1.0 Policy

Serious injury or death can be the result of improper use of cranes or through the use of cranes with defective or poorly maintained components. The Occupational Safety and Health Administration (OSHA) estimates that most of these types of accidents can be prevented if proper safety precautions at job sites are initiated. This poses a serious problem for exposed workers and their employer. The OSHA Crane safety standards establish uniform requirements to ensure that the hazards associated with the use of cranes in U.S. workplaces are evaluated, safety procedures implemented, and that the proper hazard information is transmitted to all affected workers.

2.0 Purpose

Sunbelt Controls will ensure that all cranes used within our facility(s) are evaluated. This standard practice instruction is intended to address comprehensively the issues of; evaluating the associated potential hazards, communicating information concerning these hazards, and establishing appropriate procedures, and protective measures for employees.

3.0 Responsibility

The Risk Manager is in charge of all safety included that which is related to cranes and rigging. He or she is solely responsible for all facets of this program and has full authority to make necessary decisions to ensure success of the program. The Risk Manager is the sole person authorized to amend these instructions and is authorized to halt any operation of the company where there is danger of serious personal injury.

4.0 Written Program.

Sunbelt Controls will review and evaluate this standard practice instruction on an annual basis, or when changes occur to regulatory standards that prompt revision of this document, or when facility operational changes occur that require a revision of this document. Effective implementation of this program requires support from all levels of management within this company. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of number of workers employed or the number of work shifts. It is designed to establish clear goals, and objectives.

4.1 General Requirements

Sunbelt Controls will establish crane safety and operational procedures through the use of this document. This standard practice instruction applies to cranes used in conjunction with other material handling equipment for the movement of material. No crane or hoist shall be operated beyond manufacturers specifications or limitations. All cranes shall meet the applicable requirements for design, inspection, construction, testing, maintenance and operation as prescribed in the ANSI B30.5-1968.

4.2 Initial Training.
All employees whose work operations are, or maybe, in an area where cranes may be utilized, shall be instructed to an awareness level concerning hazards associated with cranes. This shall include:

- Specific operational details of the intended load, path, resting place and limitations.
- Recognition of applicable hazards associated with the work to be completed.
- Load determination and balancing requirements.
- Procedures for stopping crane operations.

5.0 Certification

All crane operators must have in their possession a state certification card indicating that they have passed all requirements of California Title 8, section 5006.1 which includes requirements for written testing, physical exams and usage of appropriate load charts etc.

6.0 Safe Operating Practices for Operations

Whenever any crane is used, the following safe practices (as a minimum) shall be observed:

- Always check warning devices and signals before use.
- Always ensure cranes shall not be loaded in excess of their rated capacities.
- Always ensure the new location will support the weight?
- Always keep employees clear of lifted and or suspended loads.
- Always keep suspended loads clear of all obstructions.
- Always position the hook directly over the load before lifting.
- Before being lifted, loads will be checked for proper balance.
- Follow the manufacturer's recommendations; Never exceed manufacturers limitations.
- Hands must clear of the suspension means and the load during lifting.
- Know your travel path in advance of the lift.
    - Know where you're going to set the load down.
    - No one is ever allowed under a live load.
- Loads will in all cases be properly balanced to prevent slippage.
- Never allow riders on loads or hooks.
- Signalers must keep line-of-sight with the operator.
- Signalers must watch the load.

7.0 Safe Operating Practices for Signalers

All hand signals shall comply with ANSI standards. Whenever any crane is used, the following safe practices (as a minimum) shall be observed:

- Prior to initiating lift operations, the designated signaler must demonstrate to the operator proficiency with hand signaling and the operator can understand the signals.
- Ensure that only one person is the designated signaler.
- Ensure the operator acknowledges every signal.
- Know the new location will support the weight.
- Maintain line-of-sight with the operator.

- Operators must watch the signalers.
- Plan in advance where the load is going.
- Stop the operation any time comprehension is lost.

8.0 Rigging

- All rigging hooks and hooks on cranes, except shagging hooks shall have a safety latch.
- Each sling shall be accompanied with a "Sling Rating Tag". This tag will identify the maximum amount of load the sling is able to sustain and cannot be loaded beyond this limit.
- Slings, hooks, and other rigging equipment shall be used in accordance with their designed purpose and manufacturer specifications.
- Tag lines shall be used to guide and control loads that are being lifted and moved. Employees shall not be allowed to guide loads directly with their hands.
- Employees shall be required to keep clear of loads being moved and lifted.
- Employees shall not be permitted to ride on any suspended load or rigging equipment not designed for manlift.
- Employees shall ensure that no one is under a suspended load.
- Rigging equipment such as nylon slings, and wire rope slings shall not be used in conjunction with personnel fall protection equipment or fall protection systems. This includes using rigging equipment as anchor points, beam wraps, or an extension of a fall arrest system.
- Rigging shall not be stored in the immediate area of operations when not in use.

9.0 Estimating the Weight of Loads

Lifting will not be conducted until load weights have been determined. When estimating load weights operators will stay within 50% of the cranes rated capacity when estimating loads (or manufacturer recommendation). Never attempt a load lift based solely on a guess. The following methods may be used to estimate the weight of loads.

- Check equipment nomenclature plates.
- Check shipping papers.
- Consult with the equipment manufacturer.
- Estimate weight using weights of similar loads.
- Use a dynamometer.
- Use industry standard tables or charts.

10.0 Crane Inspections

Where not otherwise delineated, crane inspections will be conducted in accordance with this section. The crane owner must specify a competent person to perform all inspections, or a government or private agency recognized by the U.S. Department of Labor.

10.1 Inspection Intervals

- **Daily Inspections –** Cranes will be inspected each day before being used, the crane will inspected in accordance with OSHA, Consensus Standards, and Manufacturer

recommendations. The opertator must be considered competent by the crane owner for these inspections.

- **Scheduled Inspections –** The crane owner will coordinate inspection dates and times with all assigned crane inspectors. Such inspections shall in no event be at intervals greater than once every 12 months.
- **Inspection Documentation –** Scheduled inspections will be documented as having been conducted (reference the form under Appendix 13-A). A copy of the inspection records must be located with the crane.
- Ensure load charts, capacities are clearly posted at operator's station.
- Ensure fire extinguisher rated at least for 10AB is located at operator station.

10.2 Altered Cranes

No modifications to any crane equipment that could affect safe operations are allowed unless specific written approval from the crane manufacturer.

11.0 Pre-operational Testing Requirements

Pre-operational tests will be conducted prior to use of any crane. Testing requirements will be determined on the basis of, frequency of crane use; severity of service conditions; nature of lifts being made; experience gained on the service life of cranes used in similar circumstances, and OSHA, Consensus Standards, and Manufacturer recommendations. Typical requirements include:

11.1 Pre-operational Tests – General (reference Appendix 13-B)

- Check for obstructions in the travel path of the crane.
  - See below for overhead obstructions
- Check upper and lower limit switches.
- Ensure all emergency disconnects are known before any test.
- Ensure that the manufacturers recommendations are followed.
- If you have a checklist - follow it.
- If you're not familiar with the cranes' operation get help.
- Inspect all electrical controls for proper operation.
- Never unwind the spool completely.
- Observe for smooth operation of the components.
- Test all controls to determine proper operation.
- If operating crane in an enclosed area, ensure there is no exposure to toxic gasse or oxygen deficient atmosphere.

11.2 Pre-operational Tests – Hooks:

- Replace if deformation or cracks are found.
- Check for proper function of the safety latch.
- Inspect for twists from the plane of the unbent hook.
- Check for proper swivel.
- Hook repair is generally not recommended.
- Emergency hook repair must be performed only under competent supervision.

- After any hook repairs, the hook must be load tested before being returned to normal service.

11.3 Pre-operational Tests – Wire Rope:

- Broken or worn outside wires.
- Corroded or broken wires at end of connections.
- Corroded, cracked, bent, worn, or improperly applied end connections.
- Reduction in rope diameter (replace if found).
- Severe kinking, crushing, cutting or unstranding.

12.0 Overhead Wire Obstructions

Any overhead wire shall be considered to be an energized line unless and until the person owning such line or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded;

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

For lines rated over 50 kV., 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 twice the length of the line insulator, but never less than 10 feet.

13.0 References

OSHA 29 CFR 1910.179 Overhead and Gantry Cranes
OSHA 29 CFR 1926.550 Cranes and Derricks
OSHA 29 CFR 1903.1 The General Duty Clause
CMAA Spec. No. 70 & 74 Crane Operator's Manual

ANSI - ANSI/ASME B-30 series Cranes, Derricks, Hoists
ANSI - ANSI/ASME B-30.2 Overhead And Gantry Cranes Top Running Hoist
ANSI - ANSI/ASME B-30.10 Hooks
ANSI - ANSI/ASME B-30.11 Monorail And Underhung Cranes
ANSI - ANSI/ASME B-30.16 Overhead Hoists (Underhung)
ANSI - ANSI/ASME B-30.17 Overhead & Gantry Cranes (Underhung Hoists)
ANSI - ANSI/ASME B-30.18 Stacker Cranes
ANSI - ANSI/ASME B-30.21 Manually Lever Operated Hoists