

STANDARD OPERATING PROCEDURE

TRANSPORT, SET UP & OPERATION OF PORTABLE LIGHT PLANTS

Document Number: 962C-SOP-004

Original Approval Date: Jan 31, 2014

Revision Number: 5

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Latest Revision Date: June 14, 2022

Next Revision Date: June 14, 2025

Document Approval Level: 4

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TRANSPORT, SET UP & OPERATION OF PORTABLE LIGHT PLANTS



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Rev	Status	Rev. Date	Status Description	Prepared by	Reviewed by	Approved by

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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 the transport, set up and operation of portable light plants.

2.0 SCOPE AND APPLICATION

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

3.0 HAZARDS AND CONTROLS

- **Improper set up of equipment leading to personal injury and equipment or property damage.**
 - Conduct an FLRA prior to starting task. Review manufacturer's specifications and safety decals to understand the type of light plant being set up.
 - Workers/Laborers to have completed light vehicle and light plant set up practical and theoretical training.
 - Inspect equipment prior to use and ensure all safeguards are in place and working. Ensure tongue jack is functioning prior to connecting/disconnecting light plant from light vehicle. Do not manually lift light plant tongue onto hitch.
 - Follow set up procedures included in this document.
 - Select a level location for set up, preferably higher than the area to be illuminated.
 - Utilize a spotter for positioning in congested areas or areas of low visibility.
 - Chock the unit's wheels prior to disconnecting from tow vehicle. Use a minimum of 2-wheel chocks (one in front and the other behind wheel). Wheel chocks will remain set up during connecting/disconnecting and operation of light plant. Ensure light vehicle is turned off or park brake/emergency brake applied prior to disconnecting light plant.
 - Once the tow vehicle has been disconnected ensure it is moved a minimum of one truck length away from the light plant.

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- Fully extend all outriggers and lock into place. If the unit is equipped with rear outriggers, ensure they are down and extended prior to leveling with tongue jack to prevent unit from tipping over.
- Ensure the unit is leveled prior to erecting the mast. The mast may not telescope properly when the unit is not level, creating a potentially dangerous situation.
- Ensure all personnel are out of the line of fire prior to raising or lowering the mast and ensure there are no overhead hazards.
- Ensure the light plant is positioned so that workers are not forced to look directly into the light or forced to work with the light behind them, thus creating shadows in the work area.
- Ensure fire extinguishers are in place, clearly accessible and in proper working order.
- If the light plant is to be used as a power source for a structure (i.e. trailer) it must be properly grounded by an electrician and a transfer switch must be used.
- If the light plant is to be used as a power source for portable electrical tools and equipment a GFCI must be used and the equipment/tools must be double insulated.
- All light plants operating in a greenfield or environmentally sensitive location will have a spill tray installed beneath the unit. Spill tray usage in brownfield locations will be determined by client requirements.
- Where there is a potential for heavy equipment to contact a light plant (i.e. in an operating environment) the light plant must be adequately protected from contact. Use physical barriers such as berms or place the unit in a high location away from the equipment's immediate work area.
- In non-operating environments where there is no potential for heavy equipment to contact a light plant (i.e. office complexes, intersections, laydowns, etc.) the light plant must be adequately identified and alternative barriers (i.e. cement blocks, cones, jersey barriers, barricades, etc.) may be used as protection.
- Light plants must be well marked with reflective delineators and/or cones so as to increase their visibility when not in operation.
- **Improper startup of equipment leading to personal injury and equipment or property damage.**
 - Follow start up steps included in this document.
 - Ensure all circuit breakers are in the off position prior to starting.
- **Improper demobilization of unit for transport leading to personal injury and equipment or property damage.**
 - Follow demobilization procedures included with this document.

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- Retract mast fully prior to lowering to prevent tip over; ensure workers are not in the line of fire prior to retracting the mast.
- Ensure mast locking pin is engaged prior to removing the pivot locking pin at bottom of pivot post. This prevents mast from extending during transport.
- Allow lamps to cool prior to shutting down engine.
- Ensure ground rods have been removed from area so as to avoid tire damage and tripping hazards.

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, light plant training.**

5.0 DEFINITIONS

5.1 Greenfield

Undeveloped areas with no permanent structures; environmentally sensitive area.

5.2 Brownfield

Developed area, may have permanent structures.

5.3 Company

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

5.4 Company Personnel

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

5.5 HSE

Refers to the Health, Safety & Environment department

6.0 PROCEDURE

6.1 Choose a Location:

- Do walkthrough of area to be illuminated.
- Place the light plant where those working under the lights are not:
 - Forced to look into the light regularly

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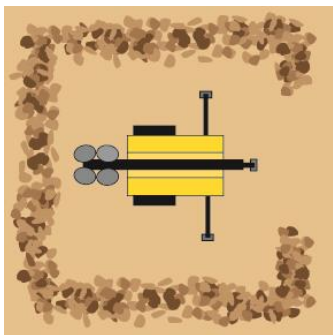
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- Forced to work with their backs to the light (shadows will block the light from the work area).
- Position the unit where the ground is level and the mast is higher than the area to be illuminated (reducing shadow length).
- Unit must be leveled to ensure trouble free telescoping of mast. The mast may not retract properly when the unit is not level thus creating a dangerous situation.

6.2 Setup:

- Inspect set up location (dunnage may be required).
- Determine outrigger positioning for stability.
- Chock the unit's wheels by placing chocks in front of and behind one wheel (DO NOT USE SANDBAGS). Wheel chocks will remain installed during connecting/disconnecting and operation of the light plant. Mark the perimeter of the light plant with reflective delineators/cones and barriers (non-operating environments) or berms (operating environments). Install the berms such that there is an access point for light vehicles to tow the unit, the unit remains accessible to service personnel and that there is no potential for berm material to contact the light plant. Alternatively the light plant may be placed in a high location away from the equipment's work area to reduce the potential of heavy equipment contact.

Example of a bermed light plant:



- Swing the tongue jack into position and raise the tongue off of the tow vehicle hitch. Move tow vehicle a minimum of one truck length away from the light plant.
- Extend rear outriggers until the springs lock in place. Swing the jack on each outrigger into a vertical position.
- Extend the jacks to level the unit.

WARNING:

Ensure that the rear jacks are down to prevent the tower from tipping over backwards when tongue jack is extended.

- The unit must be grounded using a grounding rod if it is to be used as a **power source for a structure** (call electrician). **Grounding rods must be fully driven into the ground.**
- Remove the pivot locking pin from the cradle at the rear of the cabinet.
- Using the winch raise the mast to the vertical position. The pin at the base of the pivot post will lock automatically and you will "hear" it "snap" into place. Insert manual pin into the locking device.

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- Release the tension on the cable by backing the winch off slightly and “pull” the mast locking pin on the mast section. Keep pin extended while using the winch to extend the mast. After the mast has extended slightly the locking pin can be released.
- Raise the mast to the desired height. Ensure no personnel are standing in the line of fire.

CAUTION:

Do not attempt to lower the light tower without fully retracting the mast first. Serious damage or injury could result from unit tipping over!

6.3 Startup:

- ENSURE THE MAIN CIRCUIT BREAKERS ARE OFF! This prevents the engine from starting under load which could damage the electrical equipment due to a power surge.
- Check oil and fuel levels.
- Turn ignition switch to “run” position.
- Press pre-heat primer button for a **maximum** of 7 seconds (longer may cause damage).
- Turn ignition switch to the “start” position to engage the engine. After the engine starts release the switch to the “run” position.
- Allow the engine sufficient time to warm up.
- Following warm-up, switch the main circuit breakers to the “on” position.
- Switch the lighting breakers to the “on” position. It may take up to (2) minutes for the bulbs to illuminate.
- Rotate the tower to position the lights as needed.
- Tighten the tower rotation locking bolt.

6.4 Demobilization:

- Switch the lighting breakers to the “off” position and allow the bulbs to cool for a minimum of (10) minutes.
- Switch the main circuit breakers to the “off” position.
- Switch the engine to the “off” position.
- Loosen the rotation locking bolt.
- Using the winch, retract the mast to its fully retracted position. You will hear the locking pin “snap” into place.
- Insert mast locking pin (manually).
- Rotate light bar to the travel position.
- Pull out pivot locking pin at the base of the mast.
- Let out the winch cable to lower the mast into the cradle. Ensure no personnel are standing in the line of fire.
- Insert locking pin into horizontal locking position.

6.5 Transport:

- Connect the light plant to the tow vehicle, ensuring the hitch is securely locked and tow chains connected. Tow chains must be in a basket or crisscross configuration.
- Raise all jacks, restore and lock outriggers and tongue jack to travel position.

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- If applicable, remove grounding rods, plates or wires from area.
- Remove wheel chocks.
- Connect wiring harness and check brake, tail and turn signal lights if transporting in traffic areas or public roadways.
- Ensure that pintle hitches are removed from all light vehicles and stowed safely after the light plant has been disconnected. Pintle hitches may remain attached if the immediate next task is to move a light plant.
- NOTES:
 - The unit may be transported with the light fixtures mounted on the cross-arm if they are pointed towards the ground.
 - Circuit breakers & lights must be **OFF** prior to transport; engine can be left running.

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 – Part3, Section 12 Specifications and Certifications
- 950C-C-011 Electrical Safety Code
- 950C-C-013 Equipment Guarding Code
- 950C-C-010 Driver Safety Code
- CSA Standard 22.1 Canadian Electrical Code
- CSA Standard M421 Use of Electricity in Mines
- Refer to specific equipment manufacturer instructions

9.0 APPENDICES

- No Appendices.