All About Cranes:

Just What OSHA Ordered...

A quick look at Tuscaloosa’s overall crane program.
Why Policies, Procedures, Protocols?

SAY WHAT WE DO

AND

DO WHAT WE SAY
Core Beliefs

• **We believe** that all our activities can be undertaken safely and we will **never** compromise safety.
• **We will** conduct our business in a way that **ensures** the health and well-being of our team members, contractors, and any person affected by our activities.
• **We know** that **continuous improvement** of our health and safety performance is essential for a successful company.
• **Everyone** on site is responsible for **their own** health and safety **as well as** the health and safety of **others**.
Let’s Talk Regulations…

Maintenance: (OSHA & ANSI)

Before adjustments and repairs are started on a crane the following precautions shall be taken. 29CFR1910.179(I)(2)(i)

The following precautions shall be taken before performing maintenance on a crane or runway conductor system. 2-4.2.3(a)
Let’s Talk Regulations…

Maintenance: (OSHA & ANSI)

The crane to be repaired shall be run to a location where it will cause the least interference with other cranes and operations in the area.

29CFR1910.179(I)(2)(i)(a)

The crane shall be moved to a location where it will cause the least interference with other cranes and operations in the area. 2-4.2.3(a)(1)
Shipping Warehouse Truck Bay
Shipping Warehouse Cranes 405 & 406
406 Crane Boarding Station
406 Crane Boarding Station Staircase
302 Crane Boarding Station
Let’s Talk Regulations…

Maintenance: (OSHA & ANSI)

All controllers shall be at the off position. 29CFR1910.179(I)(2)(i)(b)

If a load is attached to the crane, it shall be landed. 2-4.2.3(a)(2)

All controllers shall be placed in the off condition. 2-4.2.3(a)(3)
C-hook rack and Magnet Stands
HAZARD ASSESSMENT...

1) Potential to get struck by a crane or cranes running on the same or adjacent runway as the crane being worked on.
2) Potential for a crane or cranes to strike equipment used to perform the work, (man lift, scissor lift, or mobile crane).
3) Hazards exist for any team mate that may walk under the crane while work is being performed. (dropped tools, etc.)
4) Fall hazard for tools and/or material left on the crane.
5) Fall hazard for team mates working on unguarded heights.
6) Hazard for moving equipment (operational mode vs. maintenance mode).
7) Potential for falls when boarding a live crane.
## Interference Permit

**This Permit Shall be used in Accordance with the General Overhead Crane Policy whenever:**

1. It is necessary to perform work of any kind that would place personnel or equipment high enough as to potentially come in contact with the movement of the lowest point of the bridge, trolley, or hook(s), raised to the upper limit, of an operating overhead crane while an overhead crane operator will maintain control of the crane with the intention of performing normal crane operations.
2. There is any work to be done in an overhead crane bay that will change the “normal” operating path of the overhead crane(s). For example; if installing rail stops that interfere with the normal operating path of the crane that is still in operational mode.
3. It is necessary to place a crane in Maintenance Mode on a Multi-Crane runway.

### STEPS

- Department: __________________________
- Location/Description of work being performed: ______________________________
- Date/Time to Begin: _______________ Estimated time to complete: _______________
- Area Supervisor / Lead Notified? [YES] [N/A]
- Crane Operator(s) 1 Notified? [YES] [N/A]
- Crane Operator(s) 2 Notified? [YES] [N/A]
- Remote/Pendant /Cab Tagged? [YES] [N/A]

### ADDITIONAL STEPS AS REQUIRED

- **Will Personnel or Personnel Carrying Equipment be in the travel path of Bridge, Trolley or Hooks in the highest position?**
  - (Does not include personnel on a crane that is in Maintenance Mode)
  - If (YES) Rail Stops shall be used.
    - Rail Stops Installed and Identified w/ (CAUTION TAPE) [YES] [N/A]
- **Will Non-Personnel Carrying Equipment be in the travel path of the Bridge, Trolley or Hooks in the highest position?**
  - If (YES) Rail Stops should be used
    - Rail Stops Installed and Identified w/ (CAUTION TAPE) [YES] [N/A]
  - If it is not practical to use rail stops, then a safety watch may be utilized in lieu of rail stops (Supervisor approval required).

- **Approving Supervisor**
  - Print/Sign: _______________________
  - *A SAFETY WATCH’s only job is to ensure that the crane operator does not encroach on work area with operating crane. The safety watch shall be in direct contact with the crane operator(s) and personnel performing work.*
  - Safety Watch [YES] [N/A] Print/Sign: _______________________

- **Is SICK BAY being utilized for isolation?**
  - If (YES) Hot Rail Isolation Joint LOTO and Identified w/(CAUTION TAPE) [YES] [N/A]

### COMPLETION

- Rail Stops and Tape Removed? [YES] [N/A]
- Isolation Joints Re-Energized and Tape Removed? [YES] [N/A]
- Remote Tags Removed? [YES]
- Area Supervisor Personnel/Crane Operators Notified Job Completed? [YES]

**Nucor Job Lead: Print/Sign: _______________________

CLOSED OUT PERMIT SHALL BE RETURNED TO AREA CLERK**
Establishes requirements for minimizing potential interference between mobile equipment and overhead and/or gantry cranes.
Ensures that in instances where interference can occur - all proper communication and safe work practices have been implemented prior to the work starting.
Ensures that specific procedures are developed to identify the proper steps needed to minimize potential interference between mobile equipment and overhead and/or gantry cranes.
How?

Interference Procedure

Pre-Job/Pre-Work Assessment

Appropriate personnel will conduct a pre-job briefing to assess the work to be performed and determine if the potential for interference exists.

“Risk Assessment”
The permit is in sequential order of our hazard control methods per the General Overhead Crane Policy.

1\textsuperscript{st}. Section determines if an interference situation exists for the work to be performed.

The Team looks at the Policy statements to determine if an interference permit is required.
This Permit Shall be used in Accordance with the General Overhead Crane Policy whenever:

1. It is necessary to perform work of any kind that would place personnel or equipment high enough as to potentially come in contact with the movement of the lowest point of the bridge, trolley, or hook(s), raised to the upper limit, of an operating overhead crane while an overhead crane operator will maintain control of the crane with the intention of performing normal crane operations.

2. There is any work to be done in an overhead crane bay that will change the “normal” operating path of the overhead crane(s). For example; if installing rail stops that interfere with the normal operating path of the crane that is still in operational mode.

3. It is necessary to place a crane in Maintenance Mode on a Multi-Crane runway.
After determining that an interference situation exists, the Steps section begins the communication process.
Interference Procedure

**STEPS**

- **Department:**  
- **Location/Description of work being performed:**  
- **Date/Time to Begin:** ___________  **Estimated time to complete:** ___________  
- **Area Supervisor / Lead Notified?** (YES)  
- **Crane Operator(s) 1 Notified?** (YES)  
- **Crane Operator (s) 2 Notified?** (YES) (N/A)  
- **Remote/Pendant /Cab Tagged?** (YES)
What hazard elimination and/or control methods are required to perform the task safely?

The Additional Steps As Required section follows the General Overhead Crane Policy to determine the hazard elimination and/or controls method that will be utilized for the task.

The Team simply answers the questions to determine the hazard elimination and/or control methods.
Interference Procedure

**ADDITIONAL STEPS AS REQUIRED**

- Will Personnel or Personnel Carrying Equipment be in the travel path of Bridge, Trolley or Hooks in the highest position? (Does not include personnel on a crane that is in Maintenance Mode)
  - If (YES) Rail Stops shall be used.
    - Rail Stops Installed and Identified with CAUTION TAPE: (YES) (N/A)

- Will Non-Personnel Carrying Equipment be in the travel path of the Bridge, Trolley or Hooks in the highest position?
  - If (YES) Rail Stops should be used
    - Rail Stops Installed and Identified with CAUTION TAPE: (YES) (N/A)
  - If it is not practical to use rail stops, then a safety watch may be utilized in lieu of rail stops (Supervisor approval required).

  **Approving Supervisor** print/Sign:

  A SAFETY WATCH’s only job is to ensure that the crane operator does not encroach on work area with operating crane. The safety watch shall be in direct contact with the crane operator(s) and personnel performing work.
  - Safety Watch: (YES) (N/A) Print/Sign:

- Is SICK BAY being utilized for isolation?
  - If (YES) Hot Rail Isolation Joint LOTO and Identified with CAUTION TAPE: (YES) (N/A)

**Nucor Job Lead**: Print/Sign: ____________________________
The overhead crane to be worked on is now “put into” maintenance mode. Maintenance Teammates have complete control of the crane. If applicable, the crane operator can only perform specific moves when directed by maintenance personnel.
Operation Mode- The overhead crane is performing the task for which it was primarily designed. The operator is picking up loads and moving them for production purposes. Plant operations personnel own the overhead cane.
Overhead Crane Status

Maintenance Mode- The overhead crane is being inspected or undergoing a maintenance procedure or repair. Plant maintenance personnel own the overhead cane.

The operator (if applicable) becomes a part of the maintenance team.
Maintenance: (OSHA & ANSI)

The main or emergency switch shall be open and locked in the open position. 29CFR1910.179(I)(2)(i)(c)

A lockout/tagout procedure shall be performed. 2-4.2.3(a)(4)
182 & 183 Crane AC & DC Runway Disconnects
Isolation Disconnects
Let’s Talk Regulations…

Maintenance: (OSHA & ANSI)

Where other cranes are in operation on the same runway, rail stops or other suitable means shall be provided to prevent interference with the idle crane.


If the runway remains energized, stops or a signalperson(s), located full-time at a visual vantage point for observing the approach of an active crane(s), shall be provided to prohibit contact by the active crane(s) with the idle crane; with persons performing maintenance; and with equipment used in performing the maintenance. 2-4.2.3(a)(6)
Warning tape to let the operator know he/she is approaching temporary rail stops.
1. This barricade is in effect from 8am to 4pm
2. Person Responsible for Tape Installation: Bobby Hamilton
3. Team Member's/Contractor's Supervisor: R. Randolph
4. Team Member's Department (or Contractor Firm and Phone Number): Crane Crew
5. Reason for barricading area (Hazard(s) identified): PM 302 Crane Rail Stops Installed
6. Authorized Personnel Working in Barricaded Area: Crane Crew
7. Comments: Contact Plant Maint. Ch. #1

Rail Stop Warning Tag
Let’s Talk Regulations…

Maintenance: (OSHA & ANSI)

Warning or “out of order” signs shall be placed on the crane, also on the floor beneath or on the hook where visible from the floor. 29CFR1910.179(I)(2)(i)(d)

Warning signs and barriers shall be utilized on the floor beneath the crane where overhead maintenance work creates a hazard. 2-4.2.3(a)(5)
Barricaded overhead work zone with tags and flashing lights.
Designated transmitter storage box with warning tag for rail stops.
Let’s Talk Regulations…

Maintenance: (OSHA & ANSI)

After adjustments and repairs have been made the crane shall not be operated until all guards have been reinstalled, safety devices reactivated and maintenance equipment removed. 29CFR1910.179 (I)(2)(ii)

After maintenance work is completed and before restoring the crane to normal operation 2-4.2.3(c)

1. guards shall be reinstalled
2. safety devices shall be reactivated
3. replaced parts and loose material shall be removed
4. maintenance equipment shall be removed
Parts and Tools Left on the Trolley
Trolley Floor Opening
Rotary Limit Switch
Ladle Crane Timing Shaft Guards
Ladle Crane Timing Shaft Backside
Drum Shaft Guards
Resistor Bank Covers
Interference Permit

Closing Out the Permit

The Team verifies the removal of any rail stops, tags, barricades, and lights used for the job.

The overhead crane is taken out of maintenance mode and returned to operation mode.
Interference Permit

COMPLETION

- Rail Stops and Tape Removed?  (YES) (N/A)
- Isolation Joints Re-Energized and Tape Removed?  (YES) (N/A)
- Remote Tags Removed?  (YES)
- Area Supervisor Personnel/Crane Operators Notified Job Completed?  (YES)

Nucor Job Lead: Print/Sign:  

CLOSED OUT PERMIT SHALL BE RETURNED TO AREA CLERK
Challenges of the policy...

Additional equipment required:
- safety cones, flashing lights, rail stops, and tags
Requires extra planning and time for job set up
- interference permit, filling out all tags
- setting up barricade tape and installing rail stops
Two team mates can perform the set up tasks in about twenty minutes
Safety equipment storage locker.
Designated personnel - Only designated personnel shall be permitted to operate a crane covered by this section. CFR1910.179(b)(8)

Designated - Selected or assigned by the employer, or the employer’s representative, as being qualified to perform specific duties. CFR1910.170(a)(35)

Qualified person: a person who, by possession of a recognized degree in an applicable field or a certificate of professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work. ASME B30.2-0.2
To become a qualified overhead crane operator for a specific crane or classification of cranes, all operating and maintenance team members must also meet the following qualifications:

- New hire orientation for all team members.
  (general crane awareness)
- In preparation for qualifying as operator.
  (Overhead Crane Operator’s Class taught by qualified instructor)
Our Training Requirements...

<table>
<thead>
<tr>
<th>Crane ID:</th>
<th>600 thru 604</th>
</tr>
</thead>
</table>

### Safety Requirements
- Successful completion of Overhead Crane Operator's Class.
- Discuss and explain Pre-Operational Crane Inspection Sheet.
- Discuss where to enter the inspection form and how to report any deficiencies found.
- Discuss hazards with using magnets and plate dawg attachments.
- Discuss the lifting capabilities of each hook on the crane.
- Understands and can explain crane interference policy.
- Discuss and explain Maintenance mode vs. Operational mode.
- Perform and discuss pre-operational hoist rope inspection.
- Perform and discuss pre-operations hoist limit test.
- Perform pre-operational hook, block, lifting device, and pin inspection.
- Perform pre-operational air/horn check.
- Perform pre-operational function and E-stop test.
- Demonstrate where the main lock out points are for the Crane.

### BASIC OPERATOR MODE QUALIFICATION
- Perform a Pre-Shift Crane Inspection.
- Perform a non-critical lift.
- Perform a lift using pines dawg.
- Perform a lift using manual magnet.

### Nucor Steel Tuscaloosa Qualification Card

<table>
<thead>
<tr>
<th>String</th>
<th>Team Member Signature</th>
<th>Qualifier Signature</th>
<th>Date</th>
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</thead>
<tbody>
<tr>
<td>SMS_FM-0055</td>
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</table>
Our Training Requirements…

General Overhead Crane Policy/Crane Specific Qualification

I, ____________________________, reviewed the following General Overhead Crane Policy/Crane Qualification card with ______________________. I understand the procedure and I agree to abide by and follow the rules and guidance set forth in the procedure.

Date

____________________________
Team Member Signature

____________________________
Supervisor Signature

- Knows the crane they are qualified to operate and understands the associated hazards of the crane
- Knows Crane specific procedures for the specific crane
- Has reviewed the General Overhead Crane Policy and Crane Specific Qualification Card. (SMS_SOP-0023)

____________________________
Manager Signature

☐ Issue Crane #________________________ qualification card
Our Training Requirements…

- Post incident involving an overhead crane determined to be the personal responsibility of the overhead crane operator
- At request of supervisor
- Every 3 years as review
- Physical/vision evaluations annually
- Practical/functional evaluation: demonstrate and successfully complete all the requirements found on the crane specific qualification card
Training a Crane Operator
Our Training Requirements...

<table>
<thead>
<tr>
<th>CRANE 182 MAINTENANCE MODE QUALIFICATION</th>
<th>Team Member Signature</th>
<th>Qualifier Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform a Pre-Shift Crane Inspection.</td>
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<tr>
<td>Perform a non-critical lift flying stock on the deck.</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Crane 182 OPERATOR MODE QUALIFICATION</th>
<th>Team Member Signature</th>
<th>Qualifier Signature</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Perform the task of loading gunning and banking machines.</td>
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<td></td>
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<tr>
<td>Perform the task of dropping a charge and positioning charge bucket in the scrap pit</td>
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<tr>
<td>Perform the task of Building an electrode</td>
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<tr>
<td>Perform the task of swapping an electrode</td>
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<tr>
<td>Perform the task of installing a delta</td>
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<tr>
<td>Perform the task of setting beam machine in place</td>
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<tr>
<td>Perform task of removing anode and setting new anode</td>
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<td>Perform task of flying mobile equipment in place</td>
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<tr>
<td>Perform task of removing and installing</td>
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In Closing...

- Questions are always welcome