ABRASIVE BLASTING

						Tammy Siver
2	APP	Sep 08, 2025	Approved	Andre Brule	Lisa Norris	Tammy Siver
1	APP	Oct 16, 2020	Approved	Andre Brule	Tammy Siver	Stan Miller
Rev	**Status**	**Rev. Date**	**Status Description**	**Prepared by**	**Reviewed by**	**Approved by**

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 abrasive blasting.

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

- Personnel not trained, qualified, or competent to operate the blasting equipment.
    - Supervisors must ensure that workers involved in blasting activities are trained, competent, and understand the task prior to using the blasting equipment.
    - The operator is responsible for completing the Blast Booth Daily Checklist prior to commencing work (see Appendix D) and reporting any conditions affecting the safe operation of the blasting equipment to the supervisor.
    - The operator must be familiar with the operating functions of blasting equipment before operation. This includes emergency shut-off, Deadman switches, a first aid kit, and an eye wash station.
    - The operator is responsible for ensuring all non-blasting personnel are out of the blasting booth before starting.

- Equipment contact, property damage, and/or personnel injury while moving skid, parts, and components into the blasting booth
    - The equipment operator will complete a visual inspection of the equipment used to transport parts and components into the blasting booth (e.g., forklift, loader, skid steer, etc.). The equipment operator must also ensure the equipment is rated for the load.
    - Spotters will be used when moving parts and components in/out of the blasting booth. Spotters will maintain eye contact or use two-way radios to communicate.
    - Travel at slow and controlled speeds.
    - Before moving parts or components, ensure there are no obstructions and/or obstacles in the way.
    - Stay clear of crushing and line of fire hazards and use good communication. The equipment operator must ensure ground personnel are clear of the load prior to setting in position.
    - Ensure the skid is set in the tracks prior to moving. Parts and components must be secured to the frame/skid. Use slow speeds and spotters when moving the skid into the blast booth.

- Clean all parts, components, and skids prior to entering the blast booth (this will help to prevent media contamination).

- Improper isolation during bi-monthly inspection and maintenance resulting in personal injury.
  - Supervisors will ensure workers are trained, competent, and understand how to perform the bi-monthly inspection and/or maintenance on abrasive blasting equipment.
  - Follow isolation process and ensure the unit is locked out and deenergized prior to performing inspection and/or maintenance (see Appendix A for locking out equipment).
  - Read and understand the manufacturer's procedures when conducting inspections and maintenance on the blasting equipment.

- Abrasive blasting equipment failing during use, resulting in personal injury and/or property damage.
  - Use the correct equipment, hoses, fittings, couplers, and accessories that are designed or intended for abrasive blasting. Nozzle must be properly sized and rated for blasting.
  - Ensure all abrasive blasting equipment is inspected prior to use. Look for any breaks in the hoses, loose fittings, loose whip checks, and wear in the nozzle. If any defects are found, work will not proceed until repairs are made.
  - Inspect and test the Deadman system, ensuring everything is functioning prior to starting work. This includes the doors entering the blast booth and the dead man switch located on the blast hose.
  - Inspect the lighting inside the booth, ensure lights are on and have protective coverings installed, prior to starting work. Ensure exit lights are illuminated.
  - Ensure whip checks are used on hoses to prevent the end of the hoses from whipping around if a coupling connecting two hoses breaks.

- Improper handling or storage of abrasive blasting materials resulting in injury, fire hazards, and equipment damage.
  - Store material away from incompatible materials and keep dust away from sources of ignition. Keep dry to reduce rusting.
  - Ensure to read and understand the safety data sheet (SDS) on blasting material before handling.

- Poor air quality, visibility, and noise conditions during blasting activities.
  - Use and wear all required personal protective equipment (PPE) when abrasive blasting, which includes: NIOSH-approved air-fed respiratory hoods (Nova 3 abrasive blasting helmet), blast suit, hearing protection, long leather gloves, and approved safety boots.
  - Workers must ensure air supply and filters for the helmet are in proper working condition and inspected prior to each use.
  - Workers must ensure that the protective blasting helmet peel-away protective face shield covers are in place prior to use.
  - Review and understand the safety data sheet (SDS) on the material used for blasting.

- High-pressure system, heavy lifting, slips, trips, and falls resulting in musculoskeletal injuries (sprains/strains) and personal injury.
    - Stretch before and during the task. Take micro breaks as needed and always use both hands when controlling the blasting nozzle/airlines.
    - Maintain control of the nozzle/airlines and never point the nozzle at yourself or other personnel.
    - Use good ergonomics and proper lifting techniques when handling heavy, awkward objects. Anything over 50lbs requires assistance.
    - Operator is responsible for maintaining a clean working environment. Eliminate hazardous surface obstacles that may cause slipping/tripping hazards or interfere with workers' mobility.
    - Operator is responsible for positioning hoses out of the line of fire. Inspect the walking path prior to blasting.
    - Keep all floor grating and screens in position/ closed during operation.
- Personnel unaware of emergencies or unable to report if they are injured or fall during blasting activities.
    - Supervisor or designate must physically check on the worker during blasting activities. Check-in intervals will not exceed two (2) hours (follow 962C-SOP-006 - Working Alone).
    - In the event of a building evacuation, the supervisor and or lead hand must notify the abrasive blaster.
- Uncontrolled movement of equipment, parts, and components being blasted.
    - Ensure equipment has been isolated from movement. All parts and components being blasted must be secured to prevent unintentional movement.
- Falling from elevations resulting in personal injury.
    - Work from approved platforms or equipment landings, wear fall protection equipment when working over 6 feet (follow 950C-C-016 Fall Protection Code).
    - Only trained personnel shall operate elevated work platforms. Ensure hoses and supplied air lines are not fastened to the handrail while it is being raised. Use rope to pull hoses and supplied air lines up to elevation.
- Abrasive blasting on fuel tanks resulting in ignition and/or explosion.
    - Steam or hot water flush; inert with CO_2, or Argon; use a gas monitor to determine the level of flammable/combustible gases within the tank (follow 960C-SOP-306 Fuel Tank Repairs by Welding).

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 Deterioration

Excessive wear, damage, fractures, fatigue, or distortion.

5.4 HSE

Refers to the Health, Safety & Environment department.

6.0 PROCEDURE

6.1 General Procedure

1) The supervisor and workers will discuss the task and plan the safest way to approach the work. During that time, workers will complete a hazard assessment (i.e. FLRA) to identify the hazards in the area.
2) Complete a visual inspection of the equipment used to transport parts and components into the blasting booth.
3) Complete inspections on equipment, parts, and components to be blasted, ensuring parts and components have been cleaned prior to entering the blast booth. All parts and components being blasted must be secured to prevent unintentional movement.
4) Follow the isolation process and ensure the unit is locked out with a personal lock/tag and deenergized prior to performing inspection and/or maintenance.

6.2 System Start-up

1) Shut the air supply off at the blast manifold and the bleed down manifold.
2) Perform blast booth daily inspection at the beginning of each day or shift - **Ensure system is shut down.**
3) Complete the daily checklist and record all information. Any deficiencies must be reported and repaired.
4) Clean and inspect the rotary classifier. Remove pieces of wire, steel, wood, paper, and other large trash picked up by the system. Do not depend on the reclaim to remove all items from the system.
5) Make sure discharge pipes and hoses are clean and not clogged.
6) Empty trash receptacles for undersized and other trash; do not let them overfill.

7) Make sure the dust collector hopper is empty.
8) Empty barrels if necessary.
9) Examine the Magnahelic gauge – If the reading exceeds “5.5”, contact your supervisor and/or maintenance. The system must be running for this check.
10) Check abrasive dust for the carryover of good abrasive. Good abrasive should not be present. If it is present, contact the supervisor or maintenance.

6.3 Starting and Running Blast Booth

1) Perform a complete inspection of all abrasive blasting equipment before use. Examine hoses for any signs of damage, wear, or cracks. Make sure all fittings are tight and whip checks are properly installed. Check the blast nozzle for any wear, deformation, or erosion.
2) Verify that the air supply system for the operator’s helmet is working correctly. Inspect air filters and supply lines to ensure they are clean and confirm that airflow is steady and unobstructed.

   NOTE: If any defects are discovered during inspection, do not proceed until all required repairs or replacements have been completed.
3) Test the Deadman safety system before starting blasting operations. Ensure the Deadman switch on the blast hose functions properly. Verify that the blast booth door interlocks are operational and will prevent the system from running if a door is open.

   NOTE: All booth doors must be completely closed for the blast booth to operate correctly.
4) Turn on the following systems, these must remain on throughout all blasting and blow-off operations: Dust Collector, Longitudinal Screws, Bucket Elevator and Cross Screw.
5) Ensure that all hoses are positioned to eliminate tripping hazards. Plan your movement path through the booth before beginning any blasting work.
6) Begin the blasting sequence using the following technique:
   a) Maintain overlapping passes at a steady, consistent speed.
   b) Keep the nozzle positioned 6 to 12 inches from the work surface.
   c) Hold the nozzle at an angle between 75° and 90°, depending on the desired surface profile.
   d) Continuously move the nozzle to prevent over-blasting or causing heat-related damage (such as warping or pitting).
7) Shut down and follow the general cleanup.

6.4 General Cleanup After Blasting or at the End of Each Shift or Day

1) Keep all floor grating and screens in proper position during operation.
2) Clean the room, sweeping (or vacuuming) all grit from the floor.
3) Look and listen for any abnormal sounds from the elevator, augers, motor, and dust collector. Contact your supervisor and/or maintenance if any deficiencies are found.

4) Run the system for 10 minutes before shutting down at the end of the day.
5) Confirm the entire reclaim system is running.

6.5 Adding Abrasive Material

1) Make additions sparingly so as not to overload the system.
2) Keep abrasive 12” below the separator lip.

6.6 Mod-U-Blast Cabinet Operation

1) Complete an inspection of equipment, parts, and components to be blasted. Ensure gloves and hoses are in good condition, free from any damage, and replace them if needed.
2) Check the moisture trap regularly and drain when needed.
3) Check the media hose for soft spots. Especially at the hose ends at the gun metering valve.
4) Do not overfill the sump. Periodically drain completely and replace media if needed.
5) After loading Mod-U-blast with parts and components. Make sure the lid is closed and locked.
6) Clean up after.

Note: If the Media does not flow from the gun, check for clogged valves and/or media hose. Blow back through the gun and media hose. If the media starts to flow, then it stops again, drain the media, and replace it. Disassemble gun, media hose, and metering valve; clean all internal parts and reassemble. If air does not flow, drain and clean the moisture trap.

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 18, section 255 - Abrasive blasting operations}
- Alberta Occupational Health and Safety Act, Regulation and Code – {Part 15, Section 212 – 214 – Isolation}
- Alberta Occupational Health and Safety Act, Regulation and Code – {Part 29 – WHMIS}
- The National Institute for Occupational Safety and Health (**NIOSH**)
- 950C-C-016 Fall Protection Code
- 950C-C-022 General Housekeeping Code
- 950C-C-028 Hazardous Energy Isolation Code
- 950C-C-036 Manual Materials Handling Code
- 950C-C-047 PPE - Eye and Face Protection Code
- 950C-C-050 PPE - Respiratory Protection Code

- 950C-C-061 WHMIS & Hazard Communication Code
- 950C-C-063 Working Alone Code
- 960C-SOP-001 Elevated Work Platform
- 960C-SOP-019 Slip Trip and Fall Hazard Prevention
- 960C-SOP-112 Air Line Control and Dangers
- 960C-SOP-306 Fuel Tank Repairs by Welding
- 962C-SOP-006 Working Alone
- 962C-SOP-009 Manual Lifting and Carrying Heavy Objects
- 962C-SOP-008 Signaling Equipment

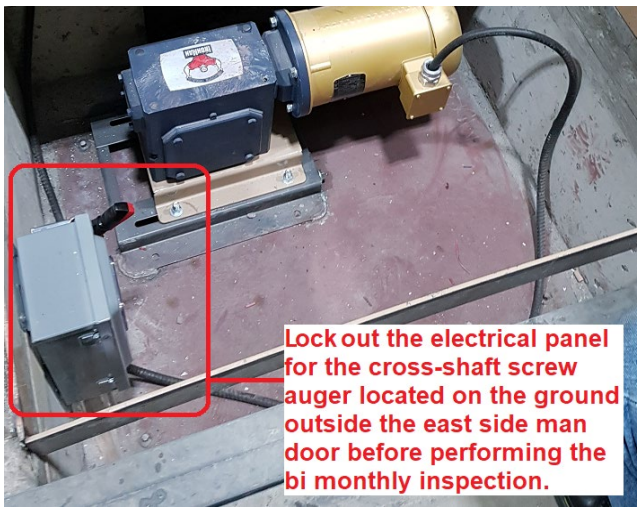
9.0 APPENDICES

- Appendix A - Locking Out the Abrasive Blasting Equipment During Bi-monthly Inspection
- Appendix B - Main Control Panel, Warning and Safety Decals
- Appendix C - Types of Abrasive Blasters
- Appendix D - Blast Booth Operator Daily Checklist
- Appendix E - Blast Booth Operator Bi-Monthly Checklist

Appendix A Locking Out ABS - Abrasive Blasting Equipment During Bi-Monthly Inspection

ABS – Below Floor Sweep in Recovery Blast Room

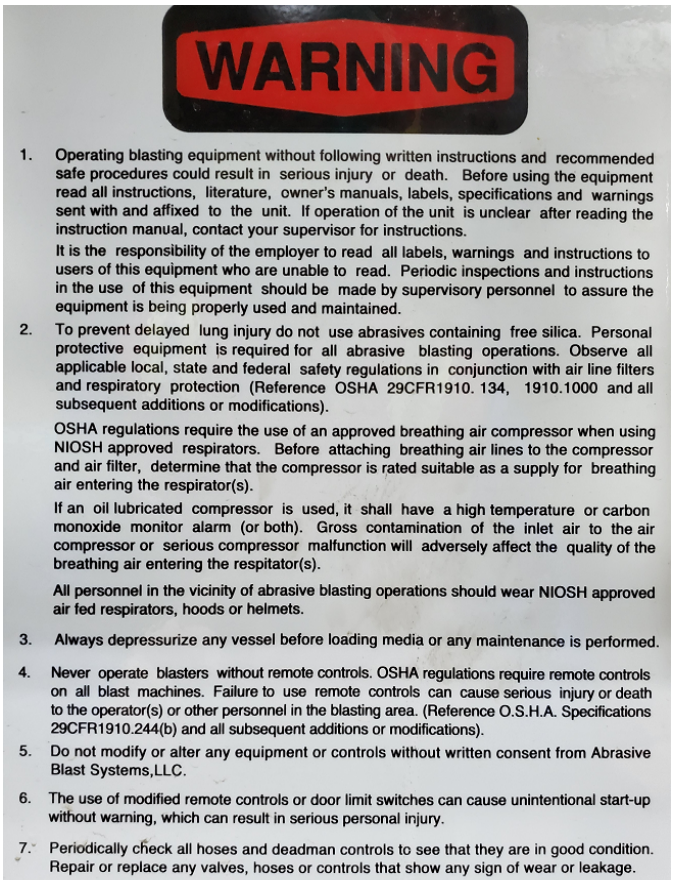
ABS – Electrical Panel



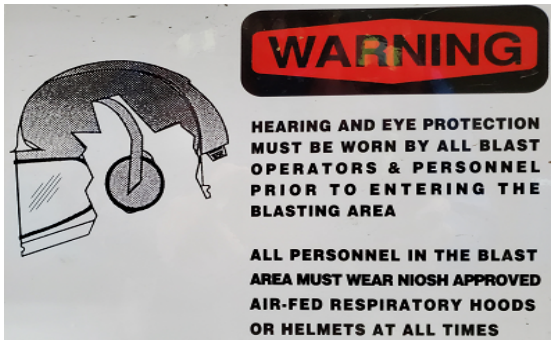
ABS – Cross Shaft Auger Electrical Panel

Appendix B Main Control Panel, Warning and Safety Decals

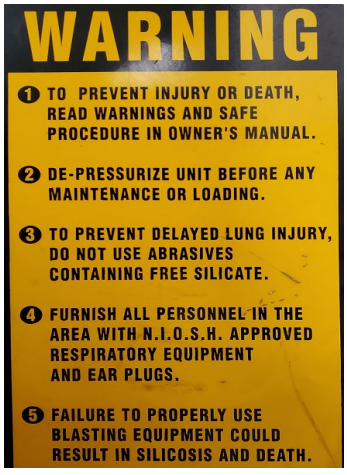
ABS – Below Floor Sweep in Recovery Blast Room control panel and warning decals



ABS – Below Floor Sweep in Recovery Blast Room



ABS – Below Floor Sweep in Recovery Blast Room



Mod-U-Blast Abrasive blaster

Appendix C Types of Abrasive Blasting Equipment

ABS – Below Floor Sweep in Recovery Blast Room

Mod-U-Blast Cabinet Abrasive blaster – Used for small parts and components

Appendix D Blast Booth Operator Daily Checklist

Blast Booth Operator Daily Checklist

Inspector: _____ (First Name) _____ (Last Name)

Signature: _____ **Date:** _____

Hour Meter Reading: _____ (Start of Shift) _____ (End of Shift)

Key	Inspection Description	Needs Repair	OK
Pre-Operational Checks	**Power OFF, LOTO, Turn Air Off & Bleed Air Lines**		
1	Has the Bi-Monthly Check Been Completed		
2	Inspect Jacket and Nozzle Liner		
3	Check Nozzle Holder		
4	Check Deadman Controls for Correct Function, Damage and Strain Reliefs for Damage		
5	Check Whip Hose for Cracks, Wear, Damage		
6	Check Blast Hose for Cracks, Wear, Damage, Check Couplings and Gaskets for Damage and Wear		
7	Check Respiratory Breathing Air Hose for Cracks, Wear or Damage, Check Quick Couplers for Damage and Wear.		
8	Reclaim System - Check and Clean Screens above Blast Pots		
9	Reclaim System - Check and Clean Air Wash Gate		
10	Reclaim System - Check and Clean Rotary Classifer (On Top of Hopper) Follow LOTO Procedures.		
11	Reclaim System - Inspect Discharge Pipes and Hoses, Make sure they are clean and free of obstructions.		
12	Empty All Trask Recepticals		
13	Dust Collector System - Inspect Dust Collector Drums - Empty if 1/2 full.		
14	Inspect Dust - Undersize Trash Barrels and Over Flow Trash Barrels - Empty if 1/2 Full		
Operational Checks	**Power ON, Turn Air ON**		
1	Look and Listen - Any Abnormal Sounds from, Elevator, Augers, Motors, Dust Collector.		
2	Dust Collector - Primary Filters - What is the digital Reading of the Differential Pressure Monitor - If over 5.5 filters must be replaced.		
3	Dust Collector - Secondary Filters - What is the reading on the manual gauge - If over 2.5 the secondary filters need to be replaced		

Concerns:

Appendix E Blast Booth Operator Bi-Monthly Checklist

NORTH AMERICAN CONSTRUCTION GROUP

Blast Booth Operator Bi-Monthly Checklist

Inspector: _____ (First Name) _____ (Last Name)

Signature: _____ **Date:** _____

Hour Meter Reading: _____ (Start of Shift) _____ (End of Shift)

Key	Inspection Description	Needs Repair	OK
Bi-Monthly Checks	**Power OFF, LOTO, Turn Air Off & Bleed Air Lines**		
1	Perform all items on the Daily Operator Check List.		
2	Follow LOTO Procedures, Inspect All Bearings - Remove inspection plates and check bearings for damage.		
3	Follow LOTO Procedures, Inspect All Auger Drives and Chains.		
4	Inspect all Felt Seals to ensure grit is not leaking.		
5	Follow LOTO Procedures, Remove Plates on Bottom of Elevator and inspect bottom pulley and bearings.		
6	Follow LOTO Procedures, Check Top Elevator Pulley.		
7	Make sure none of the ducting has collected abrasive in it.		
8	Follow LOTO Procedures, Check Blower for any signs of wear or wobble (Power Off)		
9	Follow LOTO Procedures, Inspect All Augers for foreign objects, Additionally check them to make sure they are running true.		
Operational Checks	**Power ON, Live Testing Procedures,Turn Air ON Requires 2 Technicians to Complete**		
1	Follow Live Testing Procedures, Inspect Bearings - System Running- Look for Damage or Bearing Wobble		
2	Follow Live Testing Procedures, Inspect Auger Drives and Chains - Look for Binding, Alignment, Noise, Loose Chain		
3	Follow Live Testing Procedures, Inspect Bottom Elevator Pulley and Bearings - Look for Damage, Bearing Wobble, Loose Belt		
4	Follow Live Testing Procedures, Inspect Top Elevator Pully and Bearings - Look for Damage or Bearing Wobble		
5	Follow Live Testing Procedures, Inspect all Augers to check they are running true.		
6	Close both Blast Media Gates above Blast Pots - Run the System in Blast Mode, you will have to blast for a while to lower the Blast Media Levels in the Blast Pots - Turn Off the System - Check everthing on the Blast Pots to make sure it is operating correctly - Remove the screens from the top of the Blast Pots - Inspect the Pop Up seal and ensure it is sealing the dish correctly. Clean & Replace the screens, reopen the Media Gates.		
7	On all New model Systems - DO NOT Grease or Oil anything. All components are life time lubricated and sealed. If a Bearing or Gearbox Fails it must be replaced.		

Concerns: