RAISING-BLOCKING-LOWERING DOZERS USING HYDRAULIC ATTACHMENTS

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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 dozers using hydraulic attachments.

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

- Raised machine losing stability due to changing ground conditions.
    - Choose a level area for the lifting pad.
    - The dozer must be positioned on a suitable steel plate or concrete pad that can withstand the size and weight of the machine. An 8’ X 20’ X 1” T-1 steel plate is recommended.
        - When using a steel plate, secure the stands by welding them to the plate or by placing a barrier (i.e. ¾ inch plywood) to prevent shifting from the steel-on-steel contact. Note: most engineered stands have keepers on the top of the posts to prevent slippage. Do not weld on jack stands or other mechanical/hydraulic lifting devices (i.e. Mod U Lift).
- Dropping steel plate when transporting and placing.
    - A picker truck, forklift or loader with appropriate lifting attachments or c-clamps must be used to transport the steel plate.
    - Follow 960C-SOP-100 Transporting Steel Plates in Yard.
    - All personnel will maintain an adequate safe distance from suspended loads. No worker shall stand or pass under a suspended load.
    - Set out barriers to keep other persons out of the operation area.
    - Only move and place steel plate if there is adequate space to maneuver properly.
    - If carrying the steel plate through a congested area, have multiple spotters.
    - Complete an FLRA with all workers involved prior to the task.

- Hoisting/raising dozer with hydraulic attachments resulting in machine falling and striking an object or person.
    - Maintain positive contact with the dozer operator.
    - This is a Live Work Task. Follow 960C-SOP-111.
    - Stay clear of the dozer during lifts and while it is suspended by the hydraulics (other than to place the stands).
- Stands striking or crushing workers when being moved and positioned under dozer, workers straining muscles while positioning stands.
    - This is a Live Work Task. Follow 960C-SOP-111.
    - 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.
    - Know your body's limitations and do not overexert. Stretch prior to the task.
- 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.
- Stands slipping on steel plate due to steel-on-steel contact
    - When using a steel plate secure the stands by welding them to the plate or by placing a barrier (i.e. ¾ inch plywood) to prevent shifting due to the steel-on-steel contact. Note: do not weld on jack stands or other mechanical/hydraulic lifting devices (i.e. Mod U Lift).
- People or equipment slipping due to working outside on a frozen steel plate
    - Clean off ice or snow; identify icy areas; watch for slippage, especially of the stands; use salt & sand to add traction or remove frozen surfaces.

- Being struck by flying material from a ripper tooth breaking.
    - Always remove the ripper tooth from the shank before the shank is pressed to the floor to lift the machine.

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

The lifting procedure is the same in the field as in the shop. In order to lift and support the dozer with stands an adequate base must be established first. When working outside, or in an area where there is no adequate flooring, set up a steel plate on level ground as the base.

6.1 Preparing Work Area in the Field

1) Prepare the ground by making a level pad large enough for the steel plates and the service vehicle.
2) Use a crane, loader, or excavator to unload and place the steel plates to create at least an adequate working pad to support the dozer, stands and the ripper shank (8' x 20' plate of 1" thick T-1 steel pad is recommended).
3) Walk the dozer onto the plates and lower the attachments.

6.2 Raise and Block Machine

1) This is a live lock out task. All persons involved will review and agree upon the steps and actions to be taken to raise and lower the machine. A live work checklist must be completed and an agreed upon communication method must be established. This information will also be on the JSA and/or FLRA card(s).

2) Using barricade tape, close off the perimeter of the work area where the lift will take place. This will prevent entry by unauthorized personnel. The barricade tape will remain around the blocked dozer's work area for the duration of time it is raised.

3) Using a crane, loader, or forklift, place the rear support stand(s) each side of the ripper. Place the front support stands to the side of the push arms at the blade knuckle.
   - The stands used to support the dozer must be certified and rated to support the weight of the dozer being lifted.
   - The stands must be stamped with a current engineering stamp and the weight the stand is rated to support.

4) Maintain positive communication with dozer operator.

5) Identify the appropriate lifting and blocking points of the dozer to be lifted. In most cases lifting and blocking points are clearly labelled on the framework of the dozer. However, some of the older dozer models may not be labelled. If you are unsure about lifting or blocking points, ask your supervisor for help.

6) Remove the ripper tip before using the ripper to lift the dozer.

7) Instruct the dozer operator to lower the ripper arm against the steel plate or floor. This will cause the dozer to rise. Instruct the operator to stop when the rear of the dozer is high enough to get the stand(s) under.

8) The dozer operator will stand outside the cab while the stands are being placed.

9) When positioning stands it is critical that personnel maintain body positioning to prevent one from being caught or pinned if the suspended load were to fall. Whenever possible, use forklifts, pallet jacks or other mechanical devices to position stands underneath equipment. Note: Working under a suspended load may be considered a life saving rule violation. Every attempt possible must be made to position the stands under the machine using mechanical aids. If a person must be under a suspended machine, a JSA must be completed, and supervision needs to approve the task. The worker must always keep their whole body below the height of the stands.

10) Place the support stand(s) under each frame rail at the identified lifting/blocking points. Be aware of your body's limitations so as not to cause a strain injury. Place a barrier (i.e., rubber, softener, etc.) on top of the stand to prevent shifting due to the steel-on-steel contact and reduce the chance of slipping.

11) Clear the area and instruct the dozer operator to raise the dozer's ripper until the dozer is resting firmly on the support stands.

12) To prevent accidental movement, weld the bases of the support stands, or an edge around the bases, to the steel plate, and make sure a barrier was placed between the stand and the steel plate.

13) Clear the area and instruct the dozer operator to lower the dozer blade forcing the front of the dozer to rise. Instruct the operator to stop when the front of the dozer is high enough to place the stands under the push arm and the undercarriage. If more height is needed, place timbers under the blade near each end.

14) The dozer operator will stand outside the cab while the stands are being placed.

15) Use forklifts, pallet jacks or other mechanical devices to position the stands under the equipment. Place the support stand(s) under each frame rail at the identified lifting/blocking points. Be aware of your body's limitations so as not to cause a strain injury. Place a barrier (i.e., rubber, softener, etc.) on top of the stand to prevent shifting due to the steel-on-steel contact and reduce the chance of slipping.

16) Clear the area and instruct the dozer operator to raise the dozer's blade until the dozer is resting firmly on the support stands.

17) To prevent accidental movement, weld the bases of the support stands, or an edge around the bases, to the steel plate, and make sure a barrier was placed between the stand and the steel plate.

18) Shut down the dozer; perform the de-energization and lock out the machine.

19) The barricade tape will remain around the perimeter of the blocked dozer work area for the duration of time the dozer is raised. Only authorized personnel are allowed inside the barricaded area.

6.2.1 Optional Step

Some tasks may require the dozer's blade to be blocked as well. Prior to de-energization assemble stands on either side of the dozer's push arms. Clear the area of personnel and instruct the operator to raise the blade. Once the blade is high enough to position the stands under the push arms, instruct the operator to stop. Whenever possible, use forklifts or pallet jacks to position stands underneath equipment. Place the support stands under each push arm. Be aware of your body's limitations so as not to cause a strain injury. Place a barrier (i.e., rubber, softener, etc.) on top of the stand to prevent steel on steel contact and reduce the chance of slipping. Clear the area and instruct the operator to lower the blade.

6.3 Remove Stands and Lower Machine

Reverse the steps in Section 6.2.

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 2021 – {Part 6, Section 69(3) Under a Suspended Load}
- Alberta Occupational Health and Safety Act, Regulation and Code 2021 – {Part 6 Section 113 (3) working under suspended loads}
- Alberta Occupational Health and Safety Act, Regulation and Code 2021 – {Part 15, Sections 212(1), 212(2), 213, 214, 215, Managing the Control of Hazardous Energy}
- Manufacturers' (IE: CAT) Service Manual for blocking points
- 950-C-008 Cranes and Hoists and Rigging Code.
- 50C-C-028 Hazardous Energy Isolation Code
- 960C-SOP-100 Transporting Steel Plates in Yard.
- 960C-SOP-111 Live Work – Working on Equipment while it is Running

9.0 APPENDICES

No appendices.