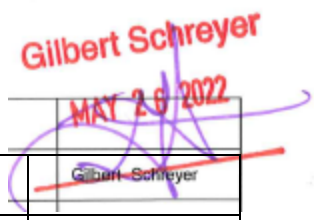
# ICE LUGGING TRACKS

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| 3 | APP | May 24, 2022 | Approved | Matthew MacIsaac | Tammy Siver | Gilbert Schreyer |
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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 ice lugging tracked equipment.

## 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

- Striking or crushing a worker while stands are being placed under the machine.
    - Whenever possible use forklifts, loaders, pallet jacks or other mechanical devices to position stands under the dozer.
    - Never place yourself in a position where you could be pinned or caught if the suspended load failed.
    - Keep your body lower than the height of the stands when under the machine.
    - Follow 960C-SOP-401 Raising-Blocking Dozers Using Hydraulic Attachments.
- Support stand failing causing damage to the machine or injury to workers
    - Determine how much of the machine's weight the stand must support during loading as well as once all stands are in place.
    - Verify that the stands are approved by an engineer and the stamped load limit meets or exceed 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.
- Machine slipping off stand.
    - Review the manufacturer's service manual for blocking points.
    - Make sure there is a barrier (i.e. piece of rubber, softener, etc.) between the stand and the machine to prevent shifting due to the steel-on-steel contact. Note: most engineered stands also have keepers on the top of the posts to prevent slippage.

- Uncontrolled movement of equipment.
    - Complete a live work checklist hazard assessment prior to the task.
    - Machine will be shut down and operator out of the cab whenever the welder does not need the machine running to turn the tracks.
- Worker caught by or in between the rotating track.
    - Clearly communicate between all workers that the track is going to rotate and ensure they are clear of the track.
    - The operator will only move the track when the welder at the front of the machine signals for a move.
- Pinch points created when track is turning (i.e. between track and stabilizer link).
    - Ensure all body parts and clothing are clear from the track and surrounding areas while track is turning.
    - Front welder will use the track turner to rotate the tracks while the rear welder has stepped clear from the machine and is in full view of the front welder.
    - Turn track in the reverse direction.
    - Optional: lift blade and support on stands to have better access to the right side track.
- Other personnel entering area while tracks are turning or ice lugs are being welded.
    - Flag off area to control access to machine.
    - Set up welding screens to protect other personnel from welding flashes and sparks.
- Slip, trip and fall hazards in the immediate work area.
    - Clean the tracks and frames as much as possible to control the material on the floor.
    - If required, sand / clear the area from snow and ice if work is being conducted outdoors.
- Mud and frozen material falling from machine and contacting welder.
    - Clean the tracks and frame as much as possible.
    - Ensure there is no hanging material or frozen lumps present.
    - Do not raise and block blade if the frame is not clean.
- Damaged or defective equipment and tools.
    - Inspect welder and tools prior to use. Tagout and remove from service any damaged or defective equipment and tools, notify supervision.

- Materials igniting due to sparks and slag.
    - Ensure proper housekeeping in the work area. Remove flammable and combustible materials from the work area. Alternatively, fire blankets and welding screens may be used to protect flammable and combustible materials.
    - Ensure there are no aerosol cans in the area.
    - Ensure oils and grease have been cleaned from equipment or covered adequately to prevent ignition.
    - Ensure a 20 lb. fire extinguisher is in the work area and immediately accessible.
- Damaging equipment or systems due to heat
    - Inspect equipment before task. Identify areas that could be damaged by heat exposure. Inert or cover areas.
    - Ensure fire suppression systems have been disarmed prior to working on equipment.
- Hot work hazards (i.e. sparks, fumes, flashes, etc.).
    - Follow 960C-SOP-307 Hot Work by Welders.
- Electrocution or electric shock.
    - Maintain proper grounding as close to the weld point as practical.
    - Avoid bodily contact between the ground cable and the stinger so the body does not become the
    - ground path.
    - Do not handle rods with wet hands/gloves.
- Personal injury such as but not limited to burns, flashes, and strains.
    - Keep the flame directed away from the body.
    - Do not touch hot surfaces with bare skin; keep the torch under control to keep the tip away from the body; beware of other people in range of torches, electric arcs, and hot metal.
    - Always maintain a controlled grip on the torch; keep the torch in the line of sight; turn the torch off and set down whenever two hands are needed or set the torch down in a supported position.
    - Wear additional body covering PPE such as leather chaps, apron, or jacket. Wear FR coveralls and ensure work boots have metatarsal protection.
    - Wear welding shield / helmet with a filter shade suitable for the type of welding being completed.
    - Place welding screens in area to prevent other workers from being exposed to welding flashes.
    - Identify hot objects and surfaces when leaving unattended.
- Complacency and strain injuries due to length of task and static body position.
    - Stretch before task. Take microbreaks if task is for long duration or in a cramped position.
    - Optional: lift blade and support on stands. This will create more room at the front of the machine and will allow the welder to sit on a stool while completing the task (better ergonomic position).

## 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

### 5.4 Ice Lug

Ice lugs are short pieces of grouser bar (typically 2"– 6" long) welded on top of the existing grouser. Ice lugs, also known as ice cleats, deliver increased stability and extra traction for dozers, excavators, or any other equipment during the winter months.

### 5.5 Live Work

Powered mobile equipment is fully functional (work performed without hazardous energy sources isolated). A Live Work Checklist must be completed prior to the task to identify the hazards and additional controls required. The checklist is to be reviewed and signed by all personnel involved in the work.

## 6.0 PROCEDURE

1) Complete a hazard assessment (i.e. FLRA) for task. Inform supervisor if unsure of task or if there are hazards outside of the worker's control.

2) Complete a Live Work Checklist and review with all workers to ensure everyone understands their role in the task. Discuss with supervision if unsure of task.

3) Check for oil and fuel leaks. If there are substantial fuel or oil leaks, contact the supervisor to have the repairs done before the welding starts. For oil leaks, place drip pans and shield them so hot sparks or slag cannot ignite the oil. For minor leaks, use floor dry compound to absorb oil and prevent pooling.

4) Place the machine on stands so the tracks can rotate. Refer to 960C-SOP-401 Raising-Blocking Dozers Using Hydraulic Attachments.

5) Remove the tires from under the tracks so they will not be pushed by the lugs when the track is rotated.

6) Isolate (lockout) machine and flag off area to control entry of unnecessary personnel.

7) Prepare the area.

- Set up weld screens or other barriers to block the weld flash.
- Clear out any debris or other tools and materials.
- Organize the weld point by:
    - Placing the weld machine and cable so they do not interfere with the welder's ability to get in or out of the work point.
    - Place the lugs in a bucket/box and set on a stand so they are easily grabbed.
    - Place a stool so the welder's position will not put a knee under the track.
    - Ensure there is adequate air movement to direct fumes away from worker and work area.

8) Remove locks and setup the machine as well as the perimeter for a live work task.

- Place a "Live Work or Live Testing" sign or tag on the machine where it is visible to anyone approaching the controls or cab.
- Review communication signals with all workers.

9) Weld the lugs.

10) Rotate the track.

- Both welders will have themselves and all their equipment clear of the track. The second welder will signal the front welder when they are clear of the machine.
- The front welder will signal the operator to enter the cab.
- The operator will enter the cab, start the machine, and advance the track until signalled by the front welder to stop.
- The operator will stop the track, place the machine in neutral, set the park brake and turn the engine off.
- The operator will remove the key, exit the cab, and signal the front welder. The front welder will signal the second welder, and both will set up to weld the next ice lug. Operator will remain outside the cab until signalled by the first welder to enter cab and rotate track again.

11) Take frequent microbreaks. The position for this task is static, so there is a need to stretch and flex to minimize aches and pains.

12) Repeat steps for the second track.

13) If the surface is concrete, replace the tires under the track and remove the machine from the stands.

## 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 Cranes, Hoists and Lifting Devices}
- Alberta Occupational Health and Safety Act, Regulation and Code – {Part 10 Fire and Explosion Hazards}
- 950C-C-028 Hazardous Energy Isolation Code
- 960C-SOP-013 Three-Point Contact While Climbing
- 960C-SOP-111 Live Work Working on Equipment While Running
- 960C-SOP-307 Hot Work by Welders
- 960C-SOP-401 Raising-Blocking Dozers Using Hydraulic Attachments.

## 9.0 APPENDICES

- No appendices.