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CRANE OPERATION - SHOP BRIDGE & JIB CRANE



Rev	APP Status	OCT 01, 2012 Rev. Date	Approved Status Description	R. Shemeliuk Prepared by	Tammy Siver Reviewed by	Barry Palmer Approved by
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3	APP	FEB 22, 2022	Approved	Andre Brule	Tammy Siver	Gilbert Schreyer
4	Draft	MAY 15, 2025	Approved	Andre Brule	Lisa Norris	Tammy Siver



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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, refer to 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 operating shop bridge and jib-type cranes.

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

- Overhead crane(s) failing and/or malfunctioning due to improper inspection and/or use:
 - Overhead crane(s) will only be operated by designated personnel or by trainees under the direct supervision of a designated person. Always operate the crane(s) within the manufacturer's specifications.
 - Competent and qualified workers will conduct inspections on the crane(s) to ensure the equipment is in safe operating condition. Ensure inspections are adequately documented.
 - Overhead cranes must be inspected at pre-use, periodic, and annual intervals. Annual inspections shall be conducted by a qualified third-party engineering firm and/or the equipment manufacturer. The inspection frequency may be increased based on the crane's usage, operating environment, and the manufacturer's recommendations.
 - On not operate any overhead crane found to be defective or damaged. The operator must immediately initiate lockout/tagout procedures and report the issue to their supervisor to prevent further use until the equipment is inspected and deemed safe.
 - Do not block, adjust, or disconnect limit switches.
- Overloading the crane, resulting in catastrophic failure:
 - Know the weights of components/parts to be lifted and/or suspended; always refer to OEM procedures for component/part information.
 - Read and understand the manufacturer's manual. Know and understand the capacity limits of the overhead cranes. Never exceed the crane's marked safe working limits (SWL).



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- Do not shock load the crane. If you suspect that the crane or its components have been subjected to shock loading, it must be removed from service, inspected by a qualified person, and re-certified for lifting.
- Unsecured rigging and rigging failure resulting in personal injury and/or property damage:
 - Thoroughly inspect all rigging components prior to use (e.g., lifting eyes, shackles, slings, and cables).
 - Ensure all rigging, including shackles, hooks, and slings, is rated and/or exceeds the lifting capacity required for the load to be lifted. Use softeners over sharp edges and as needed.
 - Secure unused sling legs to the hook. Do not drag slings or leave loose materials on a load being hoisted.
 - Remove slings, chains, or other rigging equipment from the crane hook after each lift or when the hook is left unattended. Ensure the hook is positioned at least 8 feet above the load or working area when not in use.
 - Place the sling eye onto the hoisting hook and ensure the safety latch is closed. Do not load the hook tip or hammer a sling into place.
- Crushing, line of fire, and pinch point hazards (striking people, objects, machines, or structures while maneuvering and making lifts):
 - Workers must inspect the travel path/area and remove all debris, unnecessary tools, and parts from the immediate work area prior to crane use. Only make the lift if there is adequate space to maneuver the load safely.
 - Do not side-load. Position the hook directly over the center of gravity so that the line of pull is vertical.
 - Use spotters in congested areas.
 - Flagging and tagging should be used to identify the lifting area. Workers are responsible for ensuring the flagging/tagging remains in place while the hazards are still present. Refer to 960C-SOP-004, Flagging, Tagging, and Barricading Hazardous Areas.
 - Do not work under suspended loads; Keep fingers, hands, and limbs away from pinch points and line of fire hazards.
 - Do not pass/carry loads over people. Operators are responsible for clearing the area prior to making the lift.
 - Tagline(s) will be used when handling suspended loads. Taglines can shift suddenly, unexpectedly, and forcefully. Always handle them with gloves. Never wrap a tag line around your wrist or forearm or in any other manner where you cannot instantly release your grip.



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- Never leave a suspended load unattended. Always lower the load to a safe position and ensure the rigging is unhooked from the crane hook when not in use.
- Ensure the load is stable prior to unhooking the rigging.
- Unclear communication resulting in personal injury and/or property damage:
 - Confirm method of communication (radio or hand signals). Discuss the signals prior to operating the overhead crane. Crane operators will not respond to unclear signals.
 - The crane operator will STOP immediately if the operator loses sight of a primary spotter.
 - Crane operators will only follow signals from the primary spotter unless an emergency STOP signal is issued.
 - Follow 962C-SOP-008 Signaling Equipment.
- Collision between two overhead bridge trolleys on the same rails/tracks:
 - The operator must verify and confirm the direction of travel before moving the bridge trolley.
 - Overhead crane(s) operating on rails, tracks, or trolleys will be equipped with a positive stop or limiting device. The purpose is to prevent the overhead crane(s) from overrunning their safe movement limits or contacting other cranes on the same rail, track, or trolley.

4.0 CHECKLIST

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

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



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Refers to the Health, Safety & Environment department

5.4 Limiting Devices

Motion detectors, proximity sensors, limit or travel switches, or other equally effective means.

5.5 Line of Fire Hazard

The travel path of a moving object or the release of hazardous energy intersects with an individual's body. Three major categories of fire incidents are caught-in or between incidents, struck-by incidents, and released energy incidents.

5.6 Pinch Point

Any point where it is possible for a body part to be caught between moving and stationary portions of equipment and/or load.

5.7 Shock Load

A sudden application of force or release of load. Any shock load requires the lifting device to be removed from service and re-certified for further lifting applications.

5.8 Side Pulling / Side Loading

Side loading occurs whenever the center of gravity of a load is not located directly under the crane hoist. This condition can happen if an operator attempts to lift a load that is not properly centered or if a hoist applies a horizontal force to a load that is not already suspended.

5.9 Slewing

The angular movement of a crane boom or crane jib in a horizontal plane.

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6.0 PROCEDURE

6.1 General Information

- 1) Supervisors must ensure workers are competent and qualified to operate the overhead bridge or jib cranes.
- 2) Overhead crane(s) will only be operated by designated personnel or by trainees under the direct supervision of a designated person. Always operate the crane(s) within the manufacturer's specifications.
- 3) Conduct a pre-use inspection on overhead cranes (overhead bridges or jib cranes) and document the inspection in the logbook. If deficiencies and/or damage are found during the inspection, stop the operation, tag out the crane, and report the issue to the supervisor immediately. Only designated, trained, and qualified technicians will perform repairs and/or maintenance on overhead cranes.

- a) Check operating controls,
- b) Check that the brakes and clutches are functioning properly,
- c) Ensure limit devices are operating correctly,
- d) Ensure hoist lines are spooled correctly and sheaves are free,
- e) Inspect the wire rope for damage,
- f) Inspect hooks and latches deformation and damage, cracks, and wear,
- g) Inspect swivels for freedom of rotation.



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6.2 Operating Overhead Bridge Crane(s)

- 1) Operators must be familiar with the overhead bridge crane operating controls.
- 2) Flag and tag the area if required. Use effective communication with crew members on the shop floor.
- Confirm the weight of the load, inspect the rigging, and ensure it is adequate for the lift. Damaged and/or defective rigging must be removed from service and disposed of immediately. Use softeners over sharp edges and as needed.
- 4) Complete visual inspection of the travel path. Ensure all ground personnel are clear and there are no obstructions prior to moving the crane/load.
- 5) Position the hook directly over the center of gravity so that the line of pull is vertical.
- 6) Operate the overhead crane(s) at a slow and controlled speed, avoiding sudden stops and quick starts. The operator will not leave the controls while the load is suspended.
- 7) Use a spotter if required,
 - a) Confirm method of communication (radio or hand signals),
 - b) Discuss the signals prior to operating the overhead crane,
 - c) Crane operators will not respond to unclear signals,
 - d) The crane operator will STOP immediately if the operator loses sight of the primary spotter,
 - e) Crane operators will only follow signals from the primary spotter unless a STOP signal is issued.
- 8) Tagline(s) will be used when handling suspended loads.
- 9) Ensure the load is stable prior to unhooking the rigging.
- 10) Ensure remote controls are turned off and placed in a non-congested, conspicuous area away from hazards when not in use.
- 11) Clean and organize the area, inspect all tools, rigging, and materials prior to placing them back in their proper location. Report all items found with deficiencies. Ensure the crane is positioned in the staging area with the hook in a raised position.

6.3 Jib Cranes

- 1) Operators must be familiar with the crane's operating controls.
- 2) Complete visual inspection of the swing area of the jib crane. Ensure all ground personnel are clear and there are no obstructions prior to moving the jib crane/load.



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- Confirm the weight of the load, inspect the rigging, and ensure it is adequate for the lift. Damaged and/or defective rigging must be removed from service and disposed of immediately. Use softeners over sharp edges and as needed.
- 4) Position the jib arm so that the jib crane hook is directly over the center of the load.
- 5) Operate the jib crane(s) at a slow and controlled speed, avoid sudden stops and quick starts.
- 6) Ensure the load is stable prior to unhooking the rigging.
- 7) Clean and organize the area, inspect all tools, rigging, and materials prior to placing them back in their proper location. Report all items found with deficiencies. Ensure the jib crane is positioned in the staging area with the hook raised to the top of the hoist.

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.
- For any load reaching or exceeding 75% of a crane's rated capacity, lift calculations will be completed by a competent person so that relevant and applicable factors have been considered and calculated. Review 950C-C-008 Cranes, Hoists, and Rigging Code for more details.
- When two or more cranes/hooks are used to lift one load, a lift plan and/or JSA will be developed to detail the operation and lift sequence. (refer to 950C-C-008 Cranes, Hoists and Rigging Code).

8.0 REFERENCES

 Alberta Occupational Health and Safety Act, Regulation and Code – {Part 6, Cranes, Hoists and Lifting Devices}

- 950C-C-008 Cranes, Hoists and Rigging Code
- 950C-C-022 General Housekeeping Code
- 950C-C-049 PPE General Code
- 960C-SOP-004 Flagging, Tagging, and Barricading Hazardous Areas
- 960C-SOP-022 Dropped Object Prevention
- 962C-SOP-008 Signaling Equipment
- 999C-F-032 Overhead Crane Inspection
- 999C-F-033-R2 Lift Plan Calculations Critical Lift Overhead Cranes

9.0 APPENDICES

- Appendix A Common Hand Signals for Controlling Overhead Bridge Cranes
- Appendix B Example of Overhead Bridge & Jib Cranes



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Appendix A Common Hand Signals for Controlling Overhead Bridge Cranes

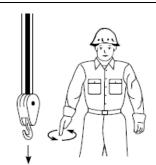


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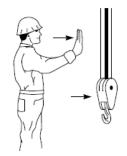
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HOIST. With forearm vertical, forefinger pointing up, move hand in small horizontal circle.



LOWER. With arm extended downward, forefinger pointing down, move hand in small horizontal circle.



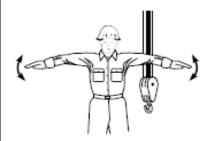
BRIDGE TRAVEL. Arm extended forward, hand open and slightly raised, make pushing motion in direction of travel.



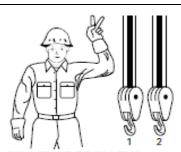
TROLLEY TRAVEL.
Palm up, fingers closed, thumb
pointing in direction of motion,
jerk hand horizontally.



STOP. Arm extended, palm down, move arm back and forth horizontally.



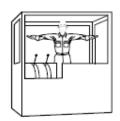
EMERGENCY STOP. Both arms extended, palms down, move arms back and forth horizontally.



MULTIPLE TROLLEYS.
Hold up one finger for block
marked "1" and two fingers for
block marked "2". Regular signals
follow.



MOVE SLOWLY. Use one hand to give any motion signal and place other hand motionless in front of hand giving the motion signal. (Hoist slowly shown as example.)



MAGNET IS DISCONNECTED. Crane operator spreads both hands apart palms up.



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Appendix B Example of Overhead Bridge & Jib Cranes

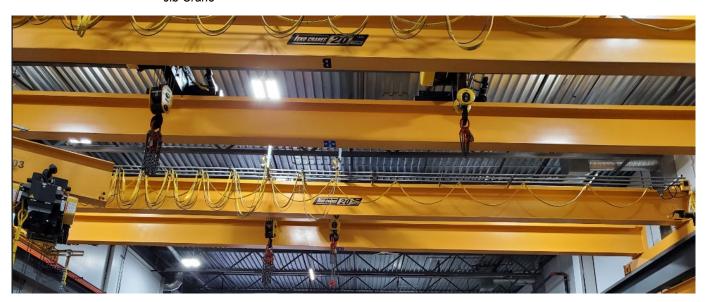


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Jib Crane



Overhead Bridge Crane

