OPERATION OF PAINT GUN & PAINT BAY SYSTEMS

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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 operating paint guns and paint bay systems.

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

- Fire and/or explosion, resulting in property damage and/or injury.
    - All ignition sources shall be removed from the paint area. Use intrinsically safe equipment, such as fans and air movers, if necessary.
    - When equipped, verify that all equipment, parts, and components to be painted are securely grounded to ensure safety and prevent electrical risks.
    - Spray in well-ventilated areas with good air circulation.
    - Keep the work area free of debris that could contribute to a fire, such as open or empty paint cans, solvents, paint thinners, brake cleaner, rags (especially used ones), paper, and other flammable materials.
- Exposure to solvents and vapors may result in several health-related issues affecting the central nervous system, as well as irritation of the eyes, skin, and respiratory system.
    - Read and understand the Safety Data Sheets (SDS) for solvents used in painting operations.
    - Only company-approved full-face respirators with proper cartridges and filters will be used during painting and cleaning operations. The worker must be fit-tested and trained prior to using the full-face respirator (refer to 950C-C-050, PPE - Respiratory Protection Code).
    - The worker must be clean-shaven when using the respirator. If the face and/or neck seal can't be maintained, the respirator shall not be worn.

- Respirators must be cleaned and disinfected regularly as necessary. Workers are responsible for changing the filters as needed or as directed by the manufacturer. When not in use, the respirator must be stored in a bag away from potential sources of contamination.
- Respiratory protective equipment must be stored properly to protect it from dust, sunlight, extreme temperatures, excessive moisture, and harmful chemicals.
- The worker will wear the following personal protective equipment (PPE) when performing painting activities: standard PPE as well as a full-face respirator, hearing protection, and a hooded paint suit (be aware of any areas not covered by the suit, wrists & ankles), and additional specialized PPE as identified in the SDS for the solvents being used.
- Keep product containers tightly sealed and ensure that unused solvent containers are stored in the fireproof cabinet when not in use.
- Ensure unprotected workers are clear of the area prior to using solvents.

- Noise exposure.
  - Hearing protection must be worn during the painting operation. Discuss with your supervisor if you are unsure about the hearing protection to wear.
- Heavy lifting, awkward positions, and slips, trips, and fall hazards resulting in musculoskeletal injuries (sprains/strains) and personal injury.
  - Stretch before and during the task. Take microbreaks as needed.
  - Use proper ergonomics and lifting techniques when handling heavy or awkward objects. For loads over 50 lbs., always seek assistance.
  - Maintain a safe and hazard-free worksite throughout the shift. Keep hoses and equipment organized, ensuring they are placed out of the travel path. Always verify that the travel path is clear of obstructions before starting work.
  - Ensure hoses are flat**,** with no kinks, twists, or loops, to prevent damage and hazards.
  - Inspect the full-face respirator before use to ensure it is clean, clear, and in proper working condition for adequate protection.
- Falling from elevations resulting in personal injury.
  - Work from approved platforms or equipment landings, and wear fall protection equipment when working at heights of 6 feet or more near unguarded edges.
  - Only competent personnel shall operate elevated work platforms. Ensure that hoses and supplied airlines are not fastened to the handrail while it is being raised. Use a rope to pull hoses and supply air lines up to the desired elevation.

- Spray from the paint gun, leaks, or ruptured airlines/components resulting in injection injury (fluid and/or air injected through the skin and into the body).
    - Relieve fluid pressure when cleaning or servicing any part of the equipment. To relieve pressure, shut off the sprayer, trigger the gun, and open the pressure drain valve. Follow the instructions in the operator's manual for flushing methods.
    - Never point paint sprayers or other high-pressure air devices at yourself or others.
    - Ensure that hoses are rated for pressure. Inspect clamps and fittings for damage, wear, and tear, and ensure the connections are secure prior to painting.
- Equipment, parts, and other components falling or shifting off stands, blocks, or pallets, resulting in property damage and/or injury.
    - Inspect stands before use and confirm annual certification is current.
    - Ensure the load limit of the stands or jacks meets or exceeds the load being placed on them.
    - Place adequate supports (jacks, stands, or blocks) in suitable locations, ensuring the load is balanced and stable before commencing painting operations. Consult supervision if unsure of the stability.
- Personnel are unaware of emergencies or unable to report if they are injured or fall during painting activities.
    - The supervisor or their designate must physically check on the worker during painting 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 or designated person must notify the paint bay operator.

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 SOPs, JSAs, and FLRAs.
- ☐ 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 Explosive Limits

The Lower Explosive Limit (LEL) is the minimum concentration of flammable vapor in the air that will burn. Below the LEL, the mixture is too lean to burn, meaning there is insufficient fuel.

The Upper Explosive Limit (UEL) is the maximum concentration of flammable vapor in the air that will burn. Above the UEL, the mixture is too rich to burn, as there is not enough oxygen.

5.4 HSE

Refers to the Health, Safety & Environment department.

5.5 Intrinsically Safe

Equipment and wiring that is incapable of releasing sufficient electrical or thermal energy under normal or abnormal conditions to cause ignition of a specific hazardous atmospheric mixture in its most easily ignited concentration.

5.6 Safety Data Sheets (SDS)

Documents that provide information about the hazards of a product and advice about safety precautions.

5.7 Solvent

A liquid chemical that dissolves solid, liquid, or gas, creating a solution. The most common solvent is water. At worksites, the most frequently used solvents are organic (carbon-containing) chemicals. They are usually transparent, colorless liquids, and many have a strong odor. Some examples of solvents include xylene, toluene, kerosene, ethanol, methanol, acetone, turpentine, and mineral spirits.

6.0 PROCEDURE

1) Read and understand all warnings and instructions in the owner's manual. Review the safety data sheet (SDS) and manufacturer's instructions for the recommended personal protective equipment (PPE) when operating and/or servicing. Inspect PPE prior to use.

2) Complete hazard assessment (i.e., FLRA) for the task. Notify your supervisor if you are unsure of the task or if there are any hazards beyond your control.

3) Inspect all equipment and tools prior to use. Tag out and remove from service any damaged or defective equipment or tools. Notify supervision.

4) Bring equipment or components to be painted into the paint area or paint bay, utilizing a spotter if necessary.

5) Place adequate supports (jacks, stands, or blocks) in suitable locations, ensuring the load is balanced and stable before commencing painting operations. Consult with the supervisor and/or lead hand if you are unsure of the stability.

6) Place signage to prevent unauthorized entry to the area where painting is to take place.

7) Isolate hazardous energy on equipment (lock out/tag out). If equipped, ensure all equipment, parts, and components have been grounded.

8) Open the paint lid and stir the pail with a large stir stick. The paint must be of a consistent texture and color before painting. If there is skin on top of the paint, remove it with a stir stick and dispose of it properly.

9) Turn on the ventilation towers and verify that they are functioning correctly. Ensure the filters are in acceptable condition.

10) Paint objects using even strokes at a consistent distance.

11) Allow the equipment and/or parts time to dry before moving.

12) Conduct a general cleanup of the painting area and ensure that all equipment used during painting operations is properly cleaned and stored.

    (a) Clean the paint gun and its components in the paint bay and use a full-face respirator when cleaning the gun and its parts.

        NOTE: Never point paint sprayers or other high-pressure air devices at yourself or others.

    (b) Run paint thinner through the gun until all paint is removed and the thinner is clear with no visible trace of paint residue. This must also be done in a proper paint disposal barrel.

    (c) Relieve fluid pressure when cleaning or servicing any part of the equipment. To relieve pressure, shut off the sprayer, trigger the gun, and open the pressure drain valve. Follow the instructions in the operator's manual for flushing methods.

    (d) Once the pressure is relieved, make sure the trigger lock is engaged to prevent accidental activation.

    (e) Seal paint cans and store them in approved, marked, and ventilated storage cupboards only.

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 & Explosion Hazards}
- 950C-C-016 - Fall Protection Code
- 950C-C-018 - Fire and Explosion Code
- 950C-C-020 - Flammables & Combustibles Storage and Handling Code
- 950C-C-022 - General Housekeeping Code

- 950C-C-047 - PPE - Eye and Face Protection Code
- 950C-C-049 - PPE - General Code
- 950C-C-050 - PPE - Respiratory Protection Code
- 960C-SOP-001 - Elevated Work Platform-Safe Use of
- 960C-SOP-004 - Flagging Tagging and Barricading Hazardous Areas
- 960C-SOP-006 - Ladder Use
- 960C-SOP-112 - Compressed Air and Air Hoses
- 960C-SOP-019 - Slip Trip and Fall Hazard Prevention
- 962C-SOP-006 - Working Alone
- 962C-SOP-009 - Manual Lifting and Carrying Heavy Objects
- 962C-SOP-008 - Signaling Equipment

9.0 APPENDICES

- Appendix A – Paint Booth & Mixing/Cleaning Room
- Appendix B – 999C-F-066 - Paint Booth Operator Daily Checklist
- Appendix C – 999C-F-067 Paint Booth Operator Monthly / Bi-Monthly Checklist

Appendix A Paint Booth & Mixing/Cleaning Room

CFS Paint Booth

CFS Paint Booth

CFS Paint Booth – Mixing/Cleaning Room

CFS Paint Booth – Filter System

Ground cable - CFS Paint Booth

Appendix B Paint Booth Operator Daily Checklist

Paint Booth Operator Daily Checklist		Document Number: 999C-F-066
Original Approval Date: APR 13, 2022	Revision Number: 2	Page 1 of 1
Latest Revision Date: OCT 17, 2025	Next Revision Date: OCT 17, 2028	Document Approval Level: 3

Key	Inspection Description	Needs Repair	OK
Pre-Operational Checks	**Power OFF, LOTO**		
1	Has the Monthly Checklist Been Completed		
2	Perform Daily Compressor Checks.		
3	Check the Manometer reading with the booths air system OFF, Manometer should read ZERO (0) on the gauge. Record the reading on this sheet.		
4	Inspect Intake Air Filters and Exhaust Air Filters. Refer to the GFS U105827-A Job Specific LECD Service - Operations Manual Page 19. Located in the Paint Booth Shop.		
5	Check Air Hoses for Cracks, Wear, Damage, Check Air Couplings for Damage and Wear		
6	Check Respiratory Breathing Mask for correct face seal, Check mask filters for no air restriction when breathing. Keep masks stored in their plastic storage bag when not in use.		
7	Sweep Out Paint Bay and Dispose of Debris in Trash Receptacles. Then Blow Out Paint Bay		
8	Empty All Trash Receptacles.		
Operational Checks	**Power ON, Turn Air System ON**		
1	Check the Manometer reading with the booths air system ON, Manometer should NOT read above 0.5 in/H_2O on the gauge. If at 0.5 in/H_2O the exhaust filters must be changed. Record the reading on this sheet		
2	Check the Booths Compressed Air Supply Shut Off valve for correct operation, use an air blower in the paint booth and open one of the man doors, as soon as the door opens the air supply should shut off.		

Concerns:

Inspector: _____ _____
First Name Last Name

Signature: _____ **Date:** _____

Appendix C Paint Booth Operator Monthly / Bi-Monthly Checklist

Paint Booth Operator Monthly / Bi-Monthly Checklist		Document Number: 999C-F-067
Original Approval Date: APR 13, 2022	Revision Number: 2	Page 1 of 1
Latest Revision Date: OCT 17, 2025	Next Revision Date: OCT 17, 2028	Document Approval Level:

Key	Inspection Description	Needs Repair	OK
Pre-Operational Checks	**Power OFF, LOTO**		
1	Has the Daily Checklist Been Completed		
2	MONTHLY - Test Paint Booth Manometer Gauge for Accuracy. See the Dwyer Mark II Manometer Operation Instructions for Details.		
3	MONTHLY - AMU - Air Makeup Unit - Inspect and Clean Intake and Exhaust Ductwork, as necessary. Refer to: GFS- Large Equipment - Cross Draft Booth - Service and Operations Manual Pg 25. NOTE: Maintenance Contractor Responsibility.		
4	MONTHLY - AMU - Air Makeup Unit - Inspect and Clean Intake and Exhaust Plenum, as necessary. Refer to: GFS- Large Equipment - Cross Draft Booth - Service and Operations Manual Pg 25. NOTE: Maintenance Contractor Responsibility.		
5	MONTHLY - Clean the Paint Booth Control Panel Intake and Exhaust Filters. Extreme caution must be used when cleaning the filters. The filters must be blown out with compressed air from the inside of the control cabinet. NOTE: Maintenance Contractor Responsibility.		
6	Bi-MONTHLY - Replace the AMU Pre-Filters. NOTE: Maintenance Contractor responsibility.		
7	Bi-MONTHLY - Replace the Paint Mixing Room Intake and Exhaust Filters.		

Concerns:

Inspector: _____ _____
First Name Last Name

Signature: _____ **Date:** _____