1. PURPOSE
The purpose of this procedure is to establish minimum standards requirements for personnel involved in the use of various types of cranes and the rigging of the loads to be lifted.

2. DEFINITIONS

**Rigging Equipment:**

- **Wire Rope:** Wire rope is made of steel wires laid together to form a strand. These strands are laid together to form a rope.

- **Synthetic Web Slings:** Synthetic Web Slings are commonly made of nylon, however several other materials are used as well. Nylon resists most alcohols, aldehydes, alkalis, and hydrocarbons. *It is not recommended for use around acids.*

- **Chain:** Chain is made from many different strength of alloy steel. *Only use approved (certified with tag attached) alloy chain slings for lifting a load.*

- **Shackles:** Shackles are made from Weldless Construction Forged Alloy Steel.

- **Eye Bolts:** EyeBolts are made from forged alloy steel. *Always use eyebolts of the shoulder type made from alloy steel (Check with vendor to make sure of markings to identify forged alloy steel).*

**Crane Classifications/Types:**

- **Overhead Crane (EOT):** Overhead Cranes, also called bridge cranes, can be manually or electric operated.

- **Mobile Cranes:** A mobile crane is described as a piece of equipment designed to lift, transport and land a load. The mobile crane can be transported via roadways. All mobile cranes should have identification plates on all components, such as: the carrier, house, outrigger counterweights, jib and boom sections. The identification tag will list the manufacturer’s name, and the weight of the unit. Components must be used on the original machine or identical models of the same manufacturer.

- **Boom Trucks:** Boom trucks are available with varying types of boom hoist and outriggers. Boom Trucks are very versatile and travel roadways frequently.
**Crane Equipment Definitions:**

**Bridge Structure:** The runway on which the crane runs up and down the plant is called rails.

**Trolley:** This is a frame which consists of end trucks, a drive motor, a hoist motor, a drum with wire rope and a hoist block.

**Hoist Assembly:** The hoist assembly consists of hoist motor, speed reducer, hoist brake, drum, and wire rope, hoist blocks and hooks.

**Outriggers:** Used to level and stabilize a boom truck/crane. Prior to using a boom truck/crane the outriggers must be extended and the unit leveled and properly cribbed.

**Capacity Chart:** The chart shows the capacities at different load weights, load radii, boom lengths, boom angles, and operating quadrants.

**Boom Angle Indicator:** Use the angle indicator with the capacity chart to calculate the safe load capacity.

**Jib:** An external section of boom that can be added to the main section to increase the operating radius.

**Ground Conditions:** The ground conditions must be suitable to operate a crane safely. The surface must have enough stability and bearing capacity to support all loads out on it by the crane.

**Outrigger Blocking:** Any blocking under the outrigger float should be at least three times larger in area than the float; it should be rigid and completely support the total area.

**Crane Leveling:** The actual stability of a crane is based on the level principle.

**Quadrants of Operation:** The quadrants of operation diagram for a particular crane gives the approved working areas of that crane. Each crane type has different quadrants of operation. Lifting is approved only in those areas for which ratings are shown in the chart.

3. **SCOPE**
   
   This procedure applies to all MIDGA personnel and contractors involved in activities where cranes and rigging are used to lift loads.
4. **PROCEDURE**

The following general precautions shall be taken when operating or working around various types of cranes or rigging loads to be lifted.

4.1 **Operator Qualification and Operating Practices (B30.5)**

4.1.1 Only the following personnel shall operate a crane: Designated operators, or operator trainees under the direct supervision of a designated operator.

4.1.2 Operators shall be required to pass a practical operating examination. Examination shall be limited to the specific type equipment, which he will operate.

4.1.3 The operator shall not engage in any practice, which will divert his attention while actually engaged in operating the crane.

4.1.4 When physically or mentally unfit, an operator shall not engage in the operation of equipment.

4.1.5 When positioning a crane in a confined area, a trained signal person shall be used to direct the operator.

4.1.6 The operator shall respond to signals from the person who is directing the lift or an appointed signal person. When a signal person is not required as part of the operation, the operator is then responsible for the lifts. However, the operator shall obey a stop signal at all times, no matter who gives it.

4.1.7 Each operator shall be held responsible for those operations under the operator’s direct control. Whenever there is any doubt as to safety, the operator shall consult with the supervisor before handling the loads.

4.2 **Standard Signals (B30.5).**

4.2.1 Standard signals to the operator shall be in accordance with the ANSI Standard B30.5, unless voice communication equipment (telephone, radio, or equivalent) is utilized. Signals shall be discernible or audible at all times. No response shall be made unless signals are clearly understood.

4.3 **Operating near Electrical Power Lines (B30.5)**

4.3.1 **General**

Except where the electrical distribution and transmission lines have been de-energized and visibly grounded at point of work or where insulating barriers not a part of or an
attachment to the crane have been erected to prevent physical contact with the lines, cranes shall be operated proximate to, under, over, by, or near power lines in accordance with the following:

4.3.2 For lines rated 50kV or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet.

4.3.3 For lines rated over 50kV minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inch for each 1 kV over 50 kV, or use twice the length of the line insulator but never less than 10 feet.

4.3.4 In transit with no load and boon lowered the clearance shall be a minimum of four feet.

4.3.5 A person shall be designated to observe the clearance and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means.

4.3.6 Cage-type boom guards, insulating links, or proximity warning devices may be on cranes, but the use of such devices shall not operate to alter the requirements of ANSI Standard B30.5 even if such devices are required by law or regulation.

4.3.7 Before the commencement of operations near electrical lines, the person responsible for the job shall notify the owners of the lines or their authorized representative providing them with all pertinent information and requesting their cooperation.

4.4.0 Critical Lift

4.4.1 Critical lifts are those where the gross load weight is more than 75% of the rated capacity of the crane. When lifting load weights heavier than 75% of the rated capacity it is mandatory that the following precautions be taken.

4.4.2 A Critical Lift Rigging Plan must be prepared with a drawing or print, of the rigging job and will be presented to the BASF supervision in charge of the job. A copy of the approved plan will be on file for a minimum of 10 consecutive days.

4.4.3 The plan must include ground conditions, outrigger blocking, boom foot pins must be absolutely level and noted, load weight must be determined, center of gravity of load, exact radius, exact boom length, boom angle, balance reeving, check weight of rigging, must have an experienced operator, wind effects if over 20 MPH consider postponing if over 30 MPH lift will be denied.
4.4.4 BASF barricade procedure (SOP-0119) must be observed at all time during the operation of any type of lifting equipment.

4.5.0 Annual Crane/Boom Truck Inspection:

4.5.1 The boom and other structural components, as well as the hoist assembly and hook, must be inspected annually by a qualified external company recognized by OCHS/OSHA.

4.5.2 BASF reserves the right to review any Annual Crane Inspection before the equipment is authorized to perform work. Cranes/Boom Trucks with an out of date inspection can not perform work for BASF.

Note: All inspections must be fully recorded in the crane logbook, and must be dated and signed by the inspector.

4.5.3 All internal bridge cranes must be inspected annually. The rail shall have the rated capacity stenciled on them.

4.5.4 A preshift inspection will be conducted on the crane prior to beginning work and the inspection will be documented on the proper form.

Note: The record should be readily available and kept in each site maintenance file.

4.6.0 Rigging:

4.6.1 Only certified slings will be used for lifting loads.

4.6.2 All slings, chains, wire rope chokers and any lifting apparatus must be inspected annually by a qualified external company recognized by OCHS/OSHA and following the Midga color code as set forth below:

The following colors would represent the year the item was inspected:

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<th>LAST #</th>
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<tr>
<td>0 or 5</td>
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<tr>
<td>1 or 6</td>
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<tr>
<td>2 or 7</td>
<td>Green</td>
</tr>
<tr>
<td>3 or 8</td>
<td>Red</td>
</tr>
<tr>
<td>4 or 9</td>
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Note: A copy of the inspection should be readily available and kept in each site maintenance file.

4.6.3 Daily visual inspections are intended to detect serious damage or deterioration, which would weaken the sling before it is put in use. The inspection is usually performed by the person using the sling in a day-to-day job.

4.7.0 Manbasket Safety:

4.7.1 A bridle sling used to support the basket must have a master link or shackle to evenly distribute the weight.

4.7.2 The bridle sling and any other rigging attachments used for manbasket hoisting shall not be used for any other purpose.

4.7.3 Before personnel use a basket, trial lifts with the anticipated weight must be made to any location(s) where the basket may be positioned. 
Note: trial lifts shall be performed every time the crane is repositioned.

4.7.4 The total weight of the loaded platform and related rigging shall not exceed 50% of the rated capacity for the radius and configuration of the crane.

4.7.5 The number of employees occupying the personnel platform shall not exceed the number required for the work being performed.

4.7.6 If the hoist line is non-rotating wire rope, the safety factor must be 10:1.

4.7.7 A crane must have a flip over, positive type device.

4.7.8 The crane must have a flip over, positive type hook latch on cable hook.

4.7.9 Manbasket must be lowered under power.

4.7.10 Equipped with anti-stop block devise.

4.7.11 Personnel in manbasket must be tied off to cable above headache ball and not to basket.

4.7.12 The BASF supervisor, in charge of the job requiring a manbasket, must approve the use of a manbasket prior to the commencement of the job.
4.8.0 Training

4.8.1 All employees who operate mobile cranes and boom trucks, shall be certified to ANSI B30.5 standard prior to operating and recertified every four years.

4.8.2 All employees who are required to conduct rigging operations shall be certified to the ANSI B30.5 standard and recertified every four years.

5. RESPONSIBILITIES
Each department will adhere to all crane and lifting procedures. These rules specify techniques and procedures for operating equipment, periodic inspections, and personal protective equipment required.

6. RELATED DOCUMENTS

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<thead>
<tr>
<th>Section Revised</th>
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