RAISING-BLOCKING EQUIPMENT IN SHOP & FIELD WITH CRANE

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The following is a step-by-step procedure on how to complete a specific task or meet a facility specific requirement. Standard Operating Procedures (SOPs) are written for all identified critical tasks. By virtue of the hazard or complexity associated with critical tasks it is paramount that the SOP be followed as written. SOPs contain a listing of high-level hazards associated with the task, for detailed hazard analysis reference the applicable Task Hazard Assessments. SOPs do not replace the requirements contained in the company Standards, Codes, and Processes nor does it replace the need to comply with required legislation. Section 8.0 references documentation that the worker shall understand before work commences.

1.0 PURPOSE

- To establish a company standard to safely and effectively carry out work as it applies to raising and blocking equipment in the shop and field with a crane.

2.0 SCOPE AND APPLICATION

- This document applies to all company Heavy Construction Mining operations. Ensure all site-specific requirements are being met or exceeded before performing the task.

3.0 HAZARDS AND CONTROLS

- Unexpected movement of equipment or components.
    - All moving components are to be adequately retained and secured.
    - Lockout energy isolating devices with required lock and verify isolation.
- Pinch points from attaching the rigging to the lifting points or lugs.
    - Wear gloves while handling rigging. Do not put fingers or hands in between cables and lifting points or lugs.
- Poor communication leading to unstable lift and shifting load.
    - Develop and review a communication plan before the lift. Ensure all personnel understand the hand signals being used (if required).
    - Ensure all personnel involved have adequate communication and that communication is verified before the lift.
    - Designate a primary spotter with clear view of the load and clear communication with the crane operator.
- Lift failure while hoisting / raising heavy equipment with crane.
    - Inspect crane and rigging before use. Do not use defective or damaged equipment or rigging.
    - Verify all weights and specifications of equipment being lifted. Confirm the crane, rigging parts, and configuration are rated and/or exceeds the lifting capacity required for the load to be lifted.
    - Verify equipment is clean of all material.
    - Lift equipment at approved lifting points.
    - Do not pull on an angle or drag materials with the crane.

- Rigging failure.
    - Prior to the lift, a competent rigger must inspect rigging equipment for damages and defects.
    - Make sure all rigging, including shackles, hooks and slings are rated and/or exceed the lifting capacity required for the load to be lifted.
    - All personnel will maintain an adequate safe distance from suspended loads. No worker shall stand or pass under a suspended load.
    - The perimeter of the work area is to be closed off with barricade tape and tagged to prevent unauthorized personnel from entering

- Raised equipment striking, pinching, or crushing a person while positioning stands under raised equipment.
    - Whenever possible, use forklifts to position stands under equipment.
    - Never take a position where you could be pinned or caught if the suspended load failed.
    - Keep all your body below the height of the stands.
    - Set out barriers to keep other persons out of the crane operation area.
    - Only make a lift if there is adequate space to maneuver properly.
    - If carrying a lift through a congested area, have multiple spotters.
    - Double check all conditions and clearances before and during the lift.

- Machine falling because of failure of a support stand.
    - Verify that the stands are approved by an engineer and the stamped load limit meets or exceeds the load being placed on the stands.
    - Stands must be thoroughly inspected by a competent individual prior to use. Ensure stands are current with their annual inspection and certification.

4.0 CHECKLIST

- ☐ Attend all preparatory meetings (IE: daily PSI; job scope; review of JSA's and SOP's for the job)
- ☐ Complete FLRA cards before starting the work.
- ☐ Ensure all personnel involved in the task are aware of the hazards and the controls to be used, as identified in the SOP's; JSA's; and FLRA's
- ☐ Conduct a pre-job inspection of all equipment to be worked on and tools to be used.
- ☐ **Standard of Training required for working on this job: On-the job training.**

5.0 DEFINITIONS

5.1 Company

Means North American Construction Group Ltd. (NACG) and all directly or indirectly owned subsidiary companies, including joint ventures.

5.2 Company Personnel

Includes the Company's employees, officers, directors, agents, associates, consultants/contractors, temporary employees, and third-party processors.

5.3 HSE

Refers to the Health, Safety & Environment department.

6.0 PROCEDURE

1) Review the task and determine the load weights being lifted. Complete hazard assessment (i.e. FLRA) and associated lift plans and or JSAs if the load exceeds 75% capacity of the crane.
2) Verify all moving components are adequately secured and the equipment is locked out and tagged. Follow 950C-C-028 Hazardous Energy Isolation Code.
3) Identify the appropriate lifting and blocking points of the equipment to be lifted. In most cases the lifting and blocking points are clearly labelled on the framework of the equipment. However, they may be difficult to see due to material build-ups or fading. Some of the older equipment models are not labelled. If you are unsure about lifting or blocking point, reference the OEM.
4) Close off and tag the perimeter of the work area where the lift will take place with barricade tape to prevent entry by unauthorized personnel.
5) When using a shop overhead crane, in most cases, it will not be rated to lift the equipment all at once. The equipment will need to be raised and blocked one end at the time. One qualified person will be designated as the crane operator. The crane operator will at no time leave the crane unattended when a load is suspended. The crane operator will raise or lower the suspended load based on signals from the person setting the blocking stands or a designated signal person only.
6) When positioning stands, it is critical that personnel maintain body positioning in such a way as to prevent oneself from being caught or pinned if the suspended load were to fall. Whenever possible, use forklifts or pallet jacks to position stands underneath equipment.
7) Once the first end of the equipment is successfully raised and blocked, it is important to ensure the overhead crane is centered directly over the second lift. Even a small angle off center can change the center of gravity and allow the load to shift when hoisted, causing the blocked end of the equipment to become unstable.
8) Upon completion of blocking the second lift, verify the first stands are still securely in place before commencing work activities.
9) The barricade tape must be around the perimeter of the blocked equipment work area while the equipment is being raised and remain until its security is verified. Only authorized personnel are allowed inside the barricaded area.

7.0 NOTES

If this task is to be done by a method different than described in this SOP, the work must **STOP,** and the alternate method must be **DOCUMENTED** with an adequate hazard assessment tool such as a JSA. The document must be **APPROVED** by a supervisor before such procedures are implemented.

8.0 REFERENCES

- Alberta Occupational Health and Safety Act, Regulation and Code – {Part 6, Sections 59, 61-73, 88, 89-92.2, 3-95.1, Cranes, Hoists and Lifting Devices}
- Alberta Occupational Health and Safety Act, Regulation and Code – {Part 15, Sections 212(1), 212(2), 213, 214, 215, Managing the Control of Hazardous Energy}
- 950C-C-008 Cranes, Hoists and Rigging Code

- 950C-C-028 Hazardous Energy Isolation Code
- 960C-SOP-403 Crane Operation – Shop Bridge & Jib Cranes
- 960C-SOP-404 Mobile Crane Operation
- 962C-SOP-008 Signaling Equipment
- ASME Standard B30.9-2006, Safety Standard for Cableways, Cranes, Derricks, Hoists, Hooks, Jacks, and Slings.
- Manufacturers' (i.e.: CAT) Service Manual for weights, lift points, and blocking points

9.0 APPENDICES

No appendices.