



## MOUNT RAINIER CHAPTER FEDERAL SAFETY AND HEALTH COUNCIL

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19 MAY 2011

1. Subject: Mount Rainier Federal Safety and Health Council March 2011 Minutes.
2. The council met 19 May 2011 @ 1130 @ Mitzels Kitchen in Fife. The meeting was opened by Mr. David Paasch, Council Chair, Mount Rainier Federal Safety and Health Council.
3. Attendance: 7
4. Mr. Paasch welcomed everyone for their participation and continuing support. He reminded all members to be recruiters for and promoters of the Mt. Rainier Federal Safety and Health Council.
5. Today's presentation was provided by Mr. Dale Cavanaugh on Crane Safety and the new regulations. His presentation included information on OSHA Cranes and Derricks Subpart CC.
6. Next regular meeting, May 19, 2011 @ 11:30, Mitzels. It's best to arrive between 10:30 & 11:00 to order.
7. The meeting adjourned @ 1300.

Approved /Disapproved

V/R

David Paasch  
Chairperson, Mount Rainier  
Federal Safety and Health Council

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## MOUNT RAINIER CHAPTER FEDERAL SAFETY AND HEALTH COUNCIL

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19 May 2011 Minutes attached links

### [OSHA QUICK TAKES](#)

[OSHA Fact Sheet, Subpart CC- Signal Person](#)

[OSHA Fact Sheet, Subpart CC-Qualified Rigger](#)

[OSHA Fact Sheet, Subpart CC- Assembly/Disassembly](#)

[OSHA Fact Sheet, Subpart CC- Operator Qualifications](#)

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### Chairperson

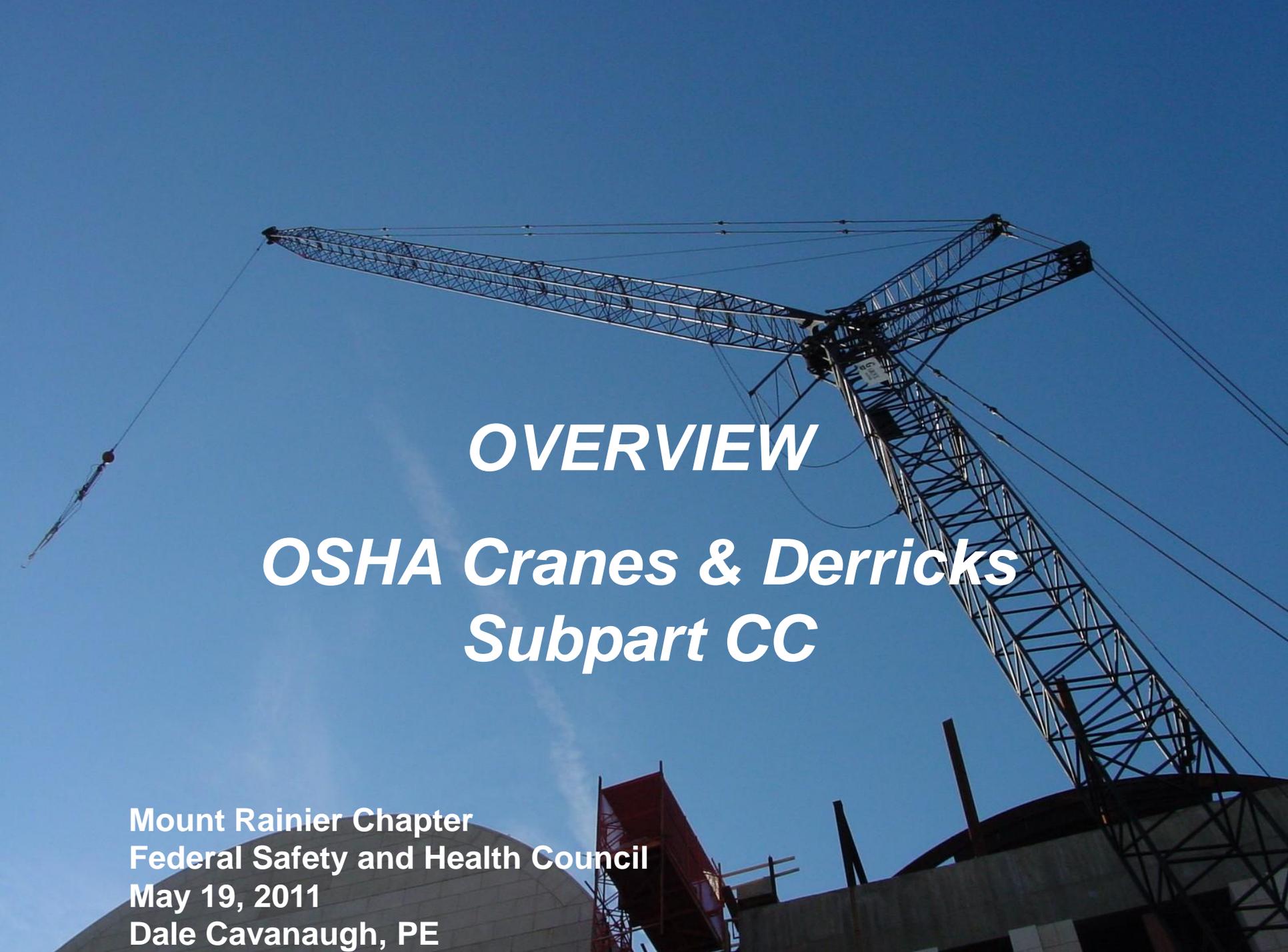
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A large tower crane is the central focus, its lattice structure extending from the bottom right towards the top left. The crane is set against a clear, bright blue sky. In the lower portion of the image, the skeletal framework of a building under construction is visible, including a red safety enclosure and various structural elements. The overall scene is a low-angle shot, emphasizing the height and scale of the construction equipment.

***OVERVIEW***  
***OSHA Cranes & Derricks***  
***Subpart CC***

Mount Rainier Chapter  
Federal Safety and Health Council  
May 19, 2011  
Dale Cavanaugh, PE

# CRANES & DERRICKS

## Subpart CC

Became Effective November 8, 2010



OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION

# HIGHLIGHTS

- **Scope**
- Definitions
- **Ground Conditions**
- Assembly/disassembly
- **Power Line Safety**
- **Inspections**
- Wire Rope
- **Safety Devices**
- **Operational Aids**
- Operation
- Authority to Stop Operation
- **Signals**
- **Fall Protection**
- Work Area Control
- **Keeping Clear of the Load**
- Free Fall and Controlled Load Lowering
- **Operator Qualification and Certification**

- **Signal Person Qualifications**
- Qualifications of Maintenance and Repair Workers
- **Training**
- Hoisting Personnel
- Multiple Crane/Derrick Lifts
- Design, Construction and Testing
- Equipment Modifications
- **Tower Cranes**
- Derricks
- Floating Cranes & Land Cranes on Barges
- Overhead and Gantry Cranes
- Dedicated Pile Drivers
- Sideboom Cranes
- Requirements for equipment w/ capacity of 2000 lbs and less



# SCOPE: WHAT EQUIPMENT IS COVERED?

- *Functional description*

**Can hoist, lower and horizontally move a suspended load**

**&**

- *Long list of examples*



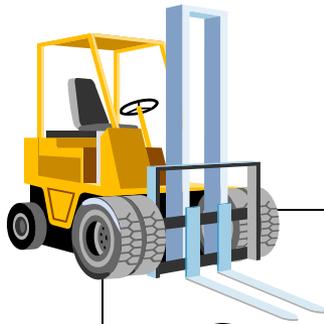
# EXAMPLES LIST

- **Articulating cranes (such as knuckle-boom cranes)**
- **Crawler cranes**
- **Floating cranes**
- **Cranes on barges**
- **Locomotive cranes**
- **Mobile cranes**  
(such as wheel-mounted, rough-terrain, all-terrain, commercial truck-mounted, and boom truck cranes)
- **Multi-purpose machines**  
when configured to hoist and lower (by means of a winch or hook) and horizontally move a suspended load
- **Industrial cranes (such as carry-deck cranes)**

- **Dedicated pile drivers**
- **Service/mechanic trucks with a hoisting device**
- **Crane on a monorail**
- **Tower cranes (such as fixed jib (“hammerhead boom”), luffing boom and self-erecting)**
- **Pedestal cranes**
- **Portal cranes**
- **Overhead and gantry cranes**
- **Straddle cranes**
- **Sideboom cranes**
- **Derricks**

*... and variations of such equipment.*





# SCOPE



- Specific exclusions (such as for power shovels, excavators, and backhoes)
- Limited exclusions (such as for digger derricks, articulating/knuckle-boom truck cranes)



# GROUND CONDITIONS

## Controlling Entity:

**Provide adequate conditions**



- **Firm, drained and graded**
- **Sufficient to support crane (in conjunction with blocking, mats, etc.)**



# GROUND CONDITIONS

**Controlling Entity  
must inform  
equipment user &  
operator of  
**known**  
underground  
hazards  
(voids, utilities, etc.)**



# GROUND CONDITIONS

**Information about ground conditions includes all information known about ground conditions, including written information in possession of the controlling employer, whether on site or off site.**



# ASSEMBLY / DISASSEMBLY



OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION

# ASSEMBLY / DISASSEMBLY

- **Two options:**

**Manufacturer procedures**

*or*

**Employer procedures**

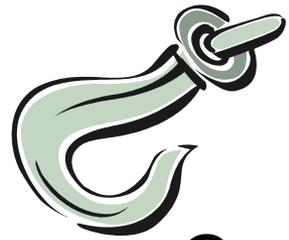
**(criteria requirements)**



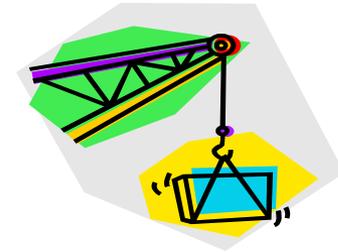
# ASSEMBLY / DISASSEMBLY

- **General requirements, such as:**
  - **A/D Director = “competent & qualified person”**
  - **A/D Director must:**
    - **Understand procedures**
    - **Review procedures (unless A/D Director has used them before)**
    - **Check that crew members understand their tasks, hazards**
  - **Follow manufacturer’s prohibitions**
  - **All rigging work is done by a Qualified Rigger**
  - **When using outriggers - fully extend *or* deploy as per the load chart**





# RIGGING



Comply with §1926.251. AND

Synthetic Slings must be protected (i.e., padding) during assembly/disassembly.  
(§1926.1404(r))

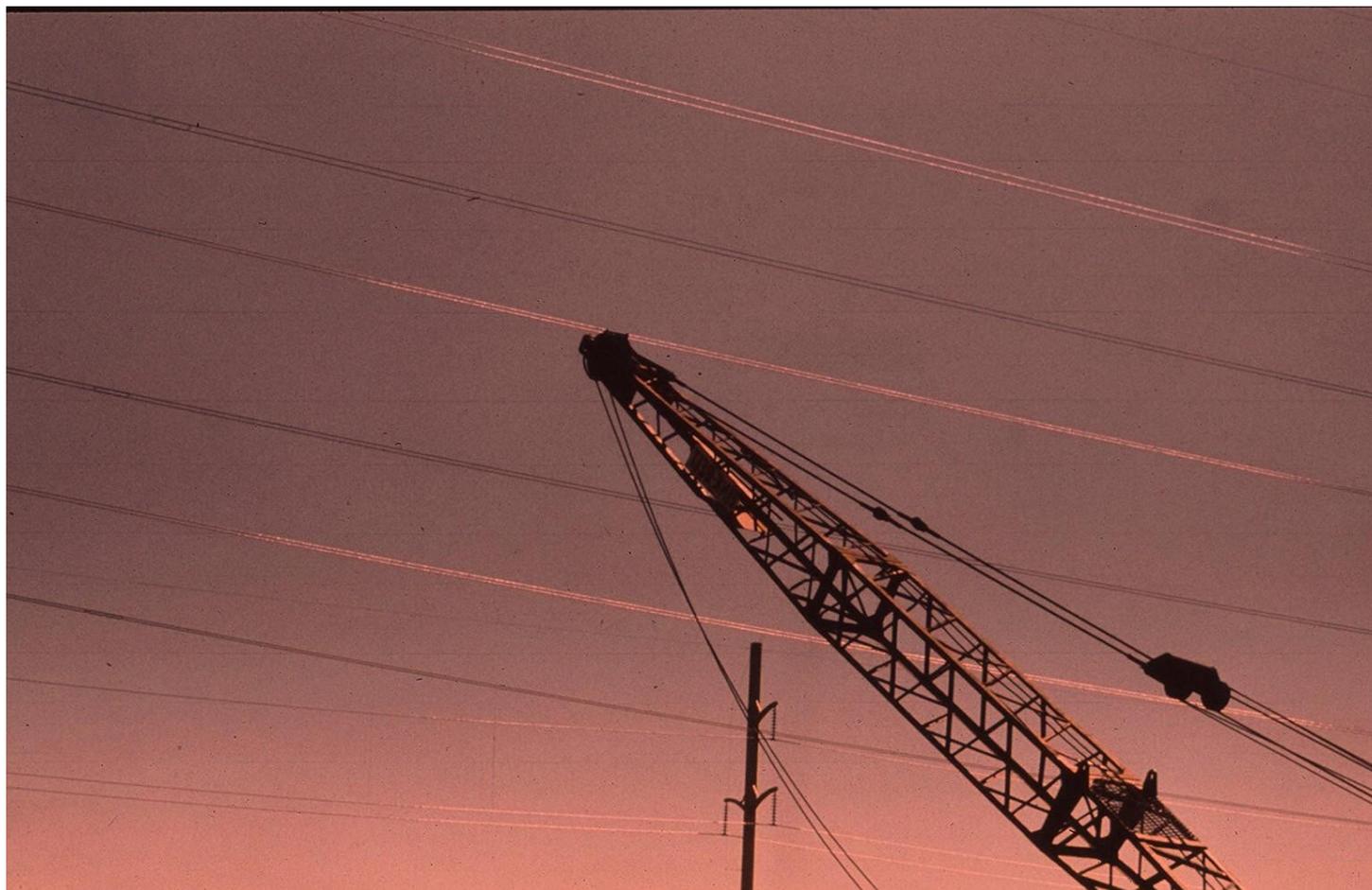


A Qualified Rigger must rig loads during:

- assembly/disassembly operations. (§1926.1404)
- other activities when workers must be in the fall zone to handle a load. (§1926.1425)



# POWER LINES



OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION

# Power Line Requirements

- Identify work zone
  - Mark boundaries and prohibit operation past boundaries; OR
  - 360 degrees around the equipment up to the equipment's max working radius.
- Determine if any part of the equipment, load (including rigging), or load line could get closer than 20' (<350KV) or 50' (>350KV) to a power line.

Could you get within  
20/50 feet of power  
line?

YES

NO

**Option #1**  
Deenergize &  
Ground

**Option #2**  
20/50-foot  
clearance

**Option #3**  
Ask Utility for  
Voltage and  
Use Table A  
(with minimum  
clearance distance)

**Encroachment  
Prevention Measures  
(Equipment Operations)**

- Planning meeting
- If tag lines used → Non-conductive
- Elevated warning lines, barricade or line of signs
- *PLUS* (Choose one):
- Proximity alarm, spotter, warning device, range limiter, or insulating link

No further  
action

# Table A – Minimum Clearance Distances

Voltage (nominal, kV, alternating current)	Minimum clearance distance (feet)
up to 50	10
over 50 to 200	15
over 200 to 350	20
over 350 to 500	25
over 500 to 750	35
over 750 to 1000	45
over 1000	(as established by the power line owner/operator or registered professional engineer who is a qualified person with respect to electrical power transmission and distribution)

# Intentionally Working Closer Than Table A Zone

## *Must Show:*

- Staying outside zone is infeasible
- Infeasible to deenergize and ground



## All of the following are required:

1. Power line owner – **sets minimum approach distance**
2. Planning meeting – minimum procedures
  - Dedicated spotter
  - Elevated warning line or barricade
  - Insulating link/device
  - Nonconductive rigging
  - Range limiter (if equipped)
  - Nonconductive tag line (if used)
  - Barricades - 10 feet from equipment
  - Limit access to essential workers
  - Prohibit non-operator workers from touching above insulating link
  - Properly ground crane
  - Deactivate automatic re-energizer
  - Insulating line cover-up installed



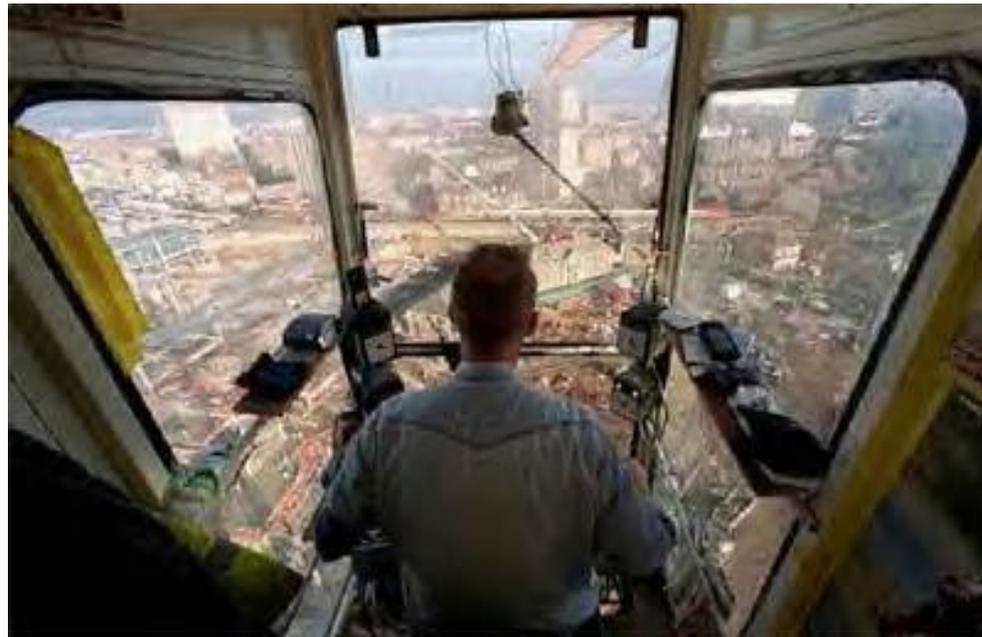
# WORKER PARTICIPATION

- Training
  - Workers must be trained to recognize and avoid hazards.
  - Workers must **understand** this training
    - Provided in a manner they understand
      - Oral/written training
    - Provided in a language they understand
      - Some Spanish language materials are already available through OSHA



# CRANES & DERRICKS

## OPERATOR QUALIFICATION / CERTIFICATION



# OPERATOR QUALIFICATION / CERTIFICATION

**November 8, 2010:** State or local license required if (1) working within a state or locality that has licensing requirements and (2) the licensing program meets the licensing and certification criteria listed in subpart CC.

**November 8, 2010-November 10, 2014:** Employer must ensure that all operators are competent to operate the equipment safely and are trained and evaluated on that training before operating the equipment.

**November 10, 2014:** All operators must be certified or qualified.



# OPERATOR QUALIFICATION / CERTIFICATION

- **OPTION 1:**   
Accredited testing organization
- **OPTION 2:**   
Audited employer program
- **OPTION 3:**  
U.S. military
- **OPTION 4:**   
State/local license

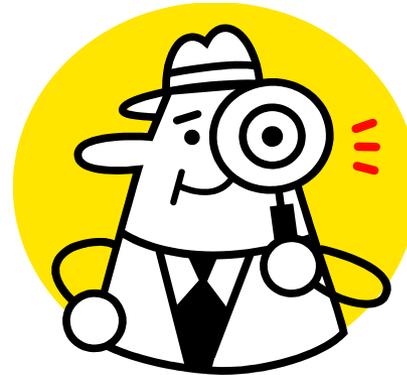
## Testing Criteria

- **Knowledge** (written test):
  - Controls/performance characteristics
  - Calculate capacity
  - Preventing power line contact
  - Ground conditions & equipment support
  - Use and locate info in operating manual
  - Appendix C subjects
- **Practical test**



# OPERATOR QUALIFICATION

Audited Employer Program – the audit must be conducted by a certified third party auditor in accordance with nationally recognized auditing standards.  
(1926.1427(c))



***Option 3:* Qualification by U.S. Military**



## ***Option 4:* State/local government license**

State/local  
government authority  
that oversees  
licensing office

Determines license office complies  
with testing/test administration  
criteria

State/local  
government license  
office

Issues operator license



# OPERATOR QUALIFICATION / CERTIFICATION

The final rule requires that employers comply with local and state licensing regulations that meet requirements of §§1926.1427(e) and (j). (§1926.1427(a))



# OPERATOR QUALIFICATION / CERTIFICATION

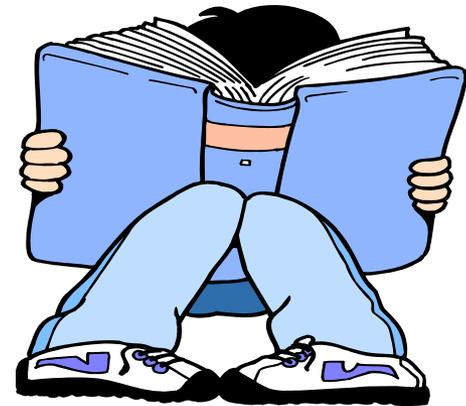
	<b>Portable</b>	<b>Valid</b>
<b>Accredited testing organization</b>	<b>YES *</b>	<b>5 years</b>
<b>Audited Employer Program</b>	<b>NO</b>	<b>5 years</b>
<b>U.S. Military license</b>	<b>NO *</b>	<b>Set by issuing entity</b>
<b>State/local license</b>	<b>NO *</b> <b>Valid only in jurisdiction</b>	<b>Set by issuing entity, not &gt; 5 years</b>

\* Subject to State & Local requirements and whether or not the military/state training meets accredited requirements.



# OPERATOR QUALIFICATION / CERTIFICATION

- Certification Costs for Operators – employers must pay for certification or qualification of their currently uncertified or unqualified operators. (§1926.1427(a)(4))



# SIGNALS

- **Signal Types:**

- Hand, voice, audible or “new”
- Only time an operator can use a cell phone while lifting (but must be hands free)

- **Signal person – when required:**

- Point of operation not in full view of operator
- View of direction of travel is obstructed
- Site-specific safety concerns



# SIGNAL PERSON

- **Qualification Requirements:**
  - **Know & understand signals**
  - **Competent in using signals**
  - **Basic understanding of crane operation**
  - **Verbal or written test plus practical test**



# SIGNAL PERSON

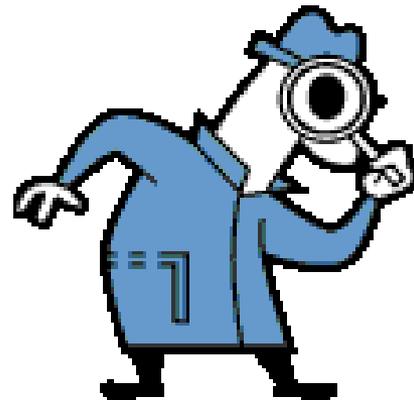
## Qualifications

Qualified how	Documentation	Portable
Third party qualified evaluator	Yes	Yes
Employer qualified evaluator	Yes	No



# CRANES & DERRICKS

## INSPECTIONS



# INSPECTIONS

**Type of Inspection:**

**Who Inspects:**

**Documented:**

Modified or repaired/adjusted	Qualified person	No
Post-assembly	Qualified person	No
Shift	Competent person	No
Monthly	Competent person	Yes
Annual	Qualified person	Yes



# INSPECTIONS

**Type of Inspection:**

**Who Inspects:**

**Documented:**

Severe Service	Qualified person	No
Idle for 3 Months or more	Qualified person	Yes
Manufactures' Inspections	Competent person	No



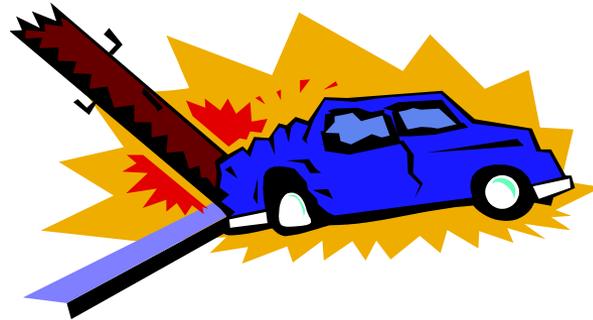
# INSPECTIONS

- Inspections – all documentation required by the inspection provisions must be available to all inspectors performing required inspections (including wire rope inspections). (§1926.1412 & §1926.1413)
- Pre-Erection Inspection for Tower Cranes – adds a requirement to include inspection of crane components after transportation to the work site and prior to erection of the crane. (§1926.1435)



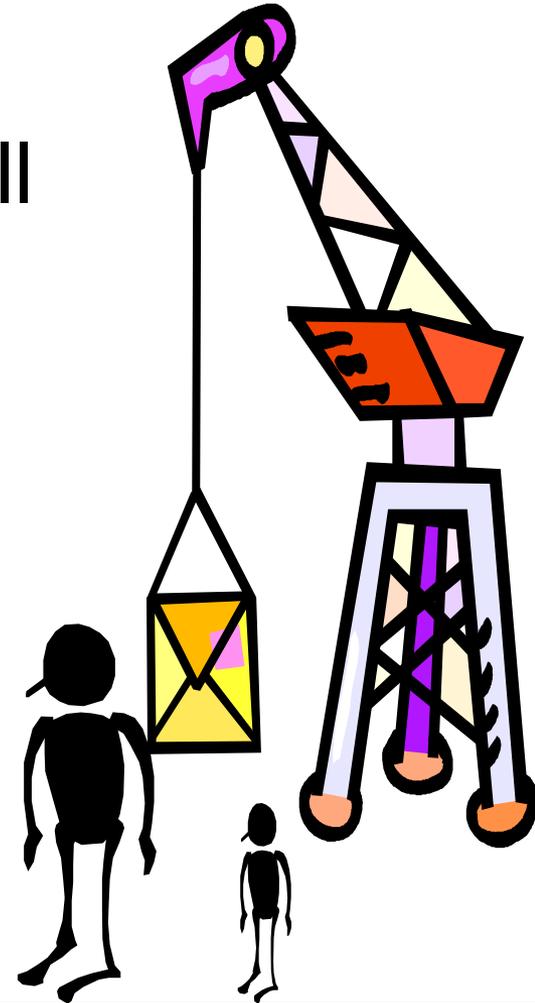
# OPERATIONS

- Operators cannot be engaged in activities that distract her or his attention while operating the equipment (for example, no cellular phone use unless when used for signaling).
- Operators must have STOP WORK Authority



# KEEPING CLEAR OF THE LOAD

- When workers must be in the fall zone to handle a load, the load must be rigged by a qualified rigger.
- Limits who can be in the fall zone.



# FALL PROTECTION

- **Assembly/Disassembly - Fall protection is required above 15 feet.**
- **Non-Assembly/Disassembly – Fall protection is required above 6 feet. (Horizontal lattice booms 15 feet)**
- **Fall arrest and positioning systems must meet subpart M requirements and criteria.**



# FALL PROTECTION

- **Anchoring to a load line is allowed if:**
  1. **A qualified person determines strength and stability requirements of 1026.502(d) are met or exceeded; and**
  2. **The operator is at work the station and informed of this use; and**
  3. **There is no load suspended from the same line when used as an anchor.**



# **SAFETY DEVICES AND OPERATIONAL AIDS**



# SAFETY DEVICES

- **Safety devices are required and must be operational at all times**

## **Include:**

- **Crane level indicator**
- **Boom/Jib stops (except derricks)**
- **Integral holding device/check valve for outrigger and stabilizer jacks**
- **Locks for foot pedal brakes**
- **Horn**



# OPERATIONAL AIDS

**Operational aids are required *but* temporary alternative measures are also allowed while operational aids are being repaired.**



# OPERATIONAL AIDS

## Category I Devices

Boom hoist limiting device, luffing jib limiting device, and anti two-blocking device.

## Replacement of parts:

Must be repaired within 7 days of discovery of deficiency.



# OPERATIONAL AIDS

## Category II Devices

Boom angle or radius indicator, boom length indicator, load weighing devices, jib angle indicator, outrigger/stabilizer position sensor/monitor, and hoist drum rotation indicator.

## Replacement of parts:

Must be repaired within 30 days of discovery of deficiency.



# OPERATIONAL AIDS

**Exception: employer has documented that it ordered the part within 7 days and then repaired the equipment within 7 days of receipt of the replacement part.**



# OPERATIONAL AIDS BEING REPAIRED

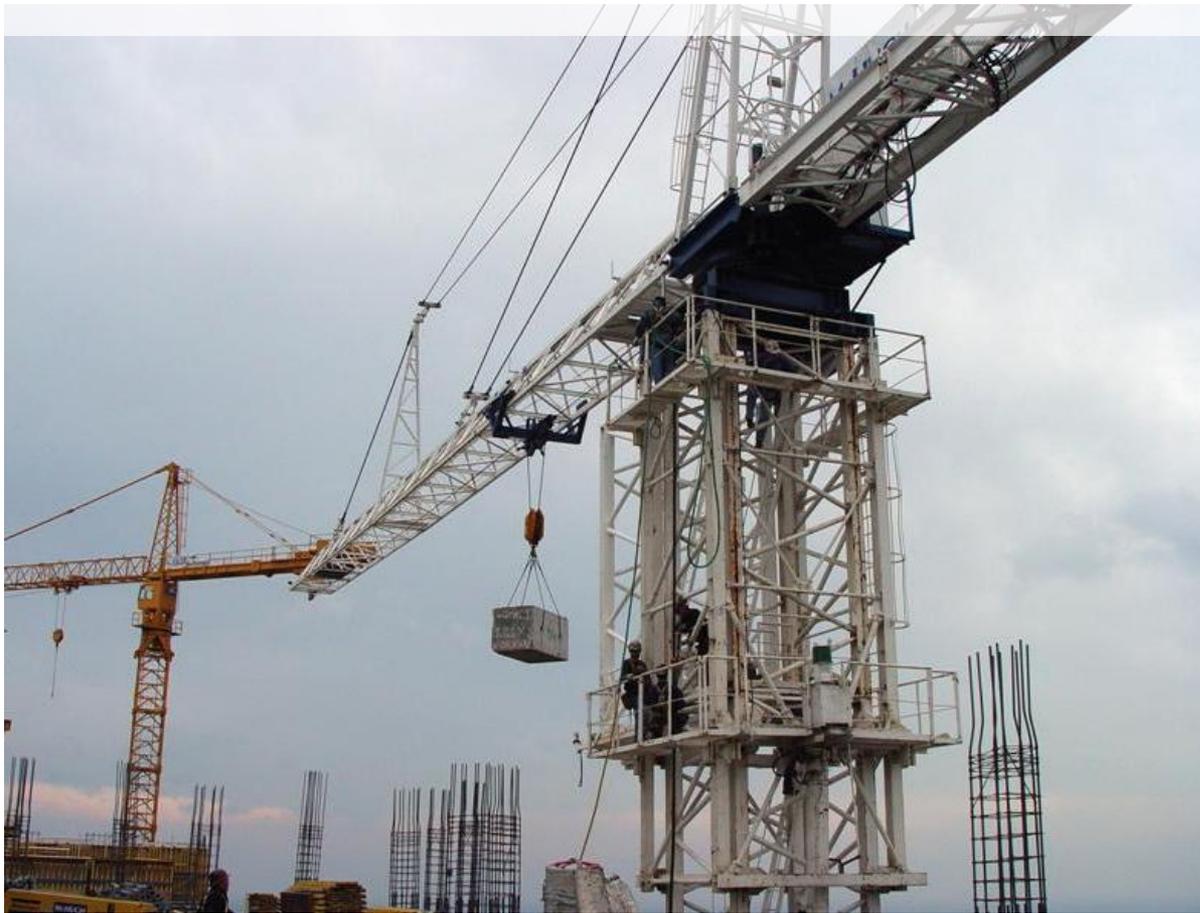


When any necessary repairs or adjustments are needed and alternative methods are being implemented, the employer must communicate this information to all affected employees at the beginning of each shift. (§1926.1417(j))



# TOWER CRANES

## SUPPLEMENTAL REQUIREMENTS



OCCUPATIONAL SAFETY & HEALTH ADMINISTRATION

# TOWER CRANES

## ADDITIONAL REQUIREMENTS

- **Size and location of signs.**
- **Specific Safety Devices and Operational Aides.**
- **Plumb tolerance 1:500 (1 inch in 40 feet)**
- **When more than one tower crane, structures can not be able to touch. May pass over one another.**



# QUESTIONS ?



**Occupational Safety  
and Health Administration**

[www.osha.gov](http://www.osha.gov)  
800-321-OSHA



UNITED STATES DEPARTMENT OF LABOR