party certification organizations are accredited by a nationally recognized accrediting body. In the proposed rule, OSHA’s approach would be simpler: proposed paragraph (c)(1) would directly require states or localities to meet certain criteria in order for their operator licenses to be enforceable by OSHA. If these minimum “federal floor” criteria are not met, then OSHA would deem those licenses insufficient and would not require employers to comply with those licenses.

The remainder of the requirements of proposed paragraph (c)(1) are substantively the same as those in §§1926.1427(a)(1), (a)(2), and (e) of the existing rule, except that OSHA combined the requirements of those three paragraphs into one paragraph and clarified some of the language to facilitate better comprehension of state or local government entity requirements.

Proposed paragraph (c)(2) specifies the certification requirements for two remaining situations: the construction occurs in a state or local jurisdiction that does not require licensing of equipment operators, or the construction occurs in a state or local

jurisdiction where the licensing program does not meet the “federal floor” of requirements established in this standard. In each of those situations, the operator would have to be certified in accordance with proposed paragraph (d) (third-party certification) or (e) (audited employer program) of this section. Proposed paragraph (c)(2) is identical to existing §1926.1427(a)(2), except that it references only the paragraphs containing criteria for certification by an accredited testing organization and an audited employer program—and not the option for qualification by the U.S. military which would be addressed as a scope exclusion in proposed paragraph (a)(3). Proposed paragraphs (d) and (e), discussed later, correspond to existing paragraphs §1926.1427 (b) and (c), respectively.

Proposed paragraph (c)(3) – Employer Payment for Certification and Licensing.

Proposed paragraph (c)(3) would require employers to provide the required certification or licensing at no cost to employees. This proposed requirement is almost identical to that of §1926.1427(a)(4) of the existing rule, except that it has been revised to clarify that it applies to all operators certified or licensed after the effective date of the new standard, not just those operators who were “employed by the employer on November 8, 2010,” as existing §1926.1427(a)(4) states.⁹ This proposed requirement would then be in line with, and be enforced similarly to, other OSHA provisions that require employers to provide personal protective equipment, medical examinations, or other functions at no cost to the employees. The requirement would also be consistent

⁹ Existing §1926.1427(a)(4) requires employers to provide “the qualification or certification” at no cost to the employees. Because existing §1926.1427(a)(1) mandates that employers ensure that all operators are “qualified or certified to operate the equipment in accordance with the following,” the required state or local licensing must constitute a form of qualification or certification. Thus, employers are currently required to pay for state or local licensing of their operators when those licenses are required by OSHA.

with the way in which OSHA assessed costs in the 2010 economic analysis. In the final economic analysis of subpart CC, OSHA modeled all of the costs for compliance with the existing certification requirements as if all employers always paid for the certifications they provide for operators. Note, however, that this provision would not mandate an employer to maintain its employment of an employee/operator who cannot pass certification testing or who is not a good operator candidate. Furthermore, an employee who does not possess a certification may still be allowed by the employer to operate a crane indefinitely, but only as an operator-in-training and through the employer's compliance with all requirements of proposed paragraph (b) of this section.

Proposed paragraph (c)(4) – Single Entity Permitted to Provide Training and Testing.

Proposed paragraph (c)(4) would retain, without change, the content of existing §1926.1427(g), which states that a testing entity is permitted to provide training as well as testing services as long as the criteria of the applicable accrediting agency (in the option selected) for an organization providing both services are met.

Paragraph (d) Certification by an Accredited Crane Operator Testing Organization

As noted above, proposed paragraph (c)(2) provides two options for certification: compliance with proposed paragraph (d) (third-party certification) or proposed paragraph (e) (audited employer program). Compliance with the requirements of proposed paragraph (d) is the option that OSHA expects the vast majority of employers to use. Proposed paragraph (d) retains, with some non-substantive language clarification and two exceptions discussed below, the requirements of existing paragraph §1926.1427(b).

First, the most significant change is that the proposal replaces the references to certification by “type and capacity” that appear in existing sub-paragraph (b)(1)(ii)(B) and (b)(2) with “type, or type and capacity” as recommended by ACCSH (see OSHA-2015-0002-0037 pg. 71). The need for this change is explained in the “Need for a Rule” section of this preamble. This proposed revision will remove the requirement to obtain a certification for a designated crane capacity, but also clarify in regulatory text that OSHA considers testing organizations whose programs provide certifications that specify “type and capacity” equally acceptable. One testing organization expressed concerns that the clarification is needed to prevent confusion about this particular certification requirement. OSHA’s concerns about adding this language are noted above in the preamble discussion for paragraph (c)(1), and the Agency seeks comment on whether to include the language “type, or type and capacity” in this standard.

Second, the proposal does not include the reference in existing §1427(b)(2) to an employee being “deemed qualified” to operate equipment under certain conditions if no accredited testing organization offers certification examinations for a specific type of equipment. Instead, the proposal states that the operator would be “deemed certified.” The latter proposed change would help to avoid the misconception that an operator could be considered competent to safely operate equipment without also being evaluated and determined competent by the operator’s employer.¹⁰ All other provisions in proposed paragraph (d) are unchanged from existing paragraph (b), and discussion and justification

¹⁰ OSHA had included the “deemed qualified” language simply as a means of clarifying that an operator would be considered qualified to operate a crane of the same capacity or less than the one on which the operator was tested. The use of “qualified” instead of “certified” at that time was meant to reflect the varying paths to compliance with the standard: certification through a third party or employer-audited program, or other qualification through a state or licensing program or meeting the requirements specified by the U.S. military. In this proposed rule, OSHA has simplified the language of the standard to refer to certification, so “deemed certified” now conveys the same meaning.

of these provisions can be found in the preamble to the final cranes standard (75 FR 48017). OSHA solicits comment on the proposed changes encompassed in proposed paragraph §1926.1427(d).

OSHA is considering deleting the requirement for operator recertification every five years and solicits public comments about whether this requirement is necessary, or alternatively, whether compliance with proposed §§1926.1427(b)(5)---*Retraining*, and 1926.1427(f)(5)---*Re-evaluation*, would be sufficient to ensure operators continue to operate cranes safely after being certified, trained, and evaluated. During its many conversations with stakeholders about crane operator mentoring and periodic assessment, OSHA heard that frequent monitoring, employer feedback, and assessment of an operator's proficiency on the job are industry-recognized work practices (see site visit discussion in *Background* section). Similarly, most employers who spoke with OSHA explained that their operator competency programs provide their operators with updates regarding any new information about equipment and changes to federal, state, and local government regulations as well as any changes in company policies. None of these employers expressed concerns about operators losing their basic knowledge and operating skills after periods of inactivity.

Paragraph (e) Audited Employer Program

The substantive content of proposed paragraph (e) is the same as existing §1926.1427(c). It sets out the parameters for a nonportable certification program administered by the employer and audited by a third party. The proposed changes to the regulatory text for the audited employer program are to remove the word “qualification”

and to replace three cross references with updated references to their new locations in the proposed rule.

OSHA's proposal to remove the reference to "qualification" from the heading of the paragraph changes the product of the employer program from a "qualification" of the operator to a "certification" of the operator. OSHA is removing the reference to "qualification" because of the misconception by some that it signaled full competency, rather than its intended meaning as an equivalent to certification. The employer audited program would continue to be an alternative to certification by an independent third party.

Three cross references would be changed. First, the reference in existing §1926.1427(c)(1)(i) to "paragraph (b)" will be revised to "paragraph (d)" in the proposed rule. Second, the reference in existing §1926.1427(c)(1)(ii)(A) to "paragraph (b)" will be revised to "paragraph (d)." Finally, the reference in existing §1926.1427(c)(4) to "paragraphs (c)(1) and (2)" will be revised to "paragraphs (e)(1) and (2)."

OSHA solicits comment on the proposed variations from the existing §1926.1427(c).

Paragraph (f) Evaluation

Proposed paragraph (f) sets out specific requirements that employers must follow to conduct an operator evaluation, including evaluation criteria, minimum qualifications for the person conducting the evaluation, documentation, and re-evaluation requirements.

The rationale for proposing the evaluation requirement is explained earlier in the "Need for a Rule" section of this preamble; the discussion here focuses on OSHA's rationale for when and how the evaluations would be conducted. OSHA's goal in proposed paragraph (f) is to give employers flexibility to conduct evaluations in the

course of normal business, but at the same time to provide enough specificity to ensure that an evaluation satisfies the minimum criteria necessary to ensure safe operators.

OSHA requests comment on the proposed process for crane operator evaluation, and, as explained in more detail below, any of the specific requirements of this proposed paragraph.

Proposed paragraph (f)(1) requires employers to evaluate their operators and specifies the two goals of the evaluation: ensure that the operator has (i) the necessary skills, knowledge, and judgment to safely operate the actual equipment that will be used, and (2) the ability to safely perform the assigned work. These performance-based evaluations are intended to be more directly focused on the operator's actual work than the general knowledge and skills tested during the certification process.

In developing the performance-based evaluation criteria, OSHA considered the training requirements in the powered industrial truck operator training standard at subpart O—*Motor Vehicles, etc.*, §1926.600, which incorporates the requirements of §1910.178(1). That standard requires the employer to evaluate a powered industrial truck operator's performance as it relates to several topics at least once every three years. Powered industrial trucks share many of the same operating hazards as cranes, such as those related to ground conditions, load limits, and hazards in the area surrounding the equipment. But powered industrial trucks are generally far less complex, smaller, and less hazardous pieces of equipment in terms of the extent to which they expose other employees to their risks.

OSHA considered, but has preliminarily decided against specifying particular operator skills that the employer must evaluate because those skills could vary

significantly based on the complexity of the equipment and work to be performed.

Almost all employers OSHA spoke to said that when they observe operators handling loads at construction work sites they can tell whether the operators appear competent. At worksites, most employers are accustomed to assessing operator skills because having competent operators that can safely and productively handle loads quickly, smoothly, and without corrections, eliminates injuries and reduces costs. Operators who move the load too quickly or repeatedly make sharp, corrective steps may not have full control over the load at all times, which can lead to worker injuries and increased costs. But OSHA's analysis of the ACCSH public comments confirmed that it would be difficult to capture in a regulatory scheme all criteria necessary to determine an operator's ability to safely operate a type of crane for all possible conditions on a construction site.

For these reasons, the proposed rule retains the performance-based character of the existing evaluation requirements in §1926.1427(k)(2)(i), but makes clear that the operator must possess the necessary skills, knowledge, and judgment to operate "the equipment" safely. The skills, knowledge, and judgment must be relevant to the actual crane or other covered equipment to be used. Employers must ensure that the operator demonstrates his or her knowledge of essential crane-related information and applies it to operate that crane safely. This information consists of facts and characteristics of equipment and operations, which can be learned in a classroom setting, and hands-on knowledge of equipment operation and hoisting techniques, learned at work sites. For example, the operator must not only know what each control does and where it is located, but also how and when to use particular controls or operational aids. Much of the subject matter on which the operators must be evaluated is specified in the testing criteria listed

in paragraph (j), but it is critical to ensuring safety that the employer evaluation is equipment and task-specific. For example, an experienced and certified operator may have previously demonstrated the ability to lift a crate of materials onto a roof using one crane, but if the company gets a new crane that has different controls the employer would need to evaluate the operator's knowledge and skill at using the new controls in the new crane (note that the employer would not need to re-evaluate the operator's general knowledge about crane operations). If a less-experienced operator has already been evaluated for operation of a new model of crane, but has only used that equipment to hoist packaged materials, the employer would likely need to evaluate the operator's ability to control a wrecking ball attachment before allowing that operator to use the wrecking ball in a demolition project (note that the employer would not need to re-evaluate that operator's knowledge of the controls or general operation of the crane).

Stakeholders who spoke with OSHA said that most employers are already able to determine the subject matter and crane knowledge that their operators need to safely perform hoisting activities with their cranes. Although operator competency evaluations conducted by many employers may already exceed that of certification testing, compliance with this proposed provision would ensure that all operator evaluations cover subject matter that is specific to the equipment used and the construction activities performed. OSHA's proposed requirement for work-specific skills, knowledge, and judgment should help to encourage consistency throughout the industry in confirming the basic knowledge and operating skills of all operators in construction work. As explained in the Background section, certification tests conducted by accredited testing organizations are not designed to function as the evaluations required by this proposed

section and the certification subject matter would most likely not cover all that is needed to assure safe crane operations on specific construction sites. For example, a certification test may examine a potential operator's knowledge of ground conditions suitable for a particular type of crane, but not examine whether an operator can assemble the specific type of crane that will be operated on those ground conditions.

Proposed (f)(1)(i) also requires employers to evaluate the operator's judgment. An equipment operator, as a designated competent person, must frequently make determinations regarding the safety of crane operation. The term "judgment" used in this proposed provision refers to not only an operator's ability to apply the knowledge and skill that he or she possess, but also an operator's ability to recognize risky or unusual conditions that call for additional action such as re-evaluating a lift plan, stopping work, or asking for the help of another competent and/or qualified person. The term "judgment" connotes the "successfully demonstrated ability" of a "qualified person," as defined by OSHA's standards in §1926.1401, "to solve/resolve problems relating to the subject matter, the work, or the project" and the capability of a "competent person" to identify "existing and predictable hazards."

OSHA solicits public comments about the decision not to provide more specific objective criteria for evaluation of crane operators. If specific criteria should be specified, what should be required for all operators that would cover the majority of crane operations but not be duplicative of the subject matter tested during the operator certification process? OSHA also, requests comments regarding whether "judgment" should be included as a quality of an operator that should be considered when employers evaluate operator competency. Is there a better concept or term that captures that aspect

of an operator's ability to apply his or her knowledge and skills to make determinations related to the overall safety of crane operations?

Proposed subparagraph (f)(1)(i) also specifies that the operator's knowledge, skills, and judgment must be "specific to the safety devices, operational aids, software, and the size and configuration of the equipment." This list of equipment characteristics, which stakeholders identified as critical for safe operation, is not comprehensive, but would provide employers guidance about some basic characteristics of equipment that might require different levels of knowledge and operating skills. For example, the employer must verify that the operator knows enough about how the safety devices, operational aides, and software work on a particular crane. The operator must be able to apply that knowledge to recognize when the particular characteristics of the equipment may contribute to potentially unsafe conditions or operations and use good judgment to determine how to safely proceed. Such a determination might include using operating skills to safely land or maintain a suspended load, or simply refusing to hoist the load until the safety issue is addressed.

OSHA is including equipment software in this list because many stakeholders noted that operators must have the skills to use a computerized operating system if the crane has one (Reports # 2, 4, 18, 21 of ID-0673) and that specific operating systems (Reports # 4, 9, 13, 18, 19, 21, 22, 24 of ID-0673) or cranes by different manufacturers (Reports # 4, 6, 13, 16, 18, 21, 24 of ID-0673) can require different skills or knowledge. Indeed, newer cranes often have integrated computer systems to protect workers and the crane. Operators must understand how these systems prevent damage to the crane, especially if the crane can be operated with the system turned off. That is not the only

issue with newer cranes that may require evaluation. One construction company that also provides crane operator training noted that the materials used to make some new cranes can be more “brittle,” meaning that they have reduced safety factors and allow for less room for error (Report # 21 of ID-0673). Exceeding these operating tolerances can lead to structural equipment failure such as a crane collapse or tipover, so evaluating operators to ensure that they understand how to avoid exceeding specified tolerances is critical.

OSHA is including boom length in the list of characteristics because longer booms may require specialized depth perception skills or may be harder to control (Reports # 2, 3, 22 of ID-0673). OSHA notes that at least one certification testing organization uses different boom lengths as a proxy for changing the capacity of the crane because the boom length can have a significant impact on the performance of the crane (see OSHA-2007-0066-0521, p. 268-69).

The stakeholders OSHA interviewed also identified crane configurations (Reports # 4, 6, 11, 18, 19, 20, 21, 22, 25 of ID-0673); the use of attachments (Reports # 6, 18, 19, 20 of ID-0673); and the use specific safety devices and operational aids such as those listed in §1926.1416 *Operational aids* (Report # 21 of ID-0673) as important crane characteristics that can require unique skills, knowledge, or judgment. An operator’s ability to handle the equipment’s particular size and configuration, which include lifting capacity, boom length, attachments, use of a luffing jib, and counterweight set up is essential to crane safety at worksites. For example, one crane rental company employer noted that sorting cranes by capacity alone is challenging because configurations, such as whether the crane has a basic boom, a specialized boom for heavy lifts, or a luffing jib, affects the skills needed to run the crane (Report # 6 of ID-0673). For these reasons,

OSHA is including examples of crane configurations for employers to consider as factors for operator competency evaluations.

Although OSHA has preliminarily determined, for the reasons above, not to require certification by capacity, employers must consider crane lifting capacity as part of its evaluation of an operator's knowledge, skills, and judgment with respect to the size and configuration of the equipment. Most of the stakeholders who spoke with OSHA agreed that important differences in individual cranes go beyond the type of crane, and that different cranes will often require different skills or familiarity to operate, even if they are the same type (Reports # 1, 2, 3, 4, 5, 6, 9, 11, 13, 15, 16, 18, 19, 20, 21, 22, 23, 24, 25, 26 of ID-0673). In particular, a number of stakeholder comments indicated that the same type of crane could have different safety-critical characteristics that vary according to a number of factors that can (but not always) correspond to a different "capacity," including boom length, attachments, use of a luffing jib, and counterweight set up, as explained above. Equipment "capacity" accordingly could impact an operator's ability to safely control the load at a worksite because variations in capacity can significantly change operation of the crane. Thus, while employers need not have their operators certified by capacity under the proposal, they must account for differences in crane capacity when evaluating their operators.

Employers must consider still other differences with respect to operating the equipment. An operator who previously demonstrated competence in operating a small crane to hoist materials to and off of buildings being demolished does not necessarily have the knowledge and operating skills needed to safely swing a wrecking ball to demolish the same building. The physics of swinging a wrecking ball into a building,

which can lead to equipment failure due to side loading or shock loading the boom, are different from smoothly controlling a load, which does not present these hazards.

Similarly, an operator who has operated a crane in support of pile driving work, using pile driving attachments, does not necessarily have the skills necessary to smoothly control and place steel members suspended by multi-lift rigging or to safely control a suspended personnel platform.

Based on the information collected to date, it would be very difficult, if not impossible, to specify in regulatory text a definitive list of minimum equipment characteristics that an operator competency evaluation must cover to ensure operators are competent to safely operate equipment in all of its possible configurations. In addition, many public commenters at the 2015 ACCSH meeting explained that it would be very burdensome and costly for them to make available and set-up equipment to watch an employee safely operate the equipment for all possible crane configurations and worksite activities. Therefore, the proposed requirement enables employers to focus on the equipment used and the tasks to be performed, and allows employers some flexibility in determining which characteristics require separate evaluation. For example, once an employer has successfully evaluated an experienced operator using a hydraulic truck crane with a clamshell attachment to scoop dirt, the employer could conduct a very limited evaluation when the operator is to perform a similar task using a truck crane manufactured by a different company that has the controls in different places but is otherwise the same. The employer's evaluation could focus exclusively on the operator's familiarity with the controls in their different locations.

OSHA requests public comments on the decision to include, and the appropriateness of listing examples of, factors that can affect an operator's ability to safely operate a crane. Are there examples of other factors, safety devices, or configurations that should be included in the regulatory text or noted in the explanation of the rule? Instead of the examples provided in proposed §1926.1427(f)(1), is there a definitive list of characteristics of equipment that should be minimally required for competency evaluations of all operators that would cover the majority of crane operations typically performed by operators?

Several stakeholders who spoke with OSHA recognized other skills that they believe are important to crane operator safety. These included mastery of set-up or building and dismantling the equipment (Reports # 3, 4, 5, 15, 16, 17, 18 of ID-0673), rigging (Reports # 2, 6, 15, 17, 18 of ID-0673), signaling (Reports # 2, 6, 15, 14, 18 of ID-0673), inspections (Reports # 5, 13, 15, 17 of ID-0673), and lift planning (Report # 18 of ID-0673). Some employers also emphasized the importance of driving skills for mobile cranes (Reports # 2, 3, 6, 9 of ID-0673). OSHA considered requiring the evaluation to cover these crane-related skills, but ultimately did not include them in the proposed requirements for several reasons. To some degree they are broadly applicable knowledge requirements that are not necessarily equipment-specific and are therefore already appropriately addressed as formal or classroom learning requirements for certification testing subject areas in paragraph (j) and non-mandatory Appendix C. In addition, there are requirements for ground conditions, assembly and disassembly, signaling, rigging, inspections, and power line work in other sections of subpart CC. Operators may not be assigned to perform these activities unless they are trained to safely

perform activities in accordance with the applicable sections of subpart CC. Similarly, over the road driving is regulated by federal and state transportation authorities. OSHA requests comment on whether these crane-related activities should also be included in proposed paragraph (f)(1) as examples of activities that might need to be covered in the required evaluation of crane operators? Please provide your rationale and any information or data you have to support your position.

Proposed subparagraph (f)(1)(ii) requires the employer to evaluate the operator's ability to perform hoisting activities required for assigned work, including, if applicable, special skills needed for activities like blind lifts, personnel hoisting, or lifts involving more than one crane. This list of activities is not exclusive, but rather provides examples of lifts for which an employer must evaluate the operator's ability. The words "if applicable" are used to indicate that employers must evaluate operators only for the types of lifts they will perform and not all possible variants of hoisting procedures.

As noted earlier, OSHA considered the training requirements of the powered industrial truck standard (§1910.178(l)) as a model when developing the evaluation requirements in this proposed standard. That standard requires that employers evaluate an operator's ability to perform job-specific tasks that include "workplace-related topics," and refresher training when there are changes in a workplace condition that could affect safe operation of the truck (§1910.178(l)). Proposed paragraph (f)(1)(ii) similarly requires the evaluation of an operator to cover the workplace aspects of the operator's job, including the specific hoisting activities that he or she will perform.

Stakeholders who spoke with OSHA asserted that the performance of different types of work sometimes requires different skill sets. Many employers currently evaluate

their operators based not only on their knowledge and skills regarding specific characteristics of the equipment, but also on their operators' ability to perform specific tasks with the equipment (Reports # 1, 2, 3, 4, 6, 9, 10, 13, 15, 16, 18, 19, 20, 21, 22, 23, 26 of ID-0673). Several of those stakeholders noted specific examples of operational challenges that may require additional operator skills to ensure safe operations. One crane rental company stated that if an operator who spends a year on a large project with repetitive work is then moved to a different job that involves different lifts and set-ups every day, that individual may not be competent to do some of that kind of work (Report # 6 of ID-0673). A residential construction employer stated that residential jobs can be especially challenging to crane operators because lifts must be performed on previously disturbed soil, which can cause the cranes to lose stability and may necessitate special preparations and operations under some worksite conditions. However, this employer also said that residential construction crane operators might not gain necessary experience performing blind lifts or lifting heavy/unstable loads that may be typical to operating a crane on commercial projects (Report # 16 of ID-0673). A larger construction employer stated that it includes job-specific components in its evaluation of operators to ensure that operators have the ability to work on/around underground utilities and power lines (Report # 18 of ID-0673). Finally, a crane operator training company noted that operators may require significant practice to develop the ability to control a dragline or performing operations with a clamshell or bucket attachment (Report # 20 of ID-0673).

OSHA requests comment on all aspects of proposed paragraph (f)(1). Are the components for evaluating an operator's ability in subparagraphs (f)(1)(i) and (ii) sufficiently clear? Does this requirement afford the employer sufficient flexibility to

evaluate operators in the course of day-to-day work? Why or why not? Please provide any information or data you have to support your position.

Proposed paragraph (f)(2) establishes minimum criteria for the person who performs the required evaluation of an operator-in-training. The evaluation must be conducted by an individual who possesses the knowledge, training, and experience necessary to assess operators. This standard affords some flexibility to employers. An evaluator could be, for example, a current or former operator who is also trained to assess equipment operators. The key, however, much like the criteria for the person performing training and evaluation of operators under the powered industrial truck operator training standard (§1910.178(1)(2)(iii)), is that the evaluator possess the requisite knowledge, training, and experience for assessing an operator's knowledge, skill, judgment, and ability. Such knowledge, training, and experience is not necessarily the same as the knowledge, training, and experience to perform the particular construction operations or processes oneself.

Stakeholders spoke with OSHA at site visits and meetings about how they comply with the existing duty described in §1926.1427(k)(2)(i). Several of those companies specifically employ individuals to assess operators (Reports # 18, 22 of ID-0673). A large construction company with a very robust and formal evaluation process has "Authorized Examiners" who perform evaluations of operator applicants for the company. These are personnel with significant experience and training, including completion of crane operator certification and rigger courses (Report # 18 of ID-0673). In many other cases, the evaluations are performed by other personnel such as experienced riggers, maintenance personnel, signal personnel, or tradesmen who have the necessary

experience or training to conduct this assessment (Reports # 1, 2, 3, 6, 15, 16, 20, 23 of ID-0673). Day-to-day assessment of an operator's performance may be conducted by a qualified person who is often a manager or foreman that is at the job site. (Reports # 1, 3, 6, 18 of ID-0673). A seasoned operator who has been designated by the employer to mentor an operator-in-training may also make determinations about when an operator-in-training is ready to perform certain tasks, and may weigh in on the evaluation or confirm that an individual is ready to operate without monitoring (see, e.g., Report # 2 of ID-0673).

Stakeholders who spoke with OSHA offered competing recommendations about whether OSHA should require evaluators to be certified as operators. Several employers who spoke with OSHA stated that an individual may have the ability to evaluate an operator without being a certified operator (Reports # 1, 6, 18, 20, 26 of ID-0673). They indicated that evaluators may be safety managers or other senior employees with significant experience working around cranes, but who might not currently be certified (see, e.g., Reports # 1, 6, 18, 26 of ID-0673). Others may be specifically trained to evaluate operators. But at the May 2015 ACCSH meeting, several representatives from the crane industry asserted that evaluators should be certified (OSHA-2015-0002-0036).

Based on information obtained from the stakeholders, OSHA preliminarily concludes that it is not necessary to prohibit all non-operators or non-certified personnel from conducting evaluations of operators. OSHA prefers to maintain employer flexibility in choosing who may perform the required evaluation as long as those evaluators have, or develop, the requisite assessment knowledge and experience. OSHA notes that the national consensus standard for cranes (ASME B30.5-2014 Mobile and Locomotive

Cranes, Chapter 5-3) does not require or recommend that evaluators of operators must be certified by third party testing entities; a “designated” person who qualifies operators must be a qualified person by experience and training but need not be certified (B30.5, section 5-3.1.2(e)). Similarly, existing §1926.1427(f)(3)(ii) requires that the trainer of an operator-in-training must have passed at least the written part of a certification test, but does not require the trainer to be an operator or be certified. Additionally, employers who spoke with OSHA and publicly commented at the May 2015 ACCSH meeting expressed the view that passing certification testing does not alone verify that an operator is competent to safely operate a crane at the worksite (see discussion in *Background* section). And passing the written portion of a certification test does alone not mean an individual has the ability to effectively evaluate the competency of an operator. But along with other crane-related experiences, passing the written portion of certification testing should be weighed as evidence that a person may have the crane knowledge necessary to evaluate crane operating competency.

OSHA requests public comments on whether the proposed criteria are appropriate and sufficiently clear for the person who must perform the required evaluation. For example, are there other criteria that the evaluator should satisfy? Should OSHA require that the evaluator be an operator, have been an operator, or at least pass the written portion of certification testing? Why or why not? OSHA is interested in public comments on whether an individual can effectively evaluate an operator without having previously operated the same or similar equipment.

The flexibility provided by the proposal should address the concerns that it might be difficult for very small employers to evaluate their own operators. (see Reports # 17,

22 of ID-0673). Proposed paragraph (f)(2) would allow employers the flexibility to contract with a third-party agent to conduct evaluations if the employer does not maintain the expertise on staff, or to identify existing staff who may not have operator experience but are capable of conducting an evaluation. OSHA wants to allow employers to continue to use effective and safe solutions that they have already identified and are in use. For example, OSHA spoke with an employer that took steps to qualify its first operator without having an experienced mentor-operator on staff. This was accomplished by enrolling the operator-in-training in several classes, including a crane manufacturer's training and training with the local union, and then arranging for an experienced union operator to mentor the operator-in-training. Later, when the employer hired additional operators-in-training, the first operator, now experienced, was able to serve as the trainer and evaluator (Report # 16 of ID-0673).

A sole proprietor OSHA spoke with followed a similar path when he first started operating cranes for a former employer, seeking out mentorship of an experienced operator before beginning to operate independently. When the company later hired other operators, this individual trained new operators and supervised them for at least a month before evaluating them (Report # 23 of ID-0673).

OSHA requests public comments on employers' experiences evaluating operators who have been trained and made available through a third party, such as a labor organization or temporary staffing agency, and whether this business practice presents any challenges for such employers. In order for the evaluation requirement to be enforceable, OSHA must ensure that the evaluation duty always remains with the employer. OSHA therefore seeks comment on what additional conditions or restrictions,

if any, should apply if a temporary staffing representative or a labor representative evaluates an operator on behalf of the employer. Besides the example of the temporary staffing agencies and labor organizations, are there other people or entities who are not employees of the operator's employer who might evaluate operators on behalf of an employer?

Proposed paragraph (f)(3) permits the employer to allow an operator to operate equipment other than the specific equipment on which the operator was evaluated, as long as the employer can demonstrate that the new equipment does not require substantially different skills, knowledge, or judgment to operate. An additional evaluation would be required before an operator would be allowed operate equipment that requires substantially different skills, knowledge, or judgment to operate.

OSHA believes this approach would address the concerns of some stakeholders about unnecessary competency evaluations while ensuring appropriate evaluations of operators. Many stakeholders warned that unnecessary competency evaluations could be very time consuming and burdensome without providing any real benefit. Many employers who spoke with OSHA during meetings and site visits explained, for example, that they assign operators to run the same crane every day, or to operate a crane from a specific group of the company's cranes that are all very similar (Reports # 1, 2, 3, 6, 13, 16, 19 of ID-0673). Others said that they permit their operators to run similar cranes interchangeably (see Report # 15 of ID-0673). As previously explained, OSHA does not intend to require the additional evaluation of operators when it is not necessary, such as when there are minor differences between equipment models of the same type that do not necessitate substantially different skills, knowledge, or judgment to operate the crane

safely. Therefore, OSHA proposes evaluation requirements that would provide employers some flexibility when determining whether an additional evaluation is required.

This flexibility is necessarily cabined, however, by the employer's duty to ensure that its operator's skills, knowledge, and judgment are sufficient for safe operation of the jobsite. Some employers explained to OSHA that they often need operators to operate very different sizes and configurations of the type of equipment (or equipment of a different type) on which they evaluated the operator, to perform various tasks. (see Reports # 2, 4, 6, and 22 of ID-0673). Even an experienced operator, when assigned to operate a different crane, may need time operating the equipment under supervision to become familiar with how to safely operate it. One owner/operator stated that when he used different cranes in the past, even if they were all boom trucks built by the same manufacturer, he found significant differences requiring a substantial amount of time familiarizing himself with the equipment before he had the skills, knowledge, and judgment necessary to safely operate that equipment (Report # 23 of ID-0673). OSHA concludes that it is reasonable that the employer may need to conduct an additional evaluation of the operator before determining that the operator is competent to safely run a different piece of equipment alone (Reports # 3, 6, 16, 22 of ID-0673).

OSHA does not expect that the evaluation requirement will be overly burdensome for employers, particularly with the flexibility provided in proposed paragraph (f)(3). One large construction company, for example, requires its operators to go through a formal evaluation for any different equipment that the operators are assigned to run, even if the operators have already demonstrated competency, through an evaluation, to operate other equipment (Report # 11 of ID-0673). Another large national construction firm provides

supplemental testing for different crane configurations (Report # 18 of ID-0673). And one stakeholder at the March 2015 ACCSH meeting explained that it requires a “seat check,” an evaluation that may take a day or two, “every time that operator goes to a new machine . . . [w]e want to do the walk around inspection. We want to test him on what he’s absorbed when we walked around . . . includ[ing] safety checks, prestart and post-start” (see OSHA-2015-0002-0036, pg. 232-239).

Although OSHA heard concerns from several public commenters that OSHA would require that an operator must be evaluated on every crane that their companies might use, or in every possible configuration (see public comments OSHA-2015-0002-0036), OSHA has not proposed such a rule. Furthermore, these commenters appear to have mistakenly assumed that OSHA would require each evaluation to be in the form of a time-consuming formal test rather than a much simpler observation of the operator performing construction operations using the crane. The required supplemental re-evaluation of a previously evaluated operator can focus on the operator’s abilities to handle the differences between the new equipment and the one previously assigned; it would not require a complete evaluation of all of the operator’s skills, knowledge, and abilities. For example, an employer may evaluate an operator and determine that he or she has demonstrated the ability to safely operate a large, high capacity crane of a relatively complex configuration. If the employer determines that the operator has the skills, knowledge, and judgment necessary to safely operate a lower capacity crane of the same type and operating system, in a simpler configuration with a shorter boom, then the operator would not need to be re-evaluated (assuming that the tasks are similar). Conversely, although the size of the crane alone may not be a definitive reason to make

such a determination (Reports #1, 2 of ID-0673), an employer would usually need to evaluate an operator before allowing the operation of a larger crane if the operator has only demonstrated competency on smaller crane of the same type.

OSHA requests comment on how employers currently handle re-evaluation of operators, to comply with existing §1926.1427(k)(2), when the operator uses new equipment. Please provide OSHA with examples of equipment that commenters believe are sufficiently similar or not for the purposes of compliance with proposed paragraph (f), and what makes them similar or not and why. OSHA is also interested in obtaining examples of equipment or configurations that should require an additional, if limited, evaluation of the operator and why the additional evaluation would be needed.

OSHA is also interested in public comments regarding whether the performance-based language of proposed paragraph (f)(3) is sufficiently flexible. Is there a more effective provision that should be considered for this purpose?

Proposed paragraph (f)(4) requires the employer to document the evaluation of each operator and to ensure that the documentation is available at the worksite. This documentation requirement is similar to documentation requirements in other OSHA standards that require competency evaluations, such as OSHA's powered industrial truck operator training requirements (§1910.178). Such documentation would need to include: the operator's name, the evaluator's name, the date of the evaluation, and the make, model, and configuration of the equipment on which the operator was evaluated. But the documentation would not need to be in any particular format. Rather, employers would have the flexibility to capture this information using their own existing systems or create documentation that best meets the needs of their workplace. For example, employers

could issue operator cards that include this information, keep records electronically in a database accessible at the worksite, develop logs for each piece of equipment, or use any other method that memorializes the mandatory information.

The documentation requirement is intended to ensure accountability and to direct the employer's attention to the critical aspects of operating the assigned equipment that must be considered during the evaluation. The documentation of the evaluation would record key baseline information that an employer could use to help make subsequent determinations about whether the operator is competent to operate particular equipment. It would also provide a quick reference for site supervisors, lift directors, and any employee, such as a hoist crew member, whose safety is affected by crane operations. And it could help prevent misunderstandings about, or mischaracterization of, an individual operator's established competency, as in the *Deep South* fatal incident. There, an operator was assigned to operate a crane of a type for which he was certified, but the controls and operations were substantially different from those with which he was familiar. Had the employer conducted an evaluation and documented it rather than relying on certification, this incident could have been prevented.

The Agency believes that information about operators is typically collected and available, even if it has not previously been maintained specifically for regulatory compliance. Many employers who spoke with OSHA during meetings and site visits explained that they maintain a log or record to track operator experiences, certifications, and performance evaluations. For example, at least two employers reported that they issue cards to evaluated and competent operators with information about those operators' qualifications. (Reports # 11, 18 of ID-0673). Others use written records to track

operators' performance, training, or other criteria. (Reports # 1, 2, 3, 4 of ID-0673). And employers who own cranes and have long-term operators must provide lengthy and detailed operator information to their insurance providers.

Subcontractors, too, are accustomed to maintaining a written record of their operators' experience and evaluations. Employers reported to OSHA that, on multi-employer construction sites, subcontractors are often asked by general contractors, insurers, or other employers on the site to provide documented information about their operators, such as certifications and verifications of training and "qualification" for the cranes operated. One crane rental company noted that it keeps records for each operator, and that this kind of information is often requested or required by customers. (Report # 6 of ID-0673). Another company told OSHA that it frequently provides written information about its operators to contractors, even when not requested. (Report # 26 of ID-0673). A contractor that sometimes works with subcontractors' operators noted that it maintains an in-house database of those operators, site supervisors, and directors that it has encountered on projects, with evaluations and notes about their performance. (Report # 22 of ID-0673). Another company that employs operators as subcontractors keeps records of near misses involving its subcontractors, as well as documentation of operators that the company feels may not be qualified to operate equipment. (Report # 14 of ID-0673). Finally, OSHA notes that it is a common practice within the construction industry for operators to carry certification cards provided by the testing entities as proof of certification. This documentation may be useful in communicating operator competency for employers who must consider crane safety on multi-employer worksites.

As previously discussed, proposed paragraph (f) permits the employer to evaluate the operator on one crane and then make a determination that the operator is also competent to safely run other equipment that requires the same level of skills, knowledge, and judgment. OSHA's proposal allows employers to document these determinations collectively. For example, if an employer with five cranes, possibly configured in slightly different ways, determines that an operator's evaluation on Crane #2 also demonstrates the operator's competency with respect to the other four cranes, the employer could use a single document to record the operator's competence to operate all five cranes. In fact, the documentation for the original evaluation could simply be amended to state that it is also applicable to equipment that does not require substantially different skills, knowledge, or judgment. However, when the operation of a crane requires a level of operating skills, knowledge, and judgment that is significantly different from the crane on which the operator was evaluated, a new evaluation must be documented. Varying the facts in the earlier example, if two of that employer's cranes include computer software to control safety devices and the three other cranes do not have such software but are otherwise similar, then an operator already evaluated on a crane without the software would need to be evaluated separately on the use of that software, with that evaluation also documented.

OSHA requests public comments on how, or if, employers currently document their evaluations of operators and how they use the documentation. Should OSHA require employers to document evaluations? Please explain why or why not. If not, how would other employers and employees know that an operator has been evaluated and demonstrated competency to his or her own employer on the equipment operated? OSHA

is interested in public comments describing how employers currently track their operators to comply with the requirements of existing §1926.1427(k)(2)(i).

Proposed paragraph (f)(5) requires the employer to re-evaluate an operator whenever the employer is required to retrain the operator under §1926.1427(b)(5). Paragraph 1926.1427(b)(5) requires retraining if the operator's performance or an evaluation of the operator's knowledge indicate that retraining is necessary. OSHA is proposing this requirement to ensure that when an employer becomes aware that an operator is not competent in a necessary aspect of safe crane operation, the employer provides additional training to the operator and re-evaluates the operator. Re-evaluation is needed to ensure that the operator is competent in the area of the observed deficiency.

Triggers for retraining under paragraph (b)(5) and re-evaluation under proposed paragraph (f)(5) might include a wide variety of feedback, such as (but not limited to) information from an on-site supervisor or safety manager, contractor, or other person that the operator was operating equipment unsafely, OSHA citations, a crane near miss, or other incidents that indicate unsafe operation of the crane. The re-evaluation may target the skills, knowledge, or judgment deficiency that triggered the retraining. Re-evaluations would need to be conducted by a person who meets the requirements of paragraph (f)(2).

OSHA does not view this proposed re-evaluation as a significant departure from typical practices in the industry. As discussed previously, many stakeholders who spoke with OSHA at meetings and site visits emphasized that observation and re-evaluation take place on an ongoing, daily basis (see the *Background* and *Need for a rule* sections). For example, several stakeholders told OSHA that they would re-evaluate an operator if there was a crane near-miss or incident, or if they received negative feedback about that

operator's performance from the controlling contractor or another party on a jobsite. (Reports # 1, 2, 3, 18, 19, 22, 26 of ID-0673). Some employers conduct random worksite audits. (Reports # 2, 3, 15, 18, 19 of ID-0673). One large construction company stated that it conducts over 100 safety audits of job sites each year to ensure operators are properly qualified. (Report # 15 of ID-0673). Four companies that hire crane rental companies (crane rental with operators) noted that they raise any observed issues with the employer of the crane operator or the union from which the operator was selected. (Reports # 12, 14, 15, 16 of ID-0673).

The requirements for re-evaluation are also in line with the powered industrial truck operator training standard, in which OSHA requires re-evaluation if there is reason to believe that the operator is operating unsafely, if there is a near-miss or other incident, if the nature of the work to be performed changes, or if other factors indicate a deficiency. (§1910.178(l)(4)).

OSHA requests comment about all aspects of proposed paragraph (f)(5). Is the need for re-training an appropriate trigger for re-evaluation, or are there triggers other than re-training that OSHA should consider? Also, should OSHA add additional specification regarding how in depth re-evaluations should be or whether there should be additional components of the re-evaluation? Should OSHA require re-evaluations to be documented in accordance with proposed paragraph (f)(4)? Why or why not?

As noted previously, OSHA also considered and presented to ACCSH two additional requirements for re-evaluation: an annual re-evaluation requirement and a re-evaluation for operators who have not operated the equipment in six months. OSHA received comments from several participants that such requirements would be too

burdensome for employers and unnecessary due to the continuous or ongoing nature of evaluation by employers. But at least three entities reported that they re-evaluate operators periodically, even absent any evidence that re-training or re-evaluation is necessary. (Reports # 11, 18, 19 of ID-0673). Another employer noted that it meets with each operator to review performance twice annually. (Report # 1 of ID-0673). And a crane rental company told OSHA that if employees experience changes in health, vision, or other medical issue, they are monitored to ensure that their skills remain sharp and continue to be safe operators. (Report # 2 of ID-0673). Moreover, both the powered industrial truck operator training standard at §1910.178(l)(4) and the qualified electrical workers standard at §1910.269(a)(2) require periodic re-evaluation. Section §1910.178(l)(4) requires reevaluation every three years, while §1910.269(a)(2) requires annual re-evaluation of electrical workers on tasks they did not perform in the past year. These requirements might help employers identify when operators need updated information on a variety of topics such as the equipment, operating procedures, and relevant regulations that were not available at the time of his or her last evaluation. But ACCSH recommended that OSHA not move forward with these requirements, and they are accordingly not in this proposal.

OSHA requests comment on whether more routine re-evaluation requirements, such as those in the powered industrial truck training and qualified electrical workers standards or any other periodic requirements, should be included in this standard. Why or why not? If a periodic re-evaluation is necessary, then how frequently should this review be conducted, and why?

OSHA considered several alternative approaches to the proposed provisions in proposed paragraph (f)—*Evaluation*. OSHA has summarized them in the following paragraphs. For the reasons detailed below, OSHA has preliminarily concluded that these alternatives would not be as effective as the proposal in ensuring crane operator competency.

Approach 1 – Remove the Phase-Out of the Employer Duty without Providing Further Guidance or Criteria

OSHA considered simply proposing to remove the phase-out date for existing §1926.1427(k)(2)(i), which requires employers to ensure the competence of their operators. That requirement differs little from the Agency’s requirements for operator training or duties in §1926.20(b)(4), which previously applied to equipment covered under former subpart N—*Cranes, Derricks, Hoists, Elevators, and Conveyors*, and permits “employees qualified by training or experience to operate equipment.” But OSHA replaced that general employer duty in 2010, in part because OSHA concluded that the measures being used to ensure operator competency were inconsistent between employers. C-DAC, too, had concluded that “human error resulting from insufficient operator knowledge and capability is a significant cause of fatal crane/derrick accidents” (73 FR 59810). In sum, OSHA believes that evaluations of operator competency are critical to safe crane operations (see earlier discussion) and that proposing a general requirement for this purpose, without providing additional criteria, would be inadequate.

Approach 2 – Coalition for Crane Operator Safety’s Language

OSHA also considered the ACCSH committee recommendation that OSHA adopt an operator competency requirement developed by a coalition of representatives from the

crane industry. (ACCSH transcript OSHA-2015-0002-0036, and Exhibit 12, OSHA-2015-0002-0051). This approach would require employers to ensure that operators “meet the definition of a qualified person” before operating the equipment. As defined in the §1926.1401 of the crane standard, “qualified person” means a person who has “successfully demonstrated the ability to solve/resolve problems relating to the subject matter, the work, or the project,” by “possession of a recognized degree, certificate, or professional standing” or through “extensive knowledge, training and experience.” The coalition also suggested language requiring employers to “ensure that each operator is evaluated to confirm that he/she understands the information provided in the training.”

OSHA is concerned that this recommendation, like the general duty under §1926.21(b)(4), fails to provide sufficient specifics to ensure operator competence. It does not provide employers with criteria that an operator must meet to be considered competent. Nor does it explicitly require the employer to take any specific step to “qualify” operators (i.e., it can be argued that under the existing standard an evaluation is only triggered if the employer determines retraining to be required). Moreover, the ability to “resolve problems,” which is a key component in the definition of a “qualified person” only captures one aspect of what crane operation entails. And by relying on the definition of a “qualified person,” which can be met in some cases solely through “possession of a . . . certificate,” the whole point of having some additional assurance of operator competency beyond operator certification would be lost: an operator could still conceivably become both certified *and* a qualified person through the completion of a single certification test. For these reasons, OSHA believes that this proposed rule better establishes the employer’s obligation to ensure crane operator competency.

Approach 3 – Canadian Oversight System

OSHA also explored the practicality of modeling a crane operator evaluation process on that implemented in the provinces of Ontario and British Columbia, Canada. In those provinces, a quasi-governmental agency tracks the base level of certification and operating experiences of the operators in an internet database. The British Columbia system has at least three different levels of “qualification,” and employers are responsible for observing, evaluating, and ensuring the operators are competent to perform the work required at each level (ID-0672). OSHA concluded, however, that this level of oversight would be somewhat impractical on a national scale in the United States. The resources and expertise needed to develop and maintain a system that works for the entire regulated community, and to verify the information in such system, would be substantial. OSHA does not have the resources needed to accomplish these functions. However, even after providing certification for its operators, employers in Canada still have the obligation to ensure the competency of operators to safely perform assigned work, which is similar to the operator evaluation requirements of this proposed rule.

OSHA requests public comment on these alternative regulatory approaches. OSHA requests comment on how these alternatives would contribute to crane operator safety and whether they afford greater protection than proposed paragraph (f). Why or why not? Is there evidence to support one of these alternatives over the approach that OSHA is proposing? In addition, are there other approaches to employer evaluation of operators that OSHA should consider? Are there state or local government certification or licensing programs that would be more effective?

Paragraph (g) Reserved

This proposed paragraph is reserved because the current text at §1926.1427(g) was moved to proposed paragraph §1926.1427(c)(4). This provision was moved to improve clarity of certification program requirements.

Paragraph (h) - Language and Literacy Requirements.

Existing paragraph §1926.1427(h) allows operators to be certified in a language other than English, provided that the operator understands that language. Proposed paragraph (h) is nearly identical to existing paragraph (h) with one exception. The last sentence of paragraph (h)(2) has been reworded to clarify that an operator is permitted to operate equipment only when he or she is furnished materials that are necessary for safe operation of the equipment and required by subpart CC, such as operations manuals and load charts, in the language of the operator's certification. The reference to existing paragraph (b)(2) was not maintained in proposed (h)(2) because it is no longer needed.

Existing paragraph (h) allows "tests" in languages understood by the operator, and OSHA is not proposing to change that language. In proposed paragraph (h), "tests" would encompass both the certification test and the employer's evaluation of the operator. Either or both may be in any language understood by the operator. And the language of the operator's manual or other furnished materials required by the standard would only need to match the language of the certification. For example, it would be sufficient for an operator certified in Spanish to have a Spanish version of the operator's manual but be evaluated by the employer in English. The operator would not need to also have an English version of the operator's manual because the certification in Spanish would establish the operator's ability to use an operator's manual written in Spanish. OSHA

seeks comment on this proposed interpretation of the language requirement for employer evaluations.

Paragraph (i) – [Reserved.]

Paragraph (j) – Certification Criteria

Proposed paragraph (j) specifies criteria that must be met by an accredited testing organization under proposed paragraph (d) and an audited employer program under proposed paragraph (e). The criteria specified by proposed paragraph (j) of this section are the same as those specified under existing §1926.1427(j). However, the introductory regulatory text in current §1926.1427(j) states that “qualification and certifications” must be based, at a minimum, on several criteria for the written and practical tests found in §1926.1427(j)(1) and (2). Proposed paragraph (j) deletes the words “qualification and” because they are no longer necessary: under the proposed rule, a certification issued by an audited employer program is intended to be equivalent to that of an accredited testing program for purposes of complying with OSHA’s rule, and the proposal removes references to “qualification” from paragraph (e).

Paragraph (k) – Effective date

There will not be any need for the phase-in requirements of current §1926.1427(k) if OSHA adopts the permanent requirement for employer evaluations of operators as proposed. Thus, proposed paragraph (k) would be shortened to retain only the existing effective date of November 10, 2018. The rest of Subpart CC is already in effect, and the effective date of any final changes made to the standard would be established in the Federal Register notice for the final rule, which includes an effective date for the standard.

OSHA seeks comment on proposed revision to paragraph (k). Specifically, OSHA seeks comment on whether the effective date of the certification requirement should be delayed for an additional six months if the final rule is not issued until after July 2018. Please share your rationale for why an extension would or would not be appropriate.

Even if OSHA did extend the effective date of the certification requirement, the Agency would plan to implement as soon as possible the new requirement for employers to evaluate their operators, if it is part of the final rule. This provision adds clarity to the existing employer duty to assess operators, and there does not appear to be any reason to delay that clarity for the similar provision. Furthermore, employer assessment of operators is now a key part of the entire scheme of proposed §1926.1427, so it would be difficult to implement the remaining changes to that paragraph while delaying the effective date of the employer assessment requirement. Nevertheless, OSHA seeks comment on whether the effective date of proposed paragraph §1916.1427(f) should be separate from the effective date of the other proposed changes to the standard.

Section 1926.1430 (c) Operators

As noted earlier in this preamble, OSHA is proposing to amend only one paragraph of the training requirements in §1926.1430: paragraph (c). The primary purpose of this revision is to centralize the training requirements that are specific to operators in proposed paragraph §1926.1427(b) of this section. But OSHA proposes to retain in §1926.1430 the training requirements that are more broadly applicable.

Proposed paragraph §1926.1430(c)(1) requires that the employer train operators of equipment covered by subpart CC in accordance with proposed §1926.1427(a) and (b),

which contain all of the requirements for training under the proposed rule. Operators of equipment exempted from the training requirements of §1926.1427—derricks, sideboom cranes, and cranes with a rated hoisting/lifting capacity of 2000 pounds or less—are addressed by proposed paragraph §1926.1430(c)(2). Proposed (c)(2), which is substantively the same as current paragraph (c)(3), provides a general requirement to train operators on the safe operation of the equipment. Proposed paragraphs (c)(1) and (c)(2) of this section work together to specify training requirements and clarify that all operators must be trained, regardless of whether an operator must be licensed/certified by any entity (including the U.S. military) to operate equipment.

Existing paragraph §1926.1430(c)(2), *Transitional Period*, is no longer needed because employees need to train all operators under this proposal. The requirements of existing §1926.1427(c)(4) have been moved to proposed paragraph (c)(3) of this section.

Sections 1926.1436(q) - Derricks, 1926.1440(a) – Sideboom Cranes, and 1926.1441(a) Equipment with a Rated Hoisting/Lifting Capacity of 2,000 Pounds or Less.

Proposed paragraph §1926.1427(a)(2) would exempt employers from the training and certification requirements in that section for three types of equipment: derricks, sideboom cranes, and equipment with a maximum manufacturer-rated hoisting/lifting capacity of 2,000 pounds or less. It would not, however, exempt employers from the requirement in §1926.1427(f) to evaluate potential operators to ensure that they have sufficient knowledge and skills to perform the assigned tasks with the assigned equipment, nor would it exempt employers using sideboom cranes from the existing broader duty in §1926.1430(c)(3) (which would become proposed (c)(2)) to train their employees to operate those cranes safely (section §1926.1436 and §1926.1441 include

separate training requirements for derricks and low-capacity equipment, respectively). Employers of operators of this equipment will be required to ensure that their operators are evaluated in accordance with proposed §1926.1427(f) and trained in accordance with proposed §§1926.1430(c)(2), 1926.1436, and 1926.1441, as applicable.

Although these three types of equipment are exempt from all of §1926.1427 in the existing crane standard as the result of specific exemptions in §§1926.1436, 1440, and 1441, OSHA proposes to narrow the exemptions so that the evaluation requirements of paragraph §1926.1427(f) would also apply to these types of equipment. While C-DAC recommended those exemptions apply to certification/qualification requirements, there is no record that C-DAC or OSHA considered exempting operators of this equipment from employer evaluations. In fact, as noted earlier, a number of C-DAC participants later claimed they were surprised to discover that they had removed the general requirement for employers to ensure their operators' competency.

OSHA has preliminarily concluded that, although the certification requirements in §1926.1427 may not have been flexible enough to be appropriate for these categories of equipment, the employer evaluation under proposed paragraph §1926.1427(f) is a flexible requirement suitable for all of the equipment covered by subpart CC. Many of the hazards caused by an employer's failure to evaluate its operators for competency, such as equipment collapses and issues controlling the load, are generally the same for these three types of exempted equipment as they are for all other equipment covered by subpart CC. Further, an exemption from the evaluation requirement would be inconsistent with OSHA's treatment of operators of equipment covered by other rules. For example, OSHA's requirements for powered industrial trucks operator training at §1910.178(l)

include evaluation requirements similar to those in this proposed rule, notwithstanding that operation of powered industrial trucks is less complex and of a lower capacity than most equipment covered by subpart CC.

OSHA therefore proposes to amend paragraphs §§1926.1436(q), 1926.1440(a), and 1926.1441(a) to require employers to evaluate operators of derricks in accordance with proposed §1926.1427(f). Under the current crane standard, employers of operators of this equipment do not need to comply with §1926.1427. This proposal keeps most of those exceptions, but would require compliance with proposed paragraph §1926.1427(f).

OSHA solicits comments regarding whether evaluation requirements should be made applicable to similar provisions for operators of derricks, sideboom cranes, and equipment with a maximum manufacturer-rated hoisting/lifting capacity of 2,000 pounds or less. OSHA requests comment on whether employers of operators of exempted equipment should continue to be exempted from operator competency requirements of §1926.1427, or whether advancements in the availability of types of operator certification make certification appropriate for these types of equipment? Are there now crane certification opportunities that are appropriate for operators of these types of equipment?

IV. Agency Determinations

A. Legal Authority

The purpose of the OSH Act, 29 U.S.C. 651 et seq., is “to assure so far as possible every working man and woman in the Nation safe and healthful working conditions and to preserve our human resources.” 29 U.S.C. 651(b). To achieve this goal, Congress authorized the Secretary of Labor to promulgate and enforce occupational safety and health standards. 29 U.S.C. 654, 655(b), and 658. A safety or health standard “requires

conditions, or the adoption or use of one or more practices, means, methods, operations, or processes, reasonably necessary or appropriate to provide safe or healthful employment and places of employment.” 29 U.S.C. 652(8). A safety standard is reasonably necessary or appropriate within the meaning of 29 U.S.C. 652(8) if:

- It substantially reduces a significant risk of material harm in the workplace;
- It is technologically and economically feasible;
- It uses the most cost-effective protective measures;
- It is consistent with, or is a justified departure from, prior Agency action;
- It is supported by substantial evidence; and
- It is better able to effectuate the purposes of the OSH Act than any relevant national consensus standard.

(See *United Auto Workers v. OSHA*, 37 F.3d 665, 668 (D.C. Cir. 1994) (*Lockout/Tagout II*).) In addition, safety standards must be highly protective. See *id.* at 669. A standard is technologically feasible if the protective measures it requires already exist, available technology can bring these measures into existence, or there is a reasonable expectation for developing the technology that can produce these measures. (See, e.g., *American Iron and Steel Inst. v. OSHA (Lead II)*, 939 F.2d 975, 980 (D.C. Cir. 1991) (per curiam).) A standard is economically feasible when industry can absorb or pass on the costs of compliance without threatening an industry’s long-term profitability or competitive structure. (See *American Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 530 n. 55 (1981); *Lead II*, 939 F.2d at 980.) A standard is cost effective if the protective measures it requires are the least costly of the available alternatives that achieve the same level of protection. (See, e.g., *Lockout/Tagout II*, 37 F.3d at 668.)

Section 6(b)(7) of the OSH Act authorizes OSHA to include among a standard's requirements labeling, monitoring, medical testing, and other information-gathering and information transmittal provisions. 29 U.S.C. 655(b)(7). Finally, the OSH Act requires that when promulgating a rule that differs substantially from a national consensus standard, OSHA must explain why the promulgated rule is a better method for effectuating the purposes of the Act. 29 U.S.C. 655(b)(8). OSHA explains deviations from relevant consensus standards elsewhere in this preamble.

B. Preliminary Economic Analysis and Regulatory Flexibility Analysis

When it issued the final crane rule in 2010, OSHA prepared a final economic analysis (FEA) as required by the Occupational Safety and Health Act of 1970 (OSH Act; 29 U.S.C. 651 et seq.) and Executive Orders 12866 (58 FR 51735 (Sept. 30, 1993)), and 13563 (76 FR 3821 (Jan. 21, 2011)). OSHA also published a Final Regulatory Flexibility Analysis as required by the Regulatory Flexibility Act (5 U.S.C. 601-612). Both the FEA and Regulatory Flexibility Analysis are in Docket ID 422. On September 26, 2014, the Agency included a separate FEA when it published a final rule extending until November 10, 2017, both the deadline for all crane operators to become certified, and the employer duty to ensure operator competency (79 FR 57785.) OSHA has recently published another extension for an additional year, until November 10, 2018 (82 FR 51986), which closely tracks the 2014 analysis. For each rulemaking, OSHA published a preliminary economic analysis and received public comment on the analysis before publishing the final analysis.

The preliminary economic analysis (PEA) for this rulemaking relies on some of those earlier estimates, extensive Agency interviews with industry stakeholders, crane

incident data, and other documents in the rulemaking record. For example, the 2017 FEA for the deadline extension rule included a cost analysis of the employer evaluation to ensure operator competency, so the cost estimates in this PEA are based on that analysis, which in turn is drawn from the 2014 FEA. The current economic analysis estimates new costs only for elements that have not previously been analyzed in either the 2010 final rule or accounted for in the deadline extensions. These are:

- Additional evaluations to ensure operator competency when there are changes not just in the type of crane (accounted for in the 2017 FEA) but also changes that would require new skills, knowledge, or judgment necessary to operate the equipment safely, including those specific to the use of equipment or its safety devices, operational aids, software, or the size or configuration of the equipment.
- The permanent status of the employer duty to assess competency. While the cost of employer's duty to assess operator competency was estimated in the 2017 rule, the duty to assess was assumed to phase out after the deadline had passed. The proposed rule would make this duty permanent, so these costs are included in this PEA.
- Documentation by employers. This proposed rule requires employers to now document the successful completion of operator evaluations.
- Additional training required beyond the training required for certification.

Certain costs, such as initial cost of operator certification and recertification every five years, are not re-analyzed in this PEA because they would be unchanged by this rulemaking. This new rule makes no changes that would impact the costs of certification

by type of crane; OSHA is simply allowing the existing operator certification deadline to be instituted as planned. The employer evaluation, which under the 2010 final crane rule (and the 2014 and 2017 extensions) was set to be phased out when certification took effect, would remain in effect and is therefore a cost of this proposed rule. The unit costs of the employer evaluations were analyzed in the final rule of the deadline extension FEA, and the Agency relies on that analysis in calculating the ongoing evaluation costs in this PEA.

The rule's cost savings are associated with withdrawing the requirement that crane operator certification be both for type and capacity of crane in favor of a requirement that certification be required only for type of crane.

This rule results in cost savings. At a discount rate of 3 percent, this rule has annualized net cost savings of \$1,827,513. At a discount rate of 7 percent, this rule has annualized net cost savings of \$2,468,595. For either discount rate, this rule is not economically significant within the meaning of Executive Order 12866, or a major rule under the Unfunded Mandates Reform Act or Section 804 of Congressional Review Act (5 U.S.C. 804). In addition, this rule complies with Executive Order 13563.

For this PEA, OSHA included an overhead rate when estimating the marginal of labor in its primary cost calculation. Overhead costs are indirect expenses that cannot be tied to producing a specific product or service. Common examples include rent, utilities, and office equipment. Unfortunately, there is no general consensus on the cost elements that fit this definition, and the lack of a common definition has led to a wide range of overhead estimates. Consequently, the treatment of overhead costs needs to be case-

specific. OSHA adopted an overhead rate of 17 percent of base wages.¹¹ This is consistent with the overhead rate used for sensitivity analyses in the 2017 Improved Tracking FEA and the FEA in support of OSHA's 2016 final standard on Occupational Exposure to Respirable Crystalline Silica. For example, to calculate the total labor cost for a crane and tower operator (SOC: 53-7021), three components are added together: base wage (\$26.58) + fringe benefits (\$11.50, slightly more than 43% of \$26.58) + applicable overhead costs (\$4.52, 17% of \$26.58). This increases the labor cost of the fully-loaded wage for a crane operator to \$42.60.

a. Evaluation costs

As noted in the preamble explanation of this proposed rule, OSHA has received feedback during stakeholder meetings, site visits, and interviews that, for a small percentage of employers, the proposed rule may increase the number of operator evaluations they will conduct. The increase would result if employers need to conduct additional equipment-specific or task-specific evaluations.

To estimate the costs for the new evaluations the Agency has taken the following steps. First it estimated the number of new evaluations required by the proposed rule. Then it estimated the unit costs for each evaluation. Finally, the Agency multiplied the number of evaluations times the unit cost to get the total costs of the proposed rule due to new evaluation.

¹¹ The methodology was modeled after an approach used by the Environmental Protection Agency. More information on this approach can be found at: U.S. Environmental Protection Agency, "Wage Rates for Economic Analyses of the Toxics Release Inventory Program," June 10, 2002. This analysis itself was based on a survey of several large chemical manufacturing plants: Heiden Associates, *Final Report: A Study of Industry Compliance Costs Under the Final Comprehensive Assessment Information Rule*, Prepared for the Chemical Manufacturers Association, December 14, 1989.

OSHA began its estimate of the number of evaluations by looking to its former rulemakings. In the 2017 deadline extension economic analysis, OSHA estimated the total number of evaluations needed each year to be 30,981 evaluations (26,940 successful initial evaluations as well as 4,041 (15 percent of 26,940) for operators who have to be re-assessed (82 FR 51993)). In that analysis, OSHA estimated employers' evaluations due to turnover of crane operators between employers, operators changing the type of equipment operated for the same employer, and evaluations of operators new to the occupation. OSHA used the same estimate of total number of evaluations in the original 2010 crane rule.

OSHA determined, after conducting extensive interviews with crane industry stakeholders for this rule, that it had overestimated the number of likely evaluations in these former rulemakings, because OSHA had assumed that, in the absence of the rule, no employer would conduct evaluations. In fact, stakeholders report that almost all employers conduct evaluations of new employees. The Agency has therefore decided to assume for costing purposes that 50 percent of employers conduct such evaluations and as a result 15,490 annual evaluations will be added to the cost analysis for this rule. The Agency believes that even this estimate will overestimate costs given that most employers conduct such evaluations. OSHA requests comment on the number of evaluations that will be conducted as a result of this proposed rule.

OSHA is, however, estimating a small increase in evaluation costs from the additional specificity in this proposed rule about when evaluations are required and what an employer must evaluate. Specifically, proposed §1427(b) requires evaluation as necessary to ensure that the operator maintains the “skills, knowledge, and judgment

necessary to operate the equipment safely” and to perform assigned tasks, including specialty lifts such as blind lifts or multi-crane lifts.

The stakeholder meetings and extensive OSHA interviews indicate that this new language would not require many employers to change their existing operator evaluation practices. Even before its 2010 rulemaking, OSHA required employers engaged in construction to ensure that their operators were capable of operating their equipment safely (§1926.550 and §1926.20(b)(4) prior to promulgation of the crane standard on November 10, 2010), so for most employers the proposal would simply be a requirement to continue their existing evaluation practices. None of the stakeholders OSHA met with expressed any concerns about their ability to comply with those requirements.

Additionally, major changes in type or capacity of cranes appear relatively rare. Based on this, the Agency preliminarily estimates that this proposed rule will add 15 percent more evaluations, or 2,324 (15% x 15,490), as a small percentage of employers increase their evaluations of operators who are switching equipment or performing more difficult tasks. This represents a very small percentage of the total costs of evaluations. The Agency invites comment on this estimate.

The second element needed is the unit costs for these evaluations. OSHA’s unit cost estimates for evaluations take into account the time needed for the evaluation, along with the wages of both the operator and the specialized operator evaluator who will perform the evaluation. In its 2017 FEA, OSHA estimated that an initial evaluation of an experienced operator with a compliant certification would take, on average, one hour (82 FR 51992). The new evaluations are all for previously evaluated, experienced operators who are adding a new skill or new knowledge to an existing skill set, not an initial

evaluation for a brand new operator or an experienced employee new to the firm. Thus, in many cases any evaluation time will be minimal. The Agency estimates 25 percent of a standard evaluation for a compliant certified operator of one hour, or 15 minutes (0.25 of an hour). OSHA welcomes any comments or additional information available on the time to complete these evaluations.

The wage of the evaluator is estimated to be the same as the wage of occupation First-Line Supervisors of Transportation and Material-Moving Machine and Vehicle Operators (SOC: 53-1031 from the BLS 2016 OES dataset) of \$46.08 in 2016 dollars including a markup for fringe benefits and overhead.^{12, 13} The operator's time is valued at the wage plus fringe benefits of occupation Crane and Tower Operators (SOC: 53-7021) plus overhead, at \$42.06. Hence the combined hourly cost for an evaluation or a training episode is \$88.68 (\$42.60 + \$46.08). With a 15 minute (quarter of an hour) evaluation period, the cost per evaluation is \$22.17 (\$88.68 x 0.25).

The total cost for the new evaluations is therefore the product of multiplying that unit cost by the total number of evaluations: \$22.17 x 2,324 new evaluations = \$51,511.

In addition to the cost for these new evaluations, OSHA is also including the ongoing cost for the initial evaluations which it had estimated previously in the 2017 FEA. These evaluations will continue to be necessary because of turnover of crane

¹² The fringe markup is 1.43, derived from the BLS Employer Costs for Employee Compensation, Private Industry Total benefits for Construction industries 4th quarter 2016.

¹³ Throughout this chapter, OSHA presents cost formulas in the text, usually in parentheses, to help explain the derivation of cost estimates for individual provisions. Because the values used in the formulas shown in the text are shown only to the second decimal place, while the actual spreadsheet formulas used to create final costs are not limited to two decimal places, the calculation using the presented formula will sometimes differ slightly from the presented total in the text, which is the actual and mathematically correct total as shown in the tables.

operators between employers, operators changing the type of equipment operated for the same employer, and evaluations of operators new to the occupation. The total cost for these evaluations in this PEA is lower than the total evaluation cost estimated in the 2017 FEA. This is because the evaluations cost in the 2017 FEA was for an operator population that was a mix of operators with a compliant certification (certified by both the type and capacity of crane), non-compliant certification (by type but not capacity), and those with no certification. The time for evaluation, and hence its cost, was linked to operator certification status and varied for these three types with the least time (one hour) for an evaluation of an operator with a compliant certification. The proposed rule would remove the existing requirement for certification by capacity, meaning there would be no operators in the previously estimated “non-compliant certification” group. This means that all operators would receive evaluations for operators with a compliant certification and hence will have the same unit cost for a one-hour evaluation of \$88.68. Multiplying that unit cost by the 30,981 initial evaluations estimated in the 2017 FEA, the total annual cost for these ongoing initial evaluations is \$1,373,622 ($\$88.68 \times 15,490$).

The total annual cost for evaluations is therefore \$1,425,133, which is the sum of the \$1,373,622 in initial evaluations and the \$51,511 for new evaluations. OSHA welcomes any comments on, or any available data that could help the Agency refine these estimates.

b. Employer evaluation documentation costs

The proposed rule adds a new documentation requirement for a successful evaluation. OSHA estimated the annual evaluation documentation costs using the following three steps: It estimated unit costs of meeting this requirement; estimated the

total number of cases of documentation that employers will need to perform in any given year; and multiplied unit costs of documentation by the number of cases to determine the annual costs.

This proposal would require the employer to document information about the equipment and include the evaluator's signature, so the Agency estimates the evaluator will complete all recordkeeping. OSHA's unit cost estimates for evaluation documentation takes into account the time needed and the wage of the employee who does so. The time needed for creating and filing the needed information is estimated to be 5 minutes of the evaluator's time. As above, the wage of the evaluator is estimated to be \$46.08. Hence, the cost of documenting a successful evaluation is \$3.84 $((5/60) \times \$46.08)$.

There will also be the need in the first year to document previous evaluations that the employer had not documented. The Agency estimates that the number of evaluations needing such documentation is 15 percent of the number of operators, or 17,570 $(0.15 \times 117,130)$. This total extra first year cost is \$67,462 $(\$3.84 \times 17,570)$. Annualized over 10 years at a 3 percent discount rate gives an annualized cost of \$7,909. At a discount rate of 7 percent, this annualized cost is \$9,605. OSHA solicits comment on these estimates and how many previous evaluations do not now have the documentation required by this proposed rule.

From above, OSHA estimates that ongoing each year there will be 13,470 successful initial evaluations that will need documentation. Then, additionally, there will be documentation of previous successful evaluations due to the proposed rule. There are a total of 2,324 new evaluations, of which 2,020 $(2,324 / 1.15)$ will be successful. Hence

the total number of documented evaluations is 15,490 (13,470 + 2,020). OSHA therefore estimates the total annual documentation cost, absent the first year extra documentation costs, to be \$59,479 (\$3.84 per evaluation x 15,490 evaluations).

c. Employer costs for operator training

The proposed rule clarifies the operator training requirements. As explained in the 2010, 2014, and 2017 rulemakings, employers were already required to train their operators prior to the 2010 rule, and OSHA did not estimate additional training costs other than costs of optional certification preparation training classes in its recent rulemakings. (see, e.g., 75 FR 48097). The proposed rule clarifies that the training already required under the existing rule continues to be required even after an operator is certified, including training necessary when an operator requires new knowledge or skills because of a change in equipment or tasks. Although OSHA's site visits and interviews indicated that most firms are already providing the required training, including the additional training necessary to ensure that certified operators have the additional skills and knowledge to operate new equipment or perform new tasks, OSHA has calculated costs for additional trainings that may occur as a result of this clarification.

OSHA's calculation of the cost of these additional trainings requires several steps. First, OSHA estimated the average annual number of equipment-specific or task-specific trainings as a percentage of the new evaluations required by the rule, as estimated earlier. OSHA expects the number of trainings to be a subset of the number of evaluations because in many cases the operator will already possess the required skills necessary for a new piece of equipment or a new task and be able to demonstrate competency after only a cursory explanation of the differences. For example, an experienced operator conducting

a blind lift for the first time may have sufficient mastery of the equipment such that she could pass an evaluation after only a very brief discussion of the signals to be used. The Agency judged that 50% of these additional evaluations, or 1,162 evaluations (50 percent of the 2,324 new evaluations), would also require trainings. OSHA welcomes comments on these estimates.

The second step is to identify an average amount of time that each training will take. Some trainings are likely to require detailed instructions about operating particular equipment and discussions of protocol prior to a lift. Other trainings might involve a very short period of instruction, such as to familiarize an experienced operator with the setup of a standard controls in a different crane of the same type. While OSHA lacks data about the frequency of these different types of trainings, it estimates that the average time for each training is one hour. For context, this is the same amount of time that OSHA previously estimated for an inexperienced operator to take the practical portion of the standard crane operator test. The Agency solicits comment on this training estimate.

OSHA expects two employees to be occupied during this hour of training: the equipment operator and the trainer. Using the same wage estimates as above, the hourly wage for the operator would be \$42.60 and a supervisor's hourly wage of \$46.08 for the trainer. However, not all of the training time will result in a loss of productivity to the employer. OSHA's site visits and interviews indicate that it is common for operators to spend at least some of the training time operating the crane under the instruction of the trainer, performing tasks that actually are useful for the employer. While all of the trainer's time is an opportunity cost for the employer, at least part of the operator's time results in productivity for the employer. OSHA estimates that, on average, 75 percent of

the operator's training time (45 minutes of the hour) would consist of pure instruction or other activities that would not be productive for the employer. Based on the estimated one hour for each training, the unit cost for each training is therefore the supervisor's wage for one hour (\$46.08) plus \$31.95 in operator's wages for the 45 minutes of non-productive time (\$31.95 is three quarters of the operator's hourly wage of \$42.60): \$78.03 per training. Thus, the total cost of the training industry-wide would be \$90,649 (\$78.03 x 1,162). OSHA requests comments on this estimate and its components.

d. Cost savings of avoiding additional certifications

The proposed rule drops the "capacity" requirement for crane certification, leaving only certification by crane type as the obligation of the crane standard. Absent this proposal, all crane operators who are currently certified only by crane type would need to obtain certification both by type and capacity. To calculate the cost-savings of additional certifications that would be avoided by the proposed rule, OSHA estimates the number of crane operators not yet in compliance with the type-and-capacity certification requirement and multiplies that estimate by the estimated cost of obtaining such certification.

Based on OSHA's previous rulemakings, OSHA estimates that 71,700 crane operators do not yet possess a type-and-capacity certification. (82 FR 51993). Although the 2014 FEA estimated a gradual decline over time of the number of such operators (an estimate of 61,474 in 2016, see Table 1, 79 FR 57796), the 2017 extension estimated that the 71,700 operators were not yet in compliance and would not be for much of 2017 and 2018 leading up to the new 2018 deadline. (see Table 1, 82 FR 51995). In this PEA, the Agency accordingly estimates the number of operators certified by crane type only will

remain at 71,700 each year. OSHA has adopted this approach because 71,700 is the last hard data point the Agency has, and certification has gradually spread as a requirement in the crane operator job market. It is quite possible the number of operators possessing a type, but not type-and-capacity certification, is actually higher today: the largest certification school gives a certificate which is by type only. The Agency requests comment and further data on this issue.

OSHA also looked to the 2017 deadline extension rule to estimate the unit cost of a type and capacity certificate. There, the Agency estimated that such a test would take 2.5 hours and require a \$250 fixed testing fee (82 FR 51994). At the hourly crane operator wage noted above (\$42.06), the total cost for a compliant certification is \$356.50 ($\$250 + (2.5 \times \$42.06)$). If 71,700 crane operators needed to take the test the cost would be \$25,560,840 ($71,700 \times \356.50). Because this rule would remove the requirement for additional certifications by capacity, that amount becomes a cost saving.

This, of course, is a one-time cost savings, while costs of continued evaluations and most of the other cost elements of the rule are ongoing. Using the Agency's standard 10 year horizon, the result is an annualized cost savings of \$2,996,510 at a discount rate of 3 percent, and an annualized cost savings of \$3,639,289 at a discount rate of 7 percent.

The Agency estimates there will also be ongoing cost savings due to a number of certifications that would only be needed for a change in capacity and hence no longer will be incurred. More than half of certified crane operators have been certified by a certifying body (including state and local governments) that does not issue certificates by capacity, which indicates that many of these operators may not need multiple capacity certifications. OSHA conservatively estimates the value of this cost savings by taking 50

percent of the 2,324 additional evaluations, or 1,162 ($0.50 \times 2,324$) as an additional number of annual certifications required solely due to changes in capacity. The unit cost for this certification follows previous analysis in assigning a \$250 flat fee for the certificate, as well as 1.5 hours of the operator's time for the written exam and 1 hour for the practical exam. This gives a unit cost of \$356.50 ($\$250 + (2.5 \times \$42.60)$). Finally, the total annual cost savings for these avoided certifications is \$414,172 ($1,162 \times \356.50). Hence, along with the one-time cost savings due to omitted certifications, the total cost savings for these two elements are \$3,410,683 ($\$2,996,510 + \$414,172$) at 3%, and total cost savings for these two elements of \$4,053,461 ($\$3,639,289 + \$414,172$) at 7%.

OSHA requests comment on this cost savings and its component estimates, including the estimate of the total number of operators who might still require multiple certificates if OSHA removes the requirement for certification by capacity as proposed.

e. Total Cost of the Proposed Rule

The total annual cost of the proposed rule comprises the cost items identified above: evaluations (those previously calculated with offsets from the proposed removal of the requirements to certify by capacity, as well as the additional evaluation costs to account for new skills and tasks), documentation of the evaluations (including the one-time first year evaluation documentation for old operators without such documentation), and training costs. The cost savings is due to averting the need for all operators who currently have a type only certification to obtain a type-and-capacity certification. Since the last item is relatively large primarily occurs in the first year while the other costs are ongoing, the discount rate and discount horizon have a significant impact on the final total cost. At a discount rate of 3 percent the sum of those parts is a cost savings of

\$1,827,513 ($\$1,373,622 + \$51,511 + \$59,479 + \$90,649 + \$7,909 - \$2,996,510 - \$414,172$). For a discount rate of 7 percent there is a cost savings of \$2,468,595 ($\$1,373,622 + \$51,511 + \$59,479 + \$90,649 + \$9,605 - \$3,639,289 - \$414,172$).

f. Economic and Technological Feasibility

The Agency has preliminarily determined that the proposal is technologically feasible because many employers already comply with all the provisions of the proposed rule and the rule would not require any new technology. The largest cost element of this proposed rule is a new evaluation with associated training of \$78.03 per training, which should be a small expense for the businesses covered under this proposal. The vast majority of employers already invest the resources necessary to comply with the provisions of the proposed standard. Hence the Agency preliminarily concludes that the proposed standard is economically feasible.

g. Certification of No Significant Economic Impact on a Substantial Number of Small Entities

The largest cost element of this proposed rule is a new evaluation with associated training of \$78.03 per training. Small businesses will, by definition, have few operators, and the \$88.68 cost for each operator evaluation with training will not be a significant impact for even the smallest businesses. Hence, OSHA certifies that this proposed rule would not have a significant economic impact on a substantial number of small entities.

h. Benefits

OSHA's 2010 Cranes and Derricks in Construction standard included an extensive analysis of the benefits attributed to preventing crane-related fatalities and serious injuries. In that analysis, OSHA relied on IMIS injury data made available in

2008 (see 75 FR 48093), finding that the standard would prevent 175 injuries and 22 fatalities per year for a total annual benefit of \$209.3 million (75 FR 48079-48080).

As noted in the sections on “Background” and “Need for a Rule,” OSHA received significant feedback from stakeholders following the 2010 final rule indicating that the standard, to be fully effective, would need to preserve the employer duty to evaluate operators separately from the general operator certification requirement. The certifications are intended to address basic operator knowledge and skills, but do not assess operators’ familiarity with the actual equipment they will operate or the specific tasks they will perform. The proposed amendments to the standard would make that employer duty permanent and add specificity, thereby ensuring that the full benefits of the standard would be realized.

The safety benefit of the rule is the prevention of injuries or fatalities resulting when operators certified to operate the type of crane assigned still lack the knowledge or skill to operate that crane for the assigned task. As noted earlier, there are many variables in equipment and controls between different models of the same type of crane, and there are many crane operations that require additional knowledge and skill beyond that demonstrated during certification (e.g., swinging a “headache ball” instead of lifting a load, performing a blind lift, participating in a multi-crane lift, etc.). Certification does not address these variables or provide assurance that the operators are qualified to operate the equipment for the task assigned, so without these amendments operators could be permitted to perform equipment operations after November 2018 that they are not qualified to operate safely. OSHA has already determined that there is a significant risk

of injury when operators are allowed to operate heavy machinery that they are not qualified to operate.

The 2010 crane rule estimated annual net benefits at \$55.2 million in 2010 dollars (75 FR 47914). Since there are cost savings for this NPRM, net benefits of the joint 2010 final rule and this NPRM are vastly greater than zero.

While this proposed rule would attempt to realize the full benefits already identified in 2010 for the standard, and OSHA need not parse the benefits of each provision of the standard separately, OSHA recognizes that the proposal is also likely to generate additional benefits from the more specific requirement for employers to evaluate operators on specific equipment for specific tasks. To explore this, OSHA conducted further analysis of more recent IMIS incident reports in an effort to illustrate the new benefits of the proposed evaluation requirements beyond the benefits that would be achieved through the existing standard with operator certification alone.

OSHA looked at IMIS accident reports for 2009-2013, years subsequent to the data used for the FEA for the 2010 rulemaking. All accidents with any of the search terms “boom,” “crane,” or “pile driver” in either the event description or in the abstract were examined, the same keywords as used in the analysis for the 2010 final rule. OSHA identified incidents where there was an express mention in the IMIS description that the crane operator was unfamiliar with the specific crane equipment used during the incident, or with the specific task. Using this methodology, the Agency has been able to identify three fatalities that may have been prevented if the proposed evaluation requirement had been in place at the time. It is true that there was a general duty to ensure operator competency at the time of these incidents. (see §§1926.20(b)(4) and 1427(k)(2)). But, as

explained above, the existing employer duty is stated very generally and employers might believe that a preliminary general examination of the operator could satisfy the requirement, without accounting for evaluation of the operator's ability to operate different models of the same type or perform new tasks.

OSHA believes that the proposed rule, which makes the evaluation duty permanent and includes more detailed evaluation documentation requirements, would make it more likely an employer conducts the appropriate type of evaluation and therefore more likely that such incidents would be avoided in the future. By specifying the elements to be evaluated, OSHA expects the evaluations to be more effective at preventing injuries by identifying operator limitations in a timely manner. For example, the employer might have believed it was complying with the existing general employer duty if it evaluated an operator and found that the operator was qualified to operate a particular crane to lift pallets of material, even though the employer did not perform any additional evaluation before assigning the operator to a lift that required additional skills, such as a blind lift or lifting poles instead of pallets. As indicated by the second IMIS example below, there is greater risk of injury if the operator is not qualified to perform the new task. OSHA also expects the documentation requirement to assist employers in complying with the different evaluation elements of the standard. And OSHA expects that the documentation requirement will facilitate communication between supervisors and operators and help avoid assignment of an operator to equipment or tasks for which he or she is not qualified, thereby reducing the risk of injury from unqualified operation.

The IMIS summaries are not particularly detailed or uniform, so many more of these incidents may also have involved similar operator failures that were not explicitly

detailed in the IMIS summary. But the complete IMIS abstract of each fatal incident follows.

Case One: Operator not competent to use specific equipment:

At approximately 2:50 p.m. on June 16, 2009, an employee was walking toward a seawall the company was reconstructing when a section of the boom failed and fell on him. The employee was killed. The crane had been built in 1964, and was bought by Ray Qualmann Marine Construction, Inc. on April 29, 2008. The company never performed an annual inspection of the crane or a monthly one, and documentation was not available to indicate any maintenance had been done to the crane. The only documentation available for the crane was an inspection report dated June 10 2009, made by a crane operator who worked for the company, which failed to identify that the crane did not have a boom angle indicator, that several lacings were bent on it, and that the angles and spacing of the repaired lacings were uneven. In addition, neither the crane operator who operated the crane on the day of the accident, nor the foreman, had ever seen the operator's and maintenance manual for the crane involved in the accident. The crane operator was not familiar with the controls of the crane. The operator did not know the weight of the load, and did not know the length of the boom. The crane was overloaded when the accident occurred.

The general manager of Ray Qualmann Marine Construction claimed that the operator had extensive crane experience and had worked for the company for more than 20 years. OSHA concluded in its investigation, however, that the company allowed the operator use of the Link-Belt LS-58 crane with no training for this equipment. The abstract indicates that the lack of familiarity with the specific equipment used contributed to the fatality. An evaluation of the operator's competency on the specific equipment, rather than the general skills and knowledge tested as part of the third-party certification process, would have been more likely to identify the problem in this case and avoid the resulting fatality.

Case Two: Operator not competent to perform specific task:

On November 17, 2009, employees with Moreau's Material Yard were driving pilings for an oil rig foundation in which a 4,000 lb hammer, attached to the top of

the lead, was used to drive 70 to 75 ft poles into the ground. Employee #1 was working on a crawler crane platform approximately 20 to 25 ft above the ground. He was wearing a harness with a lanyard connected to a ladder rung. When the crane tipped over, Employee #1 attempted to jump from the platform to the ground below. He was struck by the crane and killed. The crane operator sustained minor injuries. Other employees indicated that the employer had never lifted poles of that size and the crane boom may have been used at an improper angle for the load being carried.

It is clear from the IMIS report that the operator was familiar with crane equipment but had never lifted poles of that size. While all of the details of the task are not included in the abstract, the note about the different pole size and the operator's use of an improper boom angle suggest that the activity was significantly different from previous activities such that it would have required different knowledge or skills. This incident and resulting injuries might have been prevented if the employer took the time to evaluate the operator for the specific task assigned.

Case Three: Operator inadequately trained:

On June 23, 2011, Employee #1, an ironworker, was installing a structural steel bracing and painting structural steel beams in the ceiling of a manufacturing plant addition. Employee #1 was working alone from a boom-supported aerial work platform that was borrowed from another employer. At approximately 11:15 am, an electrician walked into the area and found the aerial work platform elevated with Employee #1 slumped over the controls. Employee #1 was crushed between the work platform and one of the ceiling beams. Other tradesmen at the worksite used the ground controls to lower Employee #1 to the floor. Employee #1 died from the injuries. Employee #1 had been trained in operating a boom-supported aerial work platform by his employer, but was not trained in the differences between those aerial work platforms that were owned by the employer and the borrowed lift being used the morning of the incident. The drive controls on the borrowed aerial work platform may have been reversed from the actual direction that they would operate.

The abstract does not include enough information to be certain as to whether the "boom-supported aerial work platform" was equipment that would be covered by the crane

standard (it could be a simple aerial lift not covered by the standard, or a boom crane or multi-purpose machine configured to support the work platform in a manner that would be within the scope of the standard). Nevertheless, the incident illustrates the potentially fatal consequence of requiring an employee to operate new equipment without ensuring that the employee can account for differences in control locations and functions. Like the previous cases, the employee received training for certain crane equipment but lacked the skills necessary to operate the borrowed machinery used on the day of the accident. Had the employee been evaluated by his employer before using the equipment, the employee's unfamiliarity with the equipment could have been identified earlier and the fatality might have been prevented.

C. Paperwork Reduction Act

A. Overview

The purpose of the Paperwork Reduction Act (PRA), 44 U.S.C. 3501 et seq., includes enhancing the quality and utility of information the Federal government requires and minimizing the paperwork and reporting burden on affected entities. The PRA requires certain actions before an agency can adopt or revise a collection of information (also referred to as a "paperwork" requirement), including publishing a summary of the collection of information and a brief description of the need for, and proposed use of, the information. The PRA defines "collection of information" as "the obtaining, causing to be obtained, soliciting, or requiring the disclosure to third parties or the public, of facts or opinions by or for an agency, regardless of form or format." (44 U.S.C. 3502(3)(A)). Under the PRA, a Federal agency may not conduct or sponsor a collection of information unless it is approved by the Office of Management and Budget (OMB) and displays a

currently valid OMB control number, and the public is not required to respond to a collection of information unless it displays a currently valid OMB control number (44 U.S.C. 3507). Also, notwithstanding any other provisions of law, no person shall be subject to penalty for failing to comply with a collection of information if the collection of information does not display a currently valid OMB control number (44 U.S.C. 3512).

B. Solicitation of Comments

The “Cranes and Derricks in Construction: Operator Qualification” proposal would establish new information collection requirements. The proposal would also modify a small number of information collection requirements in the existing Cranes and Derricks in Construction Standard (29 CFR part 1926, Subpart CC) Information Collection (IC) approved by OMB. OSHA has prepared a new Information Collection request (that modifies the existing Cranes and Derricks in Construction package) to reflect the NPRM’s new or revised collections of information.

Concurrent with publication of this proposed rule, OSHA submitted the new Cranes and Derricks in Construction Standard (29 CFR part 1926, Subpart CC): Operator Qualification Information Collection Request (ICR) to OMB for review with a request for a new control number (ICR Reference Number 201710-1218-002). When the final rule is published, OSHA will submit the final ICR for the final Cranes and Derricks in Construction Standard: Operator Qualification to OMB for approval. If approved, OSHA will request approval to amend the comprehensive Cranes and Derricks in Construction Information Collection (OMB control number 1218-0261) to incorporate the ICR analysis associated with the final Cranes and Derricks in Construction Standard: Operator Qualification and to discontinue the new control number. In addition to commenting to

the agency, the PRA provides an opportunity for members of the public to comment on the information collection requirements during a 30-day period directly to OMB.

Some of these revisions, if adopted, would result in changes to the existing burden hour and/or cost estimates associated with the current, OMB-approved information collection requirements contained in the Cranes and Derricks in Construction Standard Information Collection. Others would not change burden hour or cost estimates, but would substantively modify language contained in the currently OMB-approved ICR. Still others would revise existing standard provisions that are not collections of information, will not change burden hour or cost estimates, and will not modify any language in the ICR. This preamble summarizes the first two categories to ensure that the ICR reflects the updated regulatory text, but not the last category of revisions. In addition, this preamble does not address the proposed provisions that are substantively unchanged from the current, OMB-approved information collection requirements. Discussion and justification of these provisions can be found in the preamble to the final crane standard (75 FR 48017) and also in the Supporting Statements for this proposal as well as the approved Information Collection.

The Agency and OMB solicit comments on the Cranes and Derricks Standard information collection requirements as they would be revised by this rule. Particularly, comments are sought to:

- Evaluate whether the proposed information collection requirements are necessary for the proper performance of the Agency's functions, including whether the information will have practical utility;

- Evaluate the accuracy of OSHA’s estimate of the time and cost burden of the proposed information collection requirements, including the validity of the methodology and assumptions used;
- Enhance the quality, utility, and clarity of the information to be collected; and
- Minimize the burden of the information collection requirements on those who are to respond, including through the use of appropriate automated, electronic, mechanical, or other technological collection techniques or other forms of information technology, e.g., permitting electronic submission of responses.

A copy of the ICR for this proposal, with applicable supporting documentation; including a description of the likely respondents, estimated frequency of response, and estimated total burden may be obtained free of charge from the RegInfo.gov website at: http://www.reginfo.gov/public/do/PRAViewICR?ref_nbr=201710-1218-002 (this link will only become active on the day following publication of this notice).

C. Proposed Revisions to the Information Collection Requirements

As required by 5 CFR 1320.5(a)(1)(iv) and 1320.8(d)(1), OSHA is providing the following summary information about the information collection requirements identified in the proposal.

1. Title: Cranes and Derricks in Construction: Operator Qualification.
2. Description of the ICR. The proposal creates new information collection requirements and modifies approved information collection requirements in the existing “Cranes and Derricks in Construction Standard” Information Collection. The major differences in the information collection requirements contained in the proposal from the information collection requirements currently approved in the ICR are discussed below

and in more specific detail in Section III: Summary and Explanation of the Proposed Amendments to Subpart CC.

Section 1926.1427(a) - Operator training, certification, and evaluation.

The introductory text in proposed paragraph (a) sets out the employer's responsibility to ensure that each operator is certified/licensed in accordance with subpart CC, and is evaluated on his or her competence to safely operate the equipment that will be used, before the employer permits him or her to operate equipment covered by subpart CC without continuous monitoring. The proposed new approach provides a clearer structure than the existing standard, which was not designed to accommodate both certification and evaluation.

Section 1926.1427(c) - Certification and Licensing.

Under paragraph (c), the employer must ensure that each operator is certified or licensed to operate the equipment. Proposed paragraph (c) retains the certification and licensing structure of the existing standard with only a few minor modifications intended to improve comprehension of certification/licensing requirements. For example, OSHA proposes to remove the somewhat misleading reference to an "option" with respect to mandatory compliance with existing state and local licensing requirements that meet the minimum requirements under federal law.

Section 1926.1427(d) - Certification by an Accredited Crane Operator Testing Organization.

Proposed paragraph (d) retains the requirements of existing paragraph §1926.1427(b), except that the proposal removes the requirement for certification by capacity of crane, as required in existing sub-paragraph (b)(1)(ii)(B) and (b)(2). The need

for this change is explained in the “Need for a Rule” section of this preamble. The proposal also makes some non-substantive language clarifications. Compliance with the requirements of proposed paragraph (d) is the option that OSHA expects the vast majority of employers to use.

Section 1926.1427(f) - Evaluation.

Proposed paragraph (f) sets out new specific requirements that employers must follow to conduct an operator evaluation and reevaluation, including documentation requirements. Proposed paragraph (f)(4) requires the employer to document the evaluation of each operator and to ensure that the documentation is available at the worksite. This paragraph also specifies the information that the documentation would need to include: the operator’s name, the evaluator’s name, the date of the evaluation, and the make, model and configuration of the equipment on which the operator was evaluated. However, the documentation would not need to be in any particular format.

Under the proposal, not all operators exempted from certification requirements would also be exempted from the evaluation requirements. Proposed paragraph §1926.1427(a)(2) continues the existing exemption from the training and certification requirements in that section for operators of three types of equipment: derricks, sideboom cranes, and equipment with a maximum manufacturer-rated hoisting/lifting capacity of 2,000 pounds or less. In the current crane standard, these three types of equipment are exempt from all of the requirements in §1926.1427 as the result of language in §1926.1427(a) and specific exemptions in §§1926.1436(q), 1440(a), and 1441(a). The proposal would not, however, exempt employers from the requirements in §1926.1427(f) to evaluate the potential operators of those types of equipment to ensure that they have

sufficient knowledge and skills to perform the assigned tasks with the assigned equipment. Accordingly, OSHA proposes to preserve the evaluation requirements through the revision of the language in §1926.1427(a) and corresponding edits to narrow the exemptions in §§1926.1436(q), 1440(a), and 1441(a).

Section 1926.1427(h) - Language and Literacy.

Existing paragraph §1926.1427(h) allows operators to be certified in a language other than English, provided that the operator understands that language. Proposed paragraph (h) is nearly identical to existing paragraph (h) with the exception that it removes the reference to the existing qualification language in paragraph (b)(2), which has been replaced.

Sections 1926.1436(q) - Derricks, 1926.1440(a) - Sideboom Cranes, and 1926.1441(a) - Equipment with a Rated Hoisting/Lifting Capacity of 2,000 Pounds or Less.

As discussed earlier, OSHA proposed to amend paragraphs §§1926.1436(q) 1926.1440(a), and 1926.1441(a) to ensure that the evaluation requirements in §1926.1427(f) apply to employers using derricks, sideboom cranes, and equipment with a rated capacity of 2,000 pounds or less.

Number of respondents: 117,130.

Frequency of responses: Various.

Number of responses: 75,591.

Average time per response: Various.

Estimated total burden hours: 4,773.

Estimated cost (capital-operation and maintenance): \$71.

D. Submitting Comments

In addition to submitting comments directly to the Agency, members of the public who wish to comment on the Agency's information collection requirements in this proposal may send written comments to the Office of Information and Regulatory Affairs, Attn: OMB Desk Officer for the DOL-OSHA (RIN-1218-AC96), Office of Management and Budget, Room 10235, Washington, DC 20503. You may also submit comments to OMB by email at: *OIRA_submission@omb.eop.gov*. Please reference the ICR Reference Number 201710-1218-002 in order to help ensure proper consideration. The Agency encourages commenters also to submit their comments related to the Agency's clarification of the information collection requirements to the rulemaking docket (Docket Number OSHA-2007-0066), along with their comments on other parts of the proposed rule. For instructions on submitting these comments to the rulemaking docket, see the sections of this Federal Register notice titled DATES and ADDRESSES.

E. Docket and Inquiries

A copy of the ICR for this proposal, with applicable supporting documentation; including a description of the likely respondents, estimated frequency of response, and estimated total burden may be obtained free of charge from the RegInfo.gov website at: http://www.reginfo.gov/public/do/PRAViewICR?ref_nbr=201710-1218-002 (this link will only become active on the day following publication of this notice). Copies of these documents may also be obtained by contacting Mr. Vernon Preston, Directorate of Construction, OSHA; telephone (202) 693-2020; email *Preston.Vernon@dol.gov*.

D. Federalism

OSHA reviewed this proposed rule in accordance with the Executive Order on Federalism (Executive Order 13132, 64 FR 43255, August 10, 1999), which requires that Federal agencies, to the extent possible, refrain from limiting state policy options, consult with states prior to taking any actions that would restrict state policy options, and take such actions only when clear constitutional and statutory authority exists and the problem is national in scope. Executive Order 13132 provides for preemption of state law only with the expressed consent of Congress. Federal agencies must limit any such preemption to the extent possible.

Under Section 18 of the Occupational Safety and Health Act of 1970 (OSH Act; 29 U.S.C. 651 et seq.), Congress expressly provides that states and U.S. territories may adopt, with Federal approval, a plan for the development and enforcement of occupational safety and health standards. OSHA refers to such states and territories as “State Plan States.” Occupational safety and health standards developed by State Plan States must be at least as effective in providing safe and healthful employment and places of employment as the Federal standards (29 U.S.C. 667). Subject to these requirements, State Plan States are free to develop and enforce under state law their own requirements for safety and health standards.

OSHA previously concluded from its analysis that promulgation of subpart CC complies with Executive Order 13132 (see 75 FR 48128-29). The proposed amendments do not change that conclusion. In states without an OSHA-approved State Plan, this proposed rule would limit state policy options in the same manner as every standard promulgated by OSHA. But the proposed rule also requires compliance with state and local crane operator licensing programs that meet certain minimum standards. For State

Plan States, Section 18 of the OSH Act, as noted in the previous paragraph, permits State-Plan States to develop and enforce their own cranes standards provided these requirements are at least as effective in providing safe and healthful employment and places of employment as the requirements specified in this proposed rule.

E. State Plans

When Federal OSHA promulgates a new standard or a more stringent amendment to an existing standard, State Plans must either amend their standards to be identical or “at least as effective as” the new standard or amendment, or show that an existing state standard covering this area is “at least as effective” as the new Federal standard or amendment (29 CFR 1953.5(a)). State Plans’ adoption must be completed within six months of the promulgation date of the final Federal rule. When OSHA promulgates a new standard or amendment that does not impose additional or more stringent requirements than an existing standard, State Plans do not have to amend their standards, although OSHA may encourage them to do so. The 21 states and 1 U.S. territory with OSHA-approved occupational safety and health plans covering private sector and state and local government are: Alaska, Arizona, California, Hawaii, Indiana, Iowa, Kentucky, Maryland, Michigan, Minnesota, Nevada, New Mexico, North Carolina, Oregon, Puerto Rico, South Carolina, Tennessee, Utah, Vermont, Virginia, Washington, and Wyoming. Connecticut, Illinois, Maine, New Jersey, New York, and the Virgin Islands have OSHA-approved State Plans that apply to state and local government employees only.

The amendments to OSHA’s cranes standard in this proposed rule would require employers to implement permanent evaluations of crane operators. These evaluations

must be documented and include more specificity than the existing temporary employer duty to assess and train operators under §1926.1427(k)(2). Accordingly, State Plans would be required to adopt an “at least as effective” change to their standard.

OSHA is also removing the existing requirement for crane operators to be certified by crane capacity as well as crane type. Because this change removes a requirement rather than imposing one, State Plans would not be required to make this change, but may do so if they so choose.

F. Unfunded Mandates Reform Act

When OSHA issued the final Cranes and Derricks in Construction rule, it reviewed the rule according to the Unfunded Mandates Reform Act of 1995 (UMRA; 2 U.S.C. 1501 et seq.) and Executive Order 13132 (64 FR 43255 (Aug. 10, 1999)). OSHA concluded that the final rule did not meet the definition of a “Federal intergovernmental mandate” under the UMRA because OSHA standards do not apply to state or local governments except in states that voluntarily adopt State Plans. OSHA further noted that the rule imposed costs of over \$100 million per year on the private sector and, therefore, required review under the UMRA for those costs, but concluded that its final economic analysis met that requirement.

As discussed above in Section III.A (Final Economic Analysis and Regulatory Flexibility Analysis) of this preamble, this proposed rule has cost savings of approximately \$1.8m per year. Therefore, for the purposes of the UMRA, OSHA certifies that this proposed rule would not mandate that state, local, or tribal governments adopt new, unfunded regulatory obligations, or increase expenditures by the private sector of more than \$100 million in any year.

G. Consultation and Coordination with Indian Tribal Governments

OSHA reviewed this proposed rule in accordance with Executive Order 13175 (65 FR 67249) and determined that it would not have “tribal implications” as defined in that order. The proposed rule would not have substantial direct effects on one or more Indian tribes, on the relationship between the Federal government and Indian tribes, or on the distribution of power and responsibilities between the Federal government and Indian tribes.

H. Executive Order 13771: Reducing Regulation and Controlling Regulatory Costs

Consistent with EO 13771 (82 FR 9339, February 3, 2017), OSHA has estimated at a 3 percent discount rate, there are net annual cost savings of \$1,738,540, and at a discount rate of 7 percent there is an annual cost savings of \$2,230,511. This proposed rule is expected to be an EO 13771 deregulatory action. Details on the estimated costs and cost savings estimates for this proposed rule can be found in the rule’s economic analysis.

List of Subjects in 29 CFR Part 1926

Certification, Construction industry, Cranes, Derricks, Occupational safety and health, Qualification, Safety, Training.

Signed at Washington, DC, on May 14, 2018.

Loren Sweatt,
Deputy Assistant Secretary of Labor for Occupational Safety and Health.

For the reasons stated in the preamble of this proposed rule, OSHA proposes to amend 29 CFR part 1926 as follows:

Part 1926—SAFETY AND HEALTH REGULATIONS FOR CONSTRUCTION

Subpart CC—Cranes and Derricks in Construction

1. The authority citation for subpart CC continues to read as follows:

Authority: Section 3704 of the Contract Work Hours and Safety Standards Act (40 U.S.C. 3701); sections 4, 6, and 8 of the Occupational Safety and Health Act of 1970 (29 U.S.C. 653, 655, 657); Secretary of Labor's Order No. 5-2007 (72 FR 31159); and 29 CFR part 1911.

2. Revise §1926.1427 to read as follows:

§1926.1427 Operator training, certification, and evaluation.

(a) The employer must ensure that each operator is trained, certified/licensed, and evaluated in accordance with this section before operating any equipment covered under subpart CC, except for the equipment listed in paragraph (a)(2) of this section.

(1) An employee who has not been certified/licensed and evaluated to operate assigned equipment in accordance with this section may only operate the equipment as an operator-in-training under supervision in accordance with the requirements of paragraph (b) of this section.

(2) *Exceptions.* Operator certification/licensing and training under this section is not required for operators of derricks (see §1926.1436), sideboom cranes (see §1926.1440), or equipment with a maximum manufacturer-rated hoisting/lifting capacity of 2,000 pounds or less (see §1926.1441). NOTE: The training requirements in those other sections continue to apply (for the training requirement for operators of sideboom cranes, follow section 1926.1430(c)).

(3) *Qualification by the U.S. military.*

(i) For purposes of this section, an operator who is an employee of the U.S. military meets the requirements of this section if he/she has a current operator qualification issued by the U.S. military for operation of the equipment. An employee of the U.S. military is a Federal employee of the Department of Defense or Armed Forces and does not include employees of private contractors.

(ii) A qualification under this paragraph is:

(A) Not portable. Such a qualification meets the requirements of paragraph (a) of this section only where the operator is employed by (and operating the equipment for) the employer that issued the qualification.

(B) Valid for the period of time stipulated by the issuing entity.

(b) *Operator training.* The employer must provide each operator-in-training with sufficient training, through a combination of formal and practical instruction, to ensure that the operator-in-training develops the skills, knowledge, and judgment necessary to operate the equipment safely for assigned work.

(1) The employer must provide instruction on the knowledge and skills listed in paragraphs (j)(1) and (2) of this section to the operator-in-training.

(2) The operator-in-training must be continuously monitored on site by a trainer while operating equipment.

(3) The employer may only assign tasks within the operator-in-training's ability. However, the operator-in-training shall not operate the equipment in any of the following circumstances except as provided in paragraph (b)(3)(v) of this section:

(i) If any part of the equipment, load line or load (including rigging and lifting accessories), if operated up to the equipment's maximum working radius in the work zone

(see §1926.1408(a)(1)), could get within 20 feet of a power line that is up to 350 kV, or within 50 feet of a power line that is over 350 kV.

(ii) If the equipment is used to hoist personnel.

(iii) In multiple-equipment lifts.

(iv) If the equipment is used over a shaft, cofferdam, or in a tank farm.

(v) In multiple-lift rigging operations, except where the operator's trainer determines that the operator-in-training skills are sufficient for this high-skill work.

(4) Monitored Training. The employer must ensure that an operator-in-training is monitored as follows when operating equipment covered by this subpart:

(i) *Trainer*. While operating the equipment, the operator-in-training must be continuously monitored by an individual ("operator's trainer") who meets all of the following requirements:

(A) The operator's trainer is an employee or agent of the operator-in-training's employer.

(B) Have the knowledge, training, and experience necessary to direct the operator-in-training on the equipment in use.

(ii) While monitoring the operator-in-training, the operator's trainer performs no tasks that detract from the trainer's ability to monitor the operator-in-training.

(iii) For equipment other than tower cranes: The operator's trainer and the operator-in-training must be in direct line of sight of each other. In addition, they must

communicate verbally or by hand signals. For tower cranes: The operator's trainer and the operator-in-training must be in direct communication with each other.

(iv) *Continuous monitoring while operating the equipment.* The operator-in-training must be monitored by the operator's trainer at all times, except for short breaks where all of the following are met:

(A) The break lasts no longer than 15 minutes and there is no more than one break per hour.

(B) Immediately prior to the break the operator's trainer informs the operator-in-training of the specific tasks that the operator-in-training is to perform and limitations to which he/she must adhere during the operator trainer's break.

(C) The specific tasks that the operator-in-training will perform during the operator trainer's break are within the operator-in-training's abilities.

(5) *Retraining.* The employer must provide refresher training in relevant topics for each operator when, based on the performance of the operator or an evaluation of the operator's knowledge, there is an indication that retraining is necessary.

(c) *Operator certification and licensing.* The employer must ensure that each operator is certified or licensed to operate the equipment as follows:

(1) *Licensing.* When a state or local government issues operator licenses for equipment covered under subpart CC, the equipment operator must be licensed by that government entity for operation of equipment within that entity's jurisdiction if that government licensing program meets the following requirements:

(i) The requirements for obtaining the license include an assessment, by written and practical tests, of the operator applicant regarding, at a minimum, the knowledge and skills listed in paragraphs (j)(1) and (2) of this section.

(ii) The testing meets industry-recognized criteria for written testing materials, practical examinations, test administration, grading, facilities/equipment, and personnel.

(iii) The government authority that oversees the licensing department/office has determined that the requirements in paragraphs (c)(1)(i) and (ii) of this section have been met.

(iv) The licensing department/office has testing procedures for re-licensing designed to ensure that the operator continues to meet the technical knowledge and skills requirements in paragraphs (j)(1) and (2) of this section.

(v) The license must specify the type, or type and capacity, of equipment for which the individual is licensed.

(vi) For the purposes of compliance with this section, a license is valid for the period of time stipulated by the licensing department/office, but no longer than 5 years.

(2) *Certification.* When an operator is not required to be licensed under paragraph (c)(1), the operator must be certified in accordance with paragraph (d) or (e) of this section.

(3) Whenever operator certification/licensure is required under §1926.1427, the employer must provide the certification at no cost to employees.

(4) A testing entity is permitted to provide training as well as testing services as long as the criteria of the applicable governmental or accrediting agency (in the option selected) for an organization providing both services are met.

(d) *Certification by an accredited crane operator testing organization.* (1) For a certification to satisfy the requirements of this section, the crane operator testing organization providing the certification must:

(i) Be accredited by a nationally recognized accrediting agency based on that agency's determination that industry-recognized criteria for written testing materials, practical examinations, test administration, grading, facilities/equipment, and personnel have been met.

(ii) Administer written and practical tests that:

(A) Assess the operator applicant regarding, at a minimum, the knowledge and skills listed in paragraphs (j)(1) and (2) of this section.

(B) Provide certification based on equipment type, or type and capacity.

(iii) Have procedures for operators to re-apply and be re-tested in the event an operator applicant fails a test or is decertified.

(iv) Have testing procedures for re-certification designed to ensure that the operator continues to meet the technical knowledge and skills requirements in paragraphs (j)(1) and (2) of this section.

(v) Have its accreditation reviewed by the nationally recognized accrediting agency at least every 3 years.

(2) If no accredited testing agency offers certification examinations for a particular type of equipment, an operator will be deemed certified for that equipment if the operator has been certified for the type that is most similar to that equipment and for which a certification examination is available. The operator's certificate must state the type of equipment for which the operator is certified.

(3) A certification issued under this option is portable among employers who are required to have operators certified under this option.

(4) A certification issued under this paragraph is valid for 5 years.

(e) *Audited employer program.* The employer's certification of its employee must meet the following requirements:

(1) The written and practical tests must be either:

(i) Developed by an accredited crane operator testing organization (see paragraph (d) of this section); or

(ii) Approved by an auditor in accordance with the following requirements:

(A) The auditor is certified to evaluate such tests by an accredited crane operator testing organization (see paragraph (d) of this section).

(B) The auditor is not an employee of the employer.

(C) The approval must be based on the auditor's determination that the written and practical tests meet nationally recognized test development criteria and are valid and reliable in assessing the operator applicants regarding, at a minimum, the knowledge and skills listed in paragraphs (j)(1) and (2) of this section.

(D) The audit must be conducted in accordance with nationally recognized auditing standards.

(2) *Administration of tests.* (i) The written and practical tests must be administered under circumstances approved by the auditor as meeting nationally recognized test administration standards.

(ii) The auditor must be certified to evaluate the administration of the written and practical tests by an accredited crane operator testing organization (see paragraph (d) of this section).

(iii) The auditor must not be an employee of the employer.

(iv) The audit must be conducted in accordance with nationally recognized auditing standards.

(3) The employer program must be audited within 3 months of the beginning of the program and at least every 3 years thereafter.

(4) The employer program must have testing procedures for re-qualification designed to ensure that the operator continues to meet the technical knowledge and skills requirements in paragraphs (j)(1) and (2) of this section. The re-qualification procedures must be audited in accordance with paragraphs (e)(1) and (2) of this section.

(5) *Deficiencies.* If the auditor determines that there is a significant deficiency (“deficiency”) in the program, the employer must ensure that:

(i) No operator is qualified until the auditor confirms that the deficiency has been corrected.

(ii) The program is audited again within 180 days of the confirmation that the deficiency was corrected.

(iii) The auditor files a documented report of the deficiency to the appropriate Regional Office of the Occupational Safety and Health Administration within 15 days of the auditor's determination that there is a deficiency.

(iv) Records of the audits of the employer's program are maintained by the auditor for 3 years and are made available by the auditor to the Secretary of Labor or the Secretary's designated representative upon request.

(6) A certification under this paragraph is:

(i) Not portable. Such a certification meets the requirements of paragraph (c) of this section only where the operator is employed by (and operating the equipment for) the employer that issued the qualification.

(ii) Valid for 5 years.

(f) *Evaluation.* (1) Through an evaluation, the employer must ensure that each operator demonstrates:

(i) The skills, knowledge, and judgment necessary to operate the equipment safely, including those specific to the safety devices, operational aids, software, and the size and configuration of the equipment. Size and configuration includes, but is not limited to, lifting capacity, boom length, attachments, luffing jib, and counterweight set-up.

(ii) The ability to perform the hoisting activities required for assigned work, including, if applicable, blind lifts, personnel hoisting, and multi-crane lifts.

(2) The evaluation must be conducted by an individual who has the knowledge, training, and experience necessary to assess equipment operators.

(3) Once the evaluation is completed successfully, the employer may allow the operator to operate other equipment that the employer can demonstrate does not require substantially different skills, knowledge, or judgment to operate.

(4) The employer must document the completion of the evaluation. This document must provide: the operator's name; the evaluator's name and signature; the date; and the make, model, and configuration of equipment used in the evaluation. The employer must make the document available at the worksite.

(5) When an employer is required to provide an operator with retraining under paragraph (b)(6) of this section, the employer must re-evaluate the operator with respect to the subject of the retraining.

(g) *[Reserved.]*

(h) *Language and literacy requirements.* (1) Tests under this section may be administered verbally, with answers given verbally, where the operator candidate:

(i) Passes a written demonstration of literacy relevant to the work.

(ii) Demonstrates the ability to use the type of written manufacturer procedures applicable to the class/type of equipment for which the candidate is seeking certification.

(2) Tests under this section may be administered in any language the operator candidate understands, and the operator's certification documentation must note the language in which the test was given. The operator is only permitted to operate

equipment that is furnished with materials required by this subpart, such as operations manuals and load charts, that are written in the language of the certification.

(i) [*Reserved.*]

(j) *Certification criteria.* Certifications must be based on the following:

(1) A determination through a written test that:

(i) The individual knows the information necessary for safe operation of the specific type of equipment the individual will operate, including all of the following:

(A) The controls and operational/performance characteristics.

(B) Use of, and the ability to calculate (manually or with a calculator), load/capacity information on a variety of configurations of the equipment.

(C) Procedures for preventing and responding to power line contact.

(D) Technical knowledge of the subject matter criteria listed in appendix C of this subpart applicable to the specific type of equipment the individual will operate. Use of the appendix C criteria meets the requirements of this provision.

(E) Technical knowledge applicable to the suitability of the supporting ground and surface to handle expected loads, site hazards, and site access.

(F) This subpart, including applicable incorporated materials.

(ii) The individual is able to read and locate relevant information in the equipment manual and other materials containing information referred to in paragraph (j)(1)(i) of this section.

(2) A determination through a practical test that the individual has the skills necessary for safe operation of the equipment, including the following:

(i) Ability to recognize, from visual and auditory observation, the items listed in §1926.1412(d) (shift inspection).

(ii) Operational and maneuvering skills.

(iii) Application of load chart information.

(iv) Application of safe shut-down and securing procedures.

(k) *Effective date.* The certification requirements of this section are applicable November 10, 2018.

3. Amend §1926.1430 to:

a. Revise paragraphs (c)(1) and (c)(2);

b. Remove paragraph (c)(3); and

c. Redesignate paragraph (c)(4) as (c)(3) to read as follows:

§1926.1430 Training.

* * * * *

(c) * * *

(1) The employer must train each operator in accordance with §1926.1427(a) and (b), on the safe operation of the equipment the operator will be using.

(2) Operators excepted from the requirements of §1926.1427. The employer must train each operator covered under the exception of §1926.1427(a)(2) on the safe operation of the equipment the operator will be using.

* * * * *

4. Amend §1926.1436 by revising paragraph (q) to read as follows:

§1926.1436 Derricks.

* * * * *

(q) *Qualification and Training.* The employer must train each operator of a derrick on the safe operation of equipment the individual will operate. Section 1926.1427 of this subpart (Operator training, certification, and evaluation) does not apply, except for the evaluation requirements of §1926.1427(f).

5. Amend §1926.1440 by revising paragraph (a) to read as follows:

§1926.1440 Sideboom cranes.

(a) The provisions of this subpart apply, except §1926.1420 (Ground conditions), §1926.1415 (Safety devices), §1926.1416 (Operational aids), and §1926.1427 (Operator training, certification, and evaluation) paragraphs (a)-(e) and (g)-(k). Section 1926.1427(f) (Evaluation) applies.

* * * * *

6. Amend §1926.1441 by revising paragraph (a) to read as follows:

§1926.1441 Equipment with a rated hoisting/lifting capacity of 2,000 pounds or less.

* * * * *

(a) The employer using this equipment must comply with the following provisions of this subpart: §1926.1400 (Scope); §1926.1401 (Definitions); §1926.1402 (Ground conditions); §1926.1403 (Assembly/disassembly—selection of manufacturer or employer procedures); §1926.1406 (Assembly/disassembly—employer procedures); §§1926.1407 through 1926.1411 (Power line safety); §1926.1412(c) (Post-assembly); §§1926.1413 through 1926.1414 (Wire rope); §1926.1418 (Authority to stop operation);

§§1926.1419 through 1926.1422 (Signals); §1926.1423 (Fall protection); §1926.1425 (Keeping clear of the load) (except for §1926.1425(c)(3) (qualified rigger)); §1926.1426 (Free fall and controlled load lowering); §1926.1427(f) (Evaluation); §1926.1432 (Multiple crane/derrick lifts—supplemental requirements); §1926.1434 (Equipment modifications); §1926.1435 (Tower cranes); §1926.1436 (Derricks); §1926.1437 (Floating cranes/derricks and land cranes/derricks on barges); §1926.1438 (Overhead & gantry cranes).

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