

STANDARD OPERATING PROCEDURE

SIGNALING EQUIPMENT

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SIGNALING EQUIPMENT

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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 signaling 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

- Limited visibility between spotter and equipment.
 - Spotters will wear reflective clothing and remain in direct line of sight with equipment operator.
 - Light wands/batons will be used in reduced visibility (i.e. low light).
 - If more than one spotter is required, a primary spotter will be designated. The primary spotter will wear an arm gauntlet identifying them as the primary spotter. Other items may be used to identify the primary spotter; these items must be approved by supervision and documented on FLRA.
 - Secondary spotters will remain in direct line of sight of primary spotter.
 - Equipment will STOP immediately if operator loses sight of primary spotter.
- Pinch point between spotter and equipment.
 - Spotters will not position body between equipment (i.e. when backing light vehicle to equipment trailer, spotter will not stand between the vehicle and trailer).
 - Equipment will **STOP** immediately if operator loses sight of primary spotter.
- Spotter struck or crushed by material being moved.
 - Spotters will not stand under suspended load.
 - Loads will not be lifted over spotters.

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- Spotters will stand outside of swing radius of load.
- Congested work areas leading to equipment contact.
 - Use flagging and/or barricades to identify work area and prevent other equipment or personnel from entering.
 - Use multiple spotters.
 - Use traffic control.
- Unclear communication.
 - Confirm methods of communication (radio, hand signals, horns, etc.) before the task.
 - Review hand signals with all participants.
 - Hand signals may have limitations when distance or visibility prevents the operator from seeing the spotter clearly. Use alternative methods such as radios if required.
 - Confirm radio channels before use. Use isolated channels to prevent interruption or request radio silence. Walkie-talkies may also be used.
 - Equipment will **STOP** immediately if operator loses sight of primary spotter.
 - Equipment operators will only follow signals from primary spotter unless a **STOP** signal is issued.
 - Equipment operators will not respond to unclear signals.
- Overhead hazards.
 - Inspect area prior to task. Observe for overhead hazards and determine clearance distances required.
 - Where possible, conduct task away from overhead hazards.
 - Follow site specific rules as well as 950C-C-042 Overhead Hazards – Limits of Approach when working near power lines. Encroachment permits may be required as well as additional controls such as air horns.
- Line of fire with spotter and equipment.
 - Spotters will not position body directly behind equipment or vehicle.
 - Spotters will follow 962C-SOP-042 Approaching Equipment for equipment safe limits of approach.
- Uneven, slippery ground conditions.

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- Inspect ground conditions prior to task.
- Where possible, level ground and remove large lumps. Do not stand in ruts.
- Add sand to reduce slipping.
- Spotters will wear traction aids in icy conditions.
- Spotters will not stand in the line of fire of equipment should it start to slide.
- Equipment will **STOP** immediately if operator loses sight of primary spotter.

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

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. Equipment operators and all ground personnel must have a pre-work meeting prior to any work commencing that will involve ground personnel signaling equipment.
2. FLRA – a field level risk assessment must be completed by the operator and ground personnel together to identify the hazards and lines of communication that will involve equipment signaling.
3. The meaning of all hand signals to be utilized for the safe completion of the task shall be determined and understood by all individuals involved in the work.
4. If conditions change revisit FLRA and re-assess as a group to ensure the task can be completed safely.
5. All spotters are required to wear appropriate PPE and approved reflective clothing while signaling equipment.
6. During low light conditions, light wands must be used.
7. No spotter will ever place their body or portion of their body under a suspended load or potential pinch point.

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8. One designated signal person will be the primary spotter. Primary spotters will be identified by arm gauntlet or other effective identifier.
9. Secondary spotter must remain in full view of the primary spotter at all times.
10. The operator will only move on the primary spotter's signal. The operator shall obey a STOP signal at all times, no matter who gives the signal.
11. No movement of the equipment shall take place unless the operator has a clear view of the primary spotter.
12. All movement shall stop immediately if the primary spotter makes unclear signals or is not in full view of the operator.
13. All equipment movement must be slow, smooth, and controlled.
14. The equipment operator will follow the established procedures for horn signals.
15. If any load must be secured or manipulated the equipment operator must lower all implements, shut down engine, and follow established lockout procedure where reasonably practical.

6.1 Acceptable Hand Signals

There are many hand signals used in industry and mining. The most important factor in signaling equipment safely is the pre-work meeting where all task specific hand signals are discussed and confirmed by all involved parties. If any hand signal is used that has not been discussed and confirmed, the operator will stop immediately and the FLRA is to be revisited.

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 12, Section 191}
- 950C-C-008 Cranes, Hoists and Rigging Code
- 962C-SOP-042 Approaching Equipment

9.0 APPENDICES

- Appendix A – Recommended Hand Signals
- Appendix B – Recommended Excavator Hand Signals

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Appendix A Recommended Hand Signals

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RECOMMENDED HAND SIGNALS

HAND SIGNALS FOR DIRECTING VEHICLES



DISTANCE TO STOPPING POINT

Face palms forward, with hands above head. Bring elbow forward and hands together.



TURNS

Point one arm to indicate the direction to turn.

Bend monitoring arm repeatedly toward head to indicate continued turning.



PROCEED SLOWLY

FORWARD
Always face palms in direction of desired travel.



BACKWARD
Then bend both arms repeatedly toward head and chest, and then extend.



CLEAR TO LEAVE AREA

Point at the driver and gain eye contact.



Turn and extend arms in desired direction.



EMERGENCY STOP

Start with hands clasped over head. Extend downward repeatedly until vehicle stops.



STOP

Cross both arms above head.



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Appendix B Recommended Excavator Hand Signals

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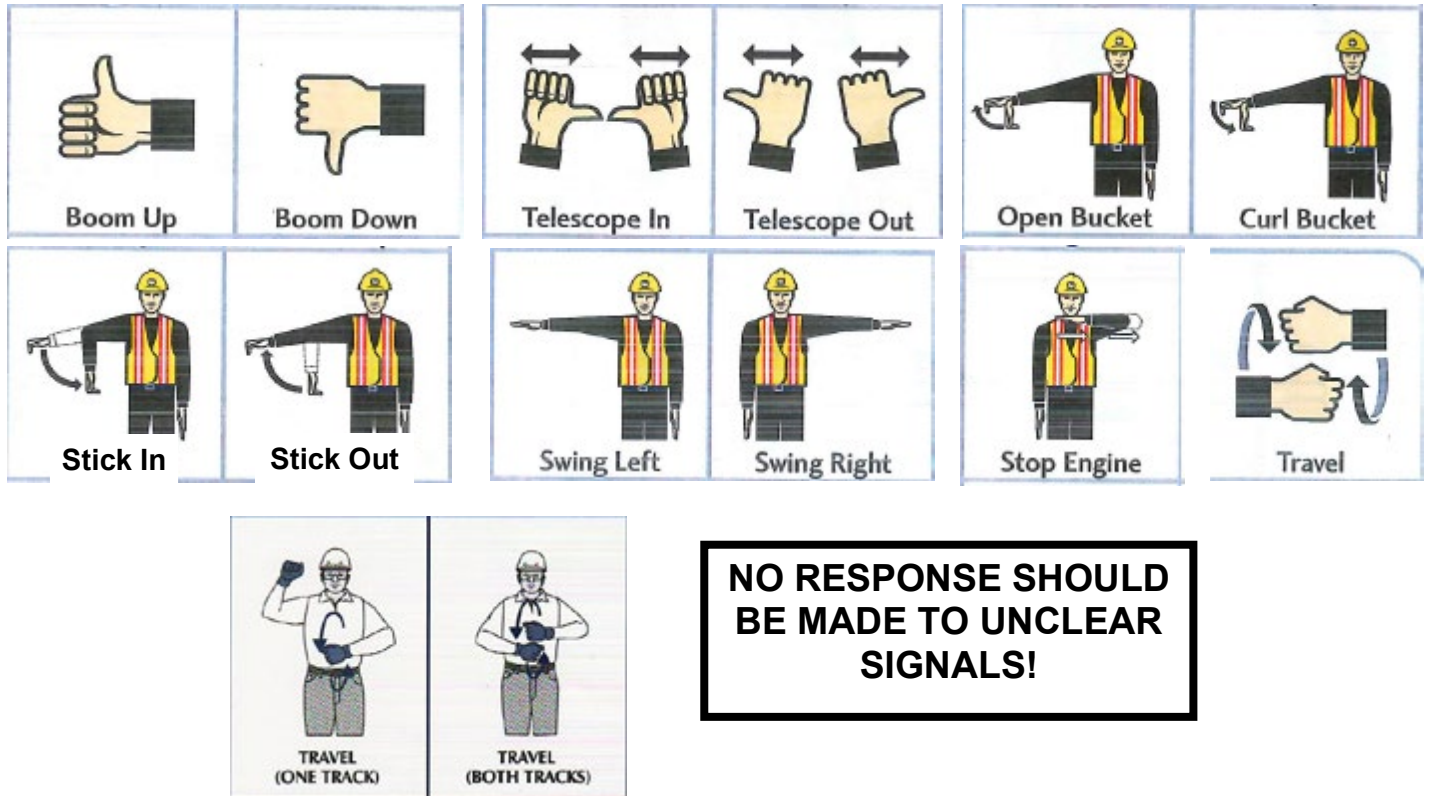
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RECOMMENDED EXCAVATOR HAND SIGNALS



**NO RESPONSE SHOULD
BE MADE TO UNCLEAR
SIGNALS!**