# COMPRESSED AIR AND AIR HOSES

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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 using compressed air and air hoses.

## 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

- Injuries or damage due to failing hoses, clamps and couplings which may be damaged or unsuitable for the equipment or task.
    - Inspect hoses for damage, wear, and defects prior to use. Do not use bare hands to locate a leak.
    - Hoses should be kept clean of grease, oil, dirt and debris
    - Ensure hoses are rated for the amount of pressure to be used. Inspect clamps for damage, wear, and secure connection to hose. Hoses should be visibly labelled with the maximum pressure rating to ensure compliance at all times.
    - Ensure “quick connect” fittings are securely connected and locked prior to using air tool.
    - Ensure “Chicago” fittings are locked and pinned with approved pins (absolutely no wire to be used).
    - Ensure “Chicago” connections are fitted with whip check cables.
    - Ensure the locking springs on the hose reel are working effectively.
    - Hoses should be kept organized, out of the way of walkways, and should never be bent or kinked, during or after operation.
    - If an air hose should burst, do not attempt to grab it. Follow the line back to its end and trace the pipe supply until you find a shut-off valve.
    - Use only crimp style hose clamps.
- Striking people or equipment with material or debris moved by compressed air.
    - Ensure air compressors are in proper working order prior to use.
    - Ensure portable compressors are on level ground and secured against movement prior to start-up.
    - Review and follow appropriate machine “start-up” and “shut-down” procedures as per manufacturer.
    - Ensure pressure regulators are in proper working order and set to deliver safe working pressures as defined by manufacturer of tool to be attached to compressor.

- Ensure the valve(s) to the hose connectors are closed.
- Do not use compressed air to clean dust or debris from yourself or others.
- Ensure pressure is relieved from connected hoses and tools prior to disconnecting.

- Exposure to electrical shocks causing bodily injury or damage to the compressor.
  - If an outlet isn't grounded correctly, it can result in electrical shocks and significant damage to the compressor.
  - Pay close attention to your air compressor's voltage. If repairs are needed, power down the machine, lock and tag out all power sources and release all pressure from the compressor.
  - If the compressor is designed for indoor use, don't use it outdoors, as rain or wet conditions can cause electrical problems.
  - Before performing maintenance work, shut off the machine and disconnect it from all power sources.

- Hazardous fumes generated from gasoline and diesel operated compressors.
  - Gas-powered and diesel-powered compressors produce dangerous fumes, so it's important that you only use them outside or in an area with ventilation extraction.
  - Only smoke in designated smoking areas, away from potential ignition sources.

- Sparks created from the electrical contacts of an electric compressor.
  - Always operate the compressor in a well-ventilated area free of combustible materials, gasoline and vapors.

- Portable air compressors placed on unstable ground.
  - Locate a flat, stable work area for your air compressor. Do not place the air compressor on a surface that is unstable or uneven.

- Starting fires or puncturing airlines with grinding slag when air arcing or gouging.
  - Remove all flammable / combustible materials from the path of grinding slag.
  - Utilize barriers such as weld screens to contain the slag/grindings.

- Compromised air tank damages such as rust or puncture damage.
  - Inspect air tank as part of daily inspection. If it appears damaged, bleed the tank of air, and have an authorized dealer determine examine it so they can recommend the proper course of action.

- Noise exposure.
  - Wear hearing protection suitable to the occupational noise exposure limit as defined by the jurisdiction. In most situations, single hearing protection may be required. However, double hearing protection may be required depending on the task. Review task with supervisor to determine the appropriate level of hearing protection.

- Utilize mufflers / diffusers.
- Direct air stream and control the air release to minimize the volume and force.

- Incorrect maintenance or upkeep of the compressor and air hoses
  - Pressure-regulating equipment should never be changed, replaced, or adjusted by anyone other than competent personnel.
  - Follow manufacturer recommendations for servicing and maintenance.

## 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 Compressed Air

Compressed air is air kept under a pressure that is greater than atmospheric pressure. Compressed air is an important medium for transfer of energy in industrial processes and is used for power tools such as air hammers, drills, wrenches and others, as well as to atomize paint, to operate air cylinders for automation, and can also be used to propel vehicles.

### 5.5 Air Hose

An airline is a tube, or hose, that contains and carries a compressed air supply.

### 5.6 Air Compressor

A compressor is a mechanical device that increases the pressure of a gas by reducing its volume. An air compressor is a specific type of gas compressor. Compressors are similar to pumps: both increase the pressure on a fluid or gas, and both can transport the fluid or gas through a pipe.

## 6.0 PROCEDURE

1) Complete a hazard assessment (i.e. FLRA) for the task and determine the type of equipment to be used. Notify supervision if unsure of task or how to use equipment or if there are hazards outside of the worker's control.
2) Inspect all components of the air compressor and air hose. Tagout and remove from service any defective or damaged equipment. Report to supervisor.
3) Inspect the immediate work area to ensure ventilation is in place.
4) Unreel or uncoil enough air hose to reach the work point
5) Start the compressor noting the pressure gauge increase and the cut-in / cut-out pressure levels.
6) Listen for any air leaks from all airlines or hoses. Do not continue if there are any leaks.
7) Adjust the pressure regulator to suit the particular work requirements.
8) Continue to check pressures at regular intervals during normal operation.

## 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 10 Fire and Explosion Hazards}
- Alberta Occupational Health and Safety Act, Regulation and Code – {Part 25 Tools, Equipment and Machinery}
- Tools and compressor manufacturers' operating manual
- 950C-C-045 Power Tools Code
- 950C-C-028 Hazardous Energy Isolation Code
- 960C-SOP-500 Rad Gun Operation
- 960C-SOP-502 Safe Use of Grinders
- 960C-SOP-505 Powered Hand Tools
- 960C-SOP-308 Air Arcing – Gouging Metal

## 9.0 APPENDICES

- No appendices.