

HSE MANUAL FOR

GTG Automation, Inc.

ASSIGNMENT OF RESPONSIBILITIES

In accordance with OSHA regulations, the above named company has assigned responsibility and accountability for the administration of our Health, Safety, and Environmental program to:

Greg Griffin

Depending on your location, this HSE program may also be referred to as an SHE or EHS program.

The Federal OSHA designation is “HSE”; however, you will notice that all terms are used.

A copy of the HSE Program is available upon request for our employees’ review. Questions should be directed to Supervision or Management.



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TABLE OF CONTENTS

CORE CHAPTERS

Safety Policy and Procedures	1-1
Safety Committees	2-1
Code of Safe Practices	3-1
Incident Investigation and Reporting.....	4-1
Behavior Based Safety	5-1
Short Service Employee	6-1

ELECTED CHAPTERS

Access to Medical Records.....	7-1
Aerial Lifts	8-1
AEGCP and GFCI.....	9-1
Benzene.....	10-1
Bloodborne Pathogens	11-1
Cold Weather	12-1
Confined Spaces—Construction	13-1
Cranes and Mobile Lifting Devices Onshore.....	14-1
Cranes – Rigging and Signaling	15-1
Disciplinary Procedures and Methods.....	16-1
Driving Safety	17-1
Electrical Safety—Qualified and Nonqualified.....	18-1
Emergency Action Plan.....	19-1
Fall Protection—Construction	20-1
Fatigue Management	21-1
Fire Protection	22-1
First Aid and CPR	23-1
Forklifts—Powered Industrial Trucks	24-1
Gas Hazards.....	25-1
General Waste Management	26-1
Hand and Power Tools	27-1
Hazard Communication	28-1
Hazwoper—Hazardous Waste Operations and Emergency Response	29-1
Heat Illness Prevention	30-1
Hydrogen Sulfide	31-1
Injury/Illness Recordkeeping.....	32-1
Ladders and Stairways	33-1
Lead.....	34-1
Lead Awareness	35-1
Lockout/Tagout—Control of Hazardous Energy	36-1
Manual Lifting	37-1
Mobile and Mechanized Equipment.....	38-1
NFPA 70E.....	39-1
Noise Exposure	40-1
Pandemic Preparedness.....	41-1
Personal Protective Equipment.....	42-1
Process Safety Management.....	43-1
Respiratory Protection Program.....	44-1
Rigging Material Handling.....	45-1
Risk Assessment (Identification of Hazards).....	46-1
Scaffold Use	47-1
Spill Prevention and Response.....	48-1
Stop Work Authority	49-1
Traffic Control	50-1
Trenching, Shoring and Excavations	51-1
Welding, Cutting, and Hot Work.....	52-1
Working Alone	53-1
Workplace Prevention of COVID-19	54-1
Concrete Operations.....	55-1
Asbestos Awareness	56-1
Non-Dot Drug and Alcohol Policy	57-1

Fit for Duty 58-1

Subcontractor Management Plan 59-1

Housekeeping and Sanitation 59-1

ISO 26000 - The Environment 60-1

Jobsite Security 61-1

Management of Change 62-1

Acknowledgement and Notes

RESPONSIBILITIES

Greg Griffin is the designated Company Safety Coordinator.

POLICY

The Occupational Safety and Health Act of 1970 clearly defines the requirement to provide safe and healthful working conditions for all employees. Therefore, the safety and health of our employees is the first consideration in operating this business.

Safety and health in our business must be part of every operation. Without question, it is every employee's responsibility at all levels.

It is the intent of GTG Automation, Inc. to comply with all laws. To do this, we must constantly be aware of conditions in all work areas that can produce injuries. No employees will be required to work at a job they know is not safe or healthful. Your cooperation in detecting hazards and, in turn, controlling them, is a condition of your employment. Inform your supervisor immediately of any situation beyond your ability or authority to correct.

The personal safety and health of each employee of GTG Automation, Inc. is of primary importance. Prevention of occupationally induced injuries and illnesses is of such consequence that it will be given precedence over operating productivity, whenever necessary. To the greatest degree possible, management will provide all mechanical and physical activities required for personal safety and health, in keeping with the highest standards.

We will maintain an occupational safety and health program conforming to the best practices of organizations of this type. To be successful, such a program must embody proper attitudes towards injury and illness prevention on the part of supervisors and employees. It also requires cooperation in all safety and health matters, not only between supervisor and employee, but also between each employee and their co-workers. Only through such a cooperative effort, can a safety and health program, in the best interest of all, be established and preserved.

Our objective is a safety and health program that will reduce the number of injuries and illnesses to an absolute minimum, not merely in keeping with, but surpassing, the best experience of operations similar to ours. Our goal is zero accidents and injuries.

Our safety and health program includes:

- Providing mechanical and physical safeguards to the maximum extent possible
- Conducting a program of safety and health inspections to find and eliminate unsafe working conditions or practices, to control health hazards, and to fully comply with OSHA safety and health standards for every job
- Training all employees in good safety and health practices
- Providing necessary personal protective equipment, and instructions for proper use and care
- Developing and enforcing safety and health rules, and requiring that employees cooperate with these rules as a condition of employment
- Investigating, promptly and thoroughly, every accident to find out what caused it, and correct the problem so it will not happen again

We recognize that responsibilities for occupational safety and health are shared:

- This employer accepts responsibility for leadership of the safety and health program, for its effectiveness and improvement, and for providing the safeguards required to ensure safe work conditions
- Supervisors are responsible for developing proper attitudes toward safety and health in themselves and in those they supervise, and for ensuring that all operations are performed with the utmost regard for the safety and health of all personnel involved, including themselves
- Employees are responsible for wholehearted, genuine operations of all aspects of the safety and health program – including compliance with the rules and regulations – and for continuously practicing safety and health while performing their duties

Greg Griffin will ensure that all employees are properly instructed and supervised in the safe operation of any machinery, tools, equipment, process, or practice that they are authorized to use or apply while at work.

Production is never so urgent that we cannot take the time to do our work safely.

Program Goals

Why have a workplace “Safety and Health Plan”? Taking risks is part of running a business, particularly for small business owners. You take risks in product development, marketing, and advertising in order to stay competitive. However, some risks should never be taken. One of these is risking the safety and health of workers. Safety begins at the top and goes downward throughout The Company. The primary goal of GTG Automation, Inc. is to continue operating a profitable business while protecting employees from injuries or illness. This can be achieved by delegating responsibility and accountability to all involved in GTG Automation, Inc.’s operation.

Responsibility: Having to answer for activities and results

- Accountability: The actions taken by management to ensure the performance of responsibilities

In other words, to reach our goal of a safe workplace, everyone needs to take responsibility and be held accountable.

Benefits of achieving our goals are:

- Minimizing of injuries and accidents
- Minimizing the loss of property and equipment
- Elimination of potential fatalities
- Elimination of potential permanent disabilities
- Elimination of potential OSHA fines
- Reductions in Workers’ Compensation costs
- Reductions in operating costs
- Having the best “Safety and Health” conditions possible in the workplace

Management Commitment

GTG Automation, Inc. is committed to building an effective injury and illness prevention plan, putting it in writing, and integrating it into the entire operation.

The management of GTG Automation, Inc. is committed this safety policy, and to provide direction and motivation by:

- Appointing Safety Coordinator(s) and/or Safety Committee Chairmen
- Establishing Company safety goals and objectives
- Developing and implementing this written Safety and Health program
- Ensuring total commitment to the Safety and Health program
- Facilitating employees' safety training
- Establishing responsibilities for management and employees to follow
- Ensuring that management and employees are held accountable for performance of their safety responsibilities
- Establishing and enforcing disciplinary procedures for employees
- Reviewing the Safety and Health program annually, and revising or updating as needed

Labor and Management Accountability

All employees, both labor and management, need to understand their responsibilities under OSHA rules and be held accountable for complying with the rules as well as the Company's related policies.

It is the responsibility of GTG Automation, Inc. to provide a safe and healthful work environment for their employees. However, holding everyone accountable for their part in workplace safety and health is critical for a successful injury and illness prevention plan.

Assignment of Responsibility

The Safety Coordinator(s) and/or Safety Committee Members GTG Automation, Inc. has designated:

Safety Coordinator	Greg Griffin
Safety Coordinator	
Safety Committee Chair	
Safety Committee Vice-chairman	
Safety Committee Alternate Chair/Vice-chair	

Their cell phone and office phone numbers are:

Safety Person's Name	Office Phone #	Cell Phone #

Greg Griffin will assist managers in initiating, educating, and executing the safety program with:

- Introducing the safety program to new employees
- Following up on recommendations, suggestions, etc., made at the "Weekly" safety meetings. All topics of safety concerns must be documented accordingly
- Assisting the personnel in the execution of standard policies
- Conducting safety inspections on a periodic basis
- Addressing all hazards or potential hazards as needed
- Preparing monthly accident reports and investigations
- Maintaining adequate and available first aid supplies and safety equipment
- Ensuring an adequate number of qualified "First Aid Certified" people on the work site
- Becoming thoroughly familiar with OSHA regulations and local and state safety codes
- Defining the responsibilities for safety and health of all subordinates and holding each person accountable for their results through the formal appraisal system and where necessary, disciplinary procedures
- Emphasizing the unnecessary personal and financial losses of all accidents

Employee Involvement

Employees are required to work in compliance with the safety rules, report all accidents and near misses, and report all unsafe conditions or unsafe practices. To demonstrate GTG Automation, Inc.'s commitment to support the employees in these responsibilities, GTG Automation, Inc. will do the following:

Communication System:

- Encourage employees to inform GTG Automation, Inc. about workplace hazards without fear of reprisal
- Establish and maintain a centrally located "Safety Bulletin Board" where current, relevant information may be easily reviewed by employees
- Schedule general employee meetings where safety is freely and openly discussed by those present. These meetings will be regular, scheduled, and announced to all employees and managers to achieve maximum attendance. The purpose of these meetings is safety, and the concentration will be on:
 - Occupational accident and injury history at our work sites, with possible comparison to other locations within The Company
 - Feedback from the Safety Committee
 - Guest speakers concerned with workplace safety and health
 - When possible, brief audio-visual materials that relate to our business
- Conduct training programs for communicating with employees
- Provide a safety suggestion box so that employees, anonymously if desired, can communicate their concerns with management
- Document all communication efforts to demonstrate that an effective communication system is in place

Hazard Identification and Control

Periodic inspections and procedures for correction provide methods of identifying existing or potential hazards in the workplace, and eliminating or controlling them. Hazard control is essential to an effective injury and illness plan. We will be sure to look at safe work practices and ensure that they are being followed, and that unsafe conditions or procedures are identified and corrected properly and promptly.

Employees are encouraged to report possible hazardous situations, knowing their reports will be given prompt and serious attention. Workplace equipment and personal protective equipment will be maintained in good, safe working condition.

Hazards, where possible, will be corrected as soon as they are identified. For those that cannot be immediately corrected, a target date for correction will be set. GTG Automation, Inc. will provide interim protection for workers while hazards are being corrected. A written tracking system will be established to help monitor the progress of the hazard correction process.

Accident/Incident Investigation

Employers and safety committees are required to investigate or assign responsibility for investigating accidents. Trained individuals, with the primary focus of understanding why the accident or incident occurred, will investigate accidents/incidents and what actions can be taken to preclude recurrence. The focus will be on solutions and never on blame. They will be in writing, and adequately identify the causes of the accident or near miss occurrence.

Worker Training

Training is another essential element of any injury and illness prevention plan. OSHA rules require each employer to train workers for any job or task they are assigned.

Our plan includes training and instruction:

- For all employees when they are first hired
- For all new employees for each specific task
- For all employees given new job assignments for which training has not already been received
- Whenever new substances, processes, procedures, or equipment are introduced into the workplace and present a new hazard
- Whenever new personal protective equipment or different work practices are used on existing hazards
- Whenever GTG Automation, Inc. is made aware of a new or previously unrecognized hazard
- For all supervisors to ensure they are familiar with the safety and health hazards to which employees under their immediate direction and control may be exposed

An effective safety and health plan requires proper job performance by everyone in the workplace.

It is the determination of GTG Automation, Inc. to ensure that all employees are knowledgeable about the materials and equipment with which they work, what known hazards are present, and how they are controlled.

Program Evaluation

Regular reviews will be held to look at the components of our safety and health plan, to determine what is working well and what changes, if any, are needed. All employees are encouraged to participate by keeping GTG Automation, Inc. informed of their concerns regarding the elements of this safety and health plan.

The success of this safety and health plan is dependent upon two things: First, GTG Automation, Inc. must provide a safe and healthful environment in which the employee has the opportunity to work safe, and second, the employee must choose to work safe.

Supervisor/Foreman

The Supervisors and/or Foremen will establish an operating atmosphere to ensure that safety and health is managed in the same manner and with the same emphasis as production, cost, and quality control. This will be accomplished by:

- Regularly emphasizing that accident and health hazard exposure prevention are not only moral responsibilities, but also a condition of employment
- Identifying operational oversights that could contribute to accidents which often result in injuries and property damage
- Participating in safety and health related activities, (e.g. safety meetings, facility reviews, and correcting dangerous employee behavior)
- Explaining the safety policies and the hazards of each person's particular work
- Ensuring that initial orientation of "new hires" is properly carried out
- Making sure that if a "Competent Person" is required, that one is present to oversee, and instruct employees when necessary
- Never short-cutting safety for expediency, nor allowing workers to do so
- Consistently enforce safety rules and enforce discipline
- Conducting daily job-site inspections and correcting noted safety violations

Employees

It is the duty of all employees to know the safety rules, and conduct their work in compliance with these rules. Disregard of the safety and health rules shall be grounds for disciplinary action up to and including termination. It is also the duty of each employee to make full use of the safeguards provided for their protection. Every employee will receive an orientation when hired and receive a copy of any Company Safety and Health Programs. Employee responsibilities include the following:

- Reading, understanding and following safety and health rules and procedures
- Signing the Code of Safe Practices and any other policy acknowledgements
- Wearing Personal Protective Equipment (PPE) at all times when working in areas where there is a possible danger of injury
- Wearing suitable work clothes as determined by the supervisor/foreman
- Performing all tasks safely as directed by their supervisor/foreman
- Reporting ALL injuries, no matter how slight, to their supervisor/foreman immediately and seeking treatment promptly
- Knowing the location of first aid, firefighting equipment, and safety devices
- Attending any and all required safety and health meetings
- Not performing potentially hazardous tasks, or using any hazardous material until properly trained, and following all safety procedures for those tasks
- Stop and ask questions when unsure about how to safely do the work

MEDICAL FACILITIES

Each worksite will identify and contact an appropriate hospital or clinic to ensure they can handle possible emergencies and injuries in a timely manner. The location and contact information for the medical facility will be provided to all employees and posted at the worksite in a place all employees gather.

POSTING REQUIREMENTS

All Federal, State, and Local posting requirements will be posted at the worksite in a place all employees gather. Particularly the OSHA Job Safety and Health poster, state labor law postings, required insurance postings, and emergency contact numbers.

HSE SUPERVISOR

At least one supervisor will be at the worksite at all times who is designated the Health, Safety, and Environmental Supervisor. This person will have at least appropriate OSHA 10 Hour Outreach Training and meet OSHA's definition for Competent or Qualified Person for the task at hand.

EVALUATING SAFETY PROGRAM PERFORMANCE

The effectiveness of this safety plan will be evaluated at least annually using leading and lagging indicators compared year after year to measure the effectiveness of the safety policy and established safe work procedures.

Lagging indicators compared will include the Experience Modification Rate (EMR) and other recorded injuries and incidents such as TRIR, DART, and fatalities.

Leading indicators compared include: documented near miss investigations, employee training records, recorded hazardous conditions investigations, safe work permits (e.g. confined spaces, hot work), and maintenance checklists.

The safety professional will complete an annual report of these safety program performance metric measurements with suggested changes to the safety policy and safe work procedures.

CODE OF CONDUCT

All GTG Automation, Inc. employees will abide by our company Code of Conduct when performing any company business activities. GTG Automation, Inc. will further ensure that company employees adhere to all client requirements and safe practices when performing work at the client site.

GTG Automation, Inc. employees will not:

- Engage in any unlawful or unethical activities
- Divulge any company or client confidential or proprietary information to unauthorized personnel
- Use or tolerate the use of, drugs or alcohol at the workplace
- Engage in any actions that constitute sexual harassment or workplace violence

Reporting Violations

Employees will be required to report any safety, health or ethical violations to the company as soon as possible.

The company will establish a method that allows employees to report any Code of Conduct violations anonymously and without fear of reprisal.

Communication

This Code of Conduct will be communicated to all employees at their times of hire, and will be reviewed at least annually, or when any changes are made.

Disciplinary Actions

The company will investigate all reports of violations, and any employees found to have violated our Code of Conduct will be subject to progressive disciplinary action according to our disciplinary policy, up to and including termination.

Any violations of our Code of Conduct deemed to be illegal or unlawful will be reported to the appropriate authorities.

Commitment

The goal of GTG Automation, Inc. is to operate a profitable business with the highest possible standards of integrity. This can be achieved by ensuring that all employees abide by our Code of Conduct. We are committed to operating in a professional and courteous manner in all of our business practices.

Owner Name**Owner Signature****Date**

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. is committed to accident prevention in order to protect the safety and health of all our employees. Injury and illness losses due to hazards are needless, costly, and preventable. To prevent these losses, a joint management/worker safety committee will be established. Employee involvement in accident prevention and support of safety committee members and activities is necessary to ensure a safe and healthful workplace for all employees.

RESPONSIBILITIES

GTG Automation, Inc. Safety Committee members are:

All Administration Managers Executives & Safety Personnel

The Safety Committee will meet a minimum of 12 times per year.

Committee Goal

Our Company will strive to meet the following goals:

- Minimize injury and illness in the workplace
- Open up the lines of communication between management and employees concerning safety at every level of The Company
- Improve safety of facilities(s) and equipment for a better work environment

Mission Statement

It is our Company and committee's goal to create clear avenues of communication among management and staff to create a safe working environment.

Company Commitment

GTG Automation, Inc. is committed to excelling at safety, and will support the safety committee's purpose and recommendations.

Communication of Safety Matters

The committee will handle all safety issues with diligence. We hope to encourage an atmosphere where all employees report safety violations or concerns, ask questions, seek training, or come to us with any safety issues.

Purpose

The purpose of our safety committee is to bring workers and management together in a non-adversarial, cooperative effort to promote safety and health in the workplace. The safety committee will assist management and make recommendations for change.

Organization

There will be, in most cases, an equal number of employee and employer representatives. However, there may be more employee representatives than employer representatives, if both groups agree. Employee representatives shall be volunteers or elected by their peers. If no employees volunteer or are elected, then they may be appointed by management. Employer representatives will be appointed. Safety committee members will serve a continuous term of at least one year.

Committee membership terms will be staggered so that at least one experienced member is always on the committee.

Extent of Authority

It must be clearly understood that the safety committee advises management on issues that will promote safety and health in the workplace. Written recommendations are expected from the safety committee and they will be submitted to management. In turn, management will give serious consideration to the recommendations submitted and will respond in writing to the committee within a reasonable time.

Functions

- Committee meetings and employee involvement
- Hazard assessment and control
- Safety and health planning
- Evaluation of accountability system
- Evaluation of management commitment to workplace safety and health
- Evaluation of accident and incident investigation program
- Safety and health training

Recommendations

All recommendations submitted to management must be written and should be clear and concise; provide reasons for implementation; give recommended options; show implementation costs and recommended completion dates; list benefits to be gained.

Procedures

The committee's plan of action requires procedures by which the committee may successfully fulfill its role. Procedures developed should include but not be limited to:

- Meeting date, time, and location (Safety Committee Meeting Agenda)
- Election of chairperson and secretary
- Order of business
- Records (Safety Committee Meeting Minutes)

Duties of each member must include, but not be limited to:

- Reporting unsafe conditions and practices
- Attending all safety and health meetings
- Reviewing all accidents and near-misses
- Recommending ideas for improving safety and health
- Working in a safe and healthful manner
- Observing how safety and health is enforced in the workplace
- Completing assignments given to them by the chairperson
- Acting as a work area representative in matters of health and safety
- Others as determined by Company safety and health needs

The Safety Coordinator(s) and/or Safety Committee Members

GTG Automation, Inc. has designated:

Safety Coordinator	Greg Griffin
Safety Coordinator	
Safety Committee Chair	
Safety Committee Vice-chairman	
Safety Committee Alternate Chair/Vice-chair	

Their cell phone and office phone numbers are:

Safety Person's Name	Office Phone #	Cell Phone #

It is the duty of Greg Griffin, the Safety Coordinator, to assist the Supervisor/Foreman and all other levels of Management in the initiation, education, and execution of an effective safety program.

PROCEDURES

The purpose of a safety committee is to bring workers and managers together to achieve and maintain a safe, healthful workplace. It is easy to start a safety committee, but developing an effective one – one that achieves and maintains a safe, healthful workplace – requires workers and managers who are committed to achieving that goal. Effective safety committees find solutions to problems that cause workplace accidents, illnesses, and injuries. Fewer accidents, injuries, and illnesses mean lower Workers' Compensation claims costs and insurance rates.

Understand a Safety Committee's Seven Essential Activities

Anyone can start a safety committee, but, to make it effective, the committee must be built on a foundation of management commitment and must be accountable for achieving its goals. The committee must do the following:

- Involve employees in achieving the committee's goals
- Identify workplace hazards
- Review reports of accidents and near misses
- Keep accurate records of committee activities
- Evaluate its strengths and weaknesses

Commitment

The committee will not survive without management support. Management demonstrates support by encouraging employees to get involved in achieving a safe, healthful workplace and by acting on the committee's recommendations. Representatives demonstrate commitment by attending committee meetings, following through on their assigned tasks, and encouraging other employees to get involved in identifying hazards.

Accountability

Representatives should understand that the committee expects them to contribute; each representative shares responsibility for accomplishing safety committee goals, which benefit everyone who works for The Company.

The safety committee is also responsible for monitoring how management holds employees accountable for working safely and for recommending ways to strengthen accountability.

Employee Involvement

To become effective, a safety committee needs help from everyone in The Company. The safety committee must have a method for employees to report hazards and to offer safety suggestions.

Ways the safety committee can encourage employees to get involved:

- Encourage employees to report hazards and unsafe work practices to a safety-committee representative
- Act on employee suggestions and recognize their contributions to a safer workplace
- Promote the committee's activities and accomplishments

Make sure employees know that you are starting a safety committee. Tell them why you are starting the committee, describe its role in The Company's safety-and-health program, and explain management's commitment to the committee.

You can inform employees in a memo or a newsletter, by e-mail, or – better yet – meet with them to promote the committee and to answer questions.

Hazard Identification

The safety committee plays an important role in keeping the workplace hazard-free:

- Ensure that representatives know how to recognize hazards and understand basic principles for controlling them
- Focus on identifying hazards and unsafe work practices that are likely to cause serious injuries
- Conduct thorough workplace inspections at least quarterly
- Document hazards during quarterly inspections and discuss how to control them at regular safety-committee meetings
- Include employer and employee representatives on the inspection team

Accident Investigation

The committee must have a procedure for investigating all workplace accidents, illness, and deaths. It is not necessary for the committee to conduct accident investigations or to participate in investigations; however, the committee should ensure that management does so. The committee should also carefully review accident reports to help management identify accident causes and determine how to control them.

Recordkeeping

You may not think of record keeping as an essential activity, but accurate, well-organized records document the committee's accomplishments and can inform the committee what it needs to do to improve.

The following documents are required for the safety committee's file:

- Accurate minutes of each safety committee meeting
- Committee reports, evaluations, and recommendations
- Management's response to committee recommendations
- Employee safety suggestions and hazard concerns

Evaluation

Evaluation answers the question "Are we effective?" Effective safety committees periodically evaluate their strengths and weaknesses, and the evaluation helps them set new goals.

At least once a year, schedule a half-day safety-committee meeting to accomplish the following: identify the committee's achievements over the past 12 months, review essential activities, and set goals for the next 12 months.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. will maintain a “Safety and Health Program” conforming to the best practices of organizations of this type. To be successful, such a program must embody the proper attitudes toward injury and illness prevention on the part of supervisors and employees. It also requires cooperation in all safety and health matters, not only between supervisor and employee, but also between each employee and his or her co-workers. Only through such a cooperative effort, can a safety program in the best interest of all be established and preserved. Safety and health in our business must be a part of every operation.

Greg Griffin is responsible for the implementation and enforcement of the following safety rules. Disciplinary procedures will be enforced.

THE COMPANY SAFETY AND HEALTH PROGRAM INCLUDES:

- Providing mechanical and physical safeguards to the maximum extent possible
- Conducting a program of safety and health inspections to find and eliminate unsafe working conditions or practices, to control health hazards, and to comply fully with the safety and health standards for every job
- Training all employees in good safety and health practices
- Providing necessary personal protective equipment and instructions for its use and care
- Developing and enforcing safety and health rules and requiring that employees cooperate with these rules as a condition of employment
- Investigating, promptly and thoroughly, every accident to find out what caused it and to correct the problem so that it will not happen again
- Setting up a system of recognition and awards for outstanding safety service or performance

RESPONSIBILITIES

We recognize that the responsibilities for safety and health are shared:

- GTG Automation, Inc. accepts the responsibility for leadership of the safety and health program, for its effectiveness and improvement, and for providing the safeguards required to ensure safe conditions
- Supervisors are responsible for developing the proper attitudes toward safety and health in themselves and in those they supervise, and for ensuring that all operations are performed with the utmost regard for the safety and health of all personnel involved, including themselves
- Employees are responsible for wholehearted, genuine operation with all aspects of the Safety and Health Program including compliance with all rules and regulations – and for continuously practicing safety while performing their duties

GENERAL SAFETY RULES

GTG Automation, Inc. employees shall follow these safe practice rules, render every possible aid to safe operations, and report all unsafe conditions or practices to their supervisor.

- Failure to abide by the Code of Safe Practices may result in disciplinary action up to and including termination
- Supervisors shall insist that employees observe and obey every rule, regulation, and order necessary to the safe conduct of the work, and shall take such action necessary to obtain compliance.
- If you are unsure of the safe method to do your job, STOP and ask your supervisor. Ignorance is no excuse for a safety violation
- All employees shall be given frequent accident prevention instructions. Instructions, practice drills, or articles concerning workplace safety and health shall be given at least once every 5 working days
- No one shall knowingly be permitted to work while the employee's ability or alertness is impaired by fatigue, illness, and prescription or over the counter drugs. Employees who are suspected of being under the influence of illegal or intoxicating substances, impaired by fatigue or an illness, shall be prohibited from working
- Employees should be alert to see that all guards and other protective devices are in proper places and adjusted, and shall report deficiencies. Approved protective equipment shall be worn in specified work areas
- Horseplay, scuffling, fighting and other acts are prohibited
- Work shall be well-planned and supervised to prevent injuries when working with equipment and handling heavy materials
- Workers shall not handle or tamper with any electrical equipment, machinery, or air or water lines in a manner not within the scope of their duties, unless they have received instructions from their supervisor. Do not attempt operate equipment until you are fully trained and authorized
- Keep your work area clean, free of debris, electrical cords, and other hazards. Immediately clean up spilled liquids
- Always notify all other individuals in your area who might be endangered by the work you are doing
- A red tag system identifies equipment that is NOT to be operated, energized, or used. All lock-out/tag-out notices and procedures must be observed and obeyed
- Do not block exits, fire doors, aisles, fire extinguishers, first aid kits, emergency equipment, electrical panels, or traffic lanes
- Do not leave tools, materials, or other objects on the floor that might cause others to trip and fall.
- Do not distract others while working. If conversation is necessary, make sure eye contact is made prior to communicating
- Employees shall not enter manholes, underground vaults, chambers, tanks, silos, or other similar places that receive little ventilation, unless it has been determined that it is safe to enter. Confined space protocols will be followed
- Materials, tools, or other objects shall not be thrown from buildings or structures until proper precautions are taken to protect others from the falling objects
- Employees shall cleanse thoroughly after handling hazardous substances, and follow special instructions from authorized sources

- Gasoline or other flammable liquids shall not be used for cleaning purposes
- No burning, welding, or other source of ignition shall be applied to any enclosed tank or vessel, even if there are some openings, until it has first been determined that no possibility of explosion exists, and authority for the work is obtained from the foreman or superintendent
- Any damage to scaffolds, falsework, or other supporting structures shall be immediately reported to the foreman and repaired before use
- Possession of firearms, weapons, illegal drugs or alcoholic beverages on Company or customer property or the job site is strictly prohibited
- All injuries shall be reported promptly to your supervisor so that arrangements can be made for medical and/or first-aid treatment

ENFORCEMENT OF SAFETY POLICIES

The compliance of all employees with GTG Automation, Inc. Safety and Health Program is mandatory and shall be considered a condition of employment. All safety rules, procedures, and plans in effect are to be followed as specified in the safety program. Employees found to be in violation of Company safety policy may be subject to penalty.

Greg Griffin is the supervisor for disciplinary actions and any employee in a position of management or supervisory capacity may initiate disciplinary action against any employee found to be in violation of Company policy. Not following verbal or written safety procedures, guidelines, rules, horseplay, failure to wear selected Personal Protective Equipment (PPE), and/or abuse of selected PPE, constitutes a safety violation.

The following outlines the disciplinary measures that will be taken against employees found to be in violation:

Periodic safety inspections of the workplace and equipment will be undertaken to ensure that all personnel, including supervisory positions, are demonstrating the required commitment to safety. A general neglect of safe work procedures, practices, and requirements in the workplace, or neglect of equipment safety, will be viewed as a lack of supervisory enforcement of safety policy and the appropriate supervisor/management personnel will be subject to the same disciplinary procedures described below.

The following programs will be utilized to ensure employee compliance with the safety program and all safety rules: training programs, retraining, optional safety incentive programs, disciplinary action.

Training Programs

The importance of safe work practices and the consequences of failing to abide by safety rules will be covered in the New Employee Safety Orientation and at Tailgate/Toolbox Safety Training. This will help ensure that all employees understand and abide by The Company's safety policies.

Retraining

Employees that are observed performing unsafe acts or not following proper procedures or rules will be retrained by their foreman or supervisor. A Safety Contact Report may be completed by the supervisor to document the training. If multiple employees are involved, additional safety meetings will be held.

SAFETY INCENTIVE PROGRAMS

Although strict adherence to safety policies and procedures is required of all employees, The Company may choose to periodically provide recognition of safety-conscious employees and jobsites without accidents through a safety incentive program.

DISCIPLINARY ACTION

The failure of an employee to adhere to safety policies and procedures established by GTG Automation, Inc. can have a serious impact on everyone concerned. An unsafe act can threaten not only the health and well-being of the employee committing the unsafe act but can also affect the safety of his/her coworkers and/or customers. Accordingly, any employee who violates any of The Company's safety policies will be subject to disciplinary action.

When a "Safety Violation Notice" is issued, appropriate supervisory personnel will meet with employee(s) to discuss the infraction and inform individual(s) of the rule or procedure that was violated and the corrective action to be taken.

Note: Failure to promptly report any on-the-job accident or injury, on the same day as occurrence, is considered a serious violation of The Company's Code of Safe Practices. Any employee who fails to immediately report a work-related accident or injury, no matter how minor will be subject to disciplinary action.

Employees will be disciplined for infractions of safety rules and unsafe work practices that are observed, not just those that result in an injury. Often, when an injury occurs, the accident investigation will reveal that the injury was caused because the employee violated an established safety rule and/or safe work practice(s).

In any disciplinary action, the foreman should be cautious that discipline is given to the employee for safety violations, and not simply because the employee was injured on the job or filed a Workers' Compensation claim.

Violations of safety rules and the Code of Safe Practices are to be considered equal to violations of other Company policy. Discipline for safety violations will be administered in a manner that is consistent with The Company's system of progressive discipline. If, after training, violations occur, disciplinary action will be taken as follows:

1. Oral warning. Documented, including date and facts on the "Safety Warning Report" form. Add any pertinent witness statements. Restate the policy and correct practice(s)
2. Written warning. Retrain as to correct procedure/practice
3. Written warning with suspension
4. Termination

As in all disciplinary actions, each situation is to be carefully evaluated and investigated. The particular step taken in the disciplinary process will depend on the severity of the violation, employee history, and regard to safety. Foremen and superintendents should consult with the office if there is any question about whether or not disciplinary action is justified. Employees may be terminated immediately for willful or extremely serious violations. Union employees are entitled to the grievance process specified by their contract.

Note: Consistency in the enforcement of safety rules will be exercised at all times.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. is committed to appropriately investigating all near misses, accidents, and incidents according to their severity to find the root cause and make changes that prevent it from happening again.

Greg Griffin is designated as the qualified person to conduct investigations once the company is notified of the incident. All incidents will be investigated as soon as practicable after the incident occurs and the extent of the investigation will reflect the seriousness of the incident.

RESPONSIBILITIES

Accident investigation and reporting is a responsibility shared between the Company and its employees. Greg Griffin will establish prior to an incident occurring, how and when proper personnel will be notified, who will conduct the investigation and the training they will receive and who is responsible for implementing any corrective actions.

Employer Responsibilities

- Ensuring appropriate staff receive suitable training to carry out their role in hazard and incident reporting, investigation, and recording
- Completing training for Incident Investigation
- Promptly investigating incidents
- Implementing identified risk control measures to prevent recurrence of incidents
- Consulting with staff in relation to the measures to be taken to prevent recurrence of incidents
- Reviewing hazard/incident reports to ensure that all recommendations are implemented
- Ensuring, as far as is reasonably practicable, that adequate financial provision and other resources are made available to institute the recommended actions
- Communicate the members of the investigation team and ensure that the team is:
 - Trained, qualified, and competent
 - Knowledgeable of their roles and responsibilities for incident response
 - Familiar with the techniques used in incident investigations

Safety Committee Responsibilities

Safety committee members are encouraged to participate in investigations of incidents and assist with the development of measures to prevent their recurrence.

- Personnel must be trained in their roles and responsibilities for incident response and incident investigation techniques
- Training requirements relative to incident investigation and reporting (Awareness, First Responder, investigation, and training frequency) will be identified in this program

Employee Responsibilities

- Not placing themselves or others at risk of injury
- Reporting incidents to their supervisor or manager, and health and safety representative (if applicable), as soon as possible after the event
- Participating in the development of appropriate risk control measures to prevent recurrence of similar incidents

- Using risk control measures as required and any other action taken, which is designed to protect health and safety

TRAINING

All personnel will receive, as part of their training in avoiding and preventing accidents and injuries, instruction concerning their roles and responsibilities in the event of an accident or incident. This training will include:

- What qualifies as reportable accidents or incidents (and near-misses)
- Who will be contacted in the event of a reportable incident?
- An explanation of the accident/incident investigation plan
- Incident investigation techniques and employee responsibilities during and after an incident/accident

PROCEDURES

GTG Automation, Inc., regardless of size and impact will investigate all injuries, illness, near misses and fatalities. All work-related fatalities and catastrophes must be reported to OSHA within 8 hours. Serious accidents that result in hospitalizations, amputations, or loss of an eye, must be reported to OSHA within 24 hours. OSHA requires reporting of work-related incidents resulting in the death of an employee or the hospitalization of one or more employees. Incidents involving employees such as, injuries, spills, property damage, fires, explosions, and vehicle damage must be reported to the owner client as soon as possible but no later than 24 hours.

Accidents and near miss incidents that result in personal injury, property damage, chemical spill, or other emergencies will be immediately reported to the assigned supervisor at the time of the event and Emergency Medical Service, Fire Department, or Hazmat Services will be immediately summoned. Such events will be investigated and documented on the appropriate form. All forms will be fully completed and submitted to Greg Griffin for review and for discussion at the next scheduled Safety Committee meeting. These investigations demonstrate the company's commitment to providing a safe and healthful work environment. Disciplinary Policy will be enforced.

To ensure accidents will be reported, employees must be encouraged to participate in the "fact-finding" process. The point emphasized must be that "hazardous conditions" and "unsafe practices" are an indication of a much bigger problem with a breakdown in the safety and health policy. The purpose of the accident investigation then becomes one that will uncover these system problems and provide solutions that will result in long-term corrective action.

It is important to gather facts and interview witnesses as soon as possible after an accident to ensure the most accurate information is being recorded. The efficiency of the corrective measures is determined by the accuracy of the information gathered. The best place to conduct an interview is wherever the employee being interviewed feels most comfortable. The most important interviewing technique you can use to ensure accuracy is to "listen". Note: Consider the event a "serious accident" if an employee is admitted to a hospital for treatment or observation because of injuries suffered from a workplace accident. GTG Automation, Inc. will report severe injuries and/or fatalities using one of the following methods:

- By telephone or in person to the OSHA Area Office that is nearest to the site of the incident,
- By telephone to the OSHA central telephone number, 1-800-321-OSHA (1-800-321-6742),
- By using the reporting application located on OSHA's web site at www.osha.gov.

On Site First Response

Employees who could be first responders will be trained and qualified in first aid techniques to control the degree of loss during the immediate post-incident phase.

Prevent Further Loss

After an immediate rescue, GTG Automation, Inc. will take actions to prevent further loss. For example:

Maintenance personnel will be summoned to assess integrity of building and equipment, engineering personnel to evaluate the need for bracing of structures, and special equipment/response requirements such as safe rendering of hazardous materials or explosives employed.

Secure the Accident/Incident Scene

Before investigating, the accident team needs to ensure the incident site is safe and secure for proper entry and investigation.

Securing the incident site will also help preserve any material evidence that might be altered or removed. Investigators can use cones, tape, or guards to help keep the site secure.

Reporting Requirements

Local reporting sequence of events

Injuries

If a fatal injury, illness, or hospitalization of one (1) or more employees occur, the plant manager will immediately notify the following persons and agency:

- Corporate Environmental Health and Safety (EHS) Director
- Division Manager (or any superior in this level)
- Group Manager or Team Leader (or any superior in this level)
- The area OSHA office (must be notified within 8 hours)

Involving the Environment

If an environmental incident occurs that must be reported to local, state, and/or federal agencies, the following persons will be notified:

- Corporate EHS Director
- Division Manager (or any superior in this level)
- Group Manager or Team Leader (or any superior in this level)
- Appropriate local, state and/or federal agency

Time Elements of when Incident will be Reported

GTG Automation, Inc. is required to verbally report incidents to OSHA within 8 hours of discovery. Incidents must be reported to owner client as soon as possible (or within 24 hours).

Reportable Incidents

- injury, illness, death, hospitalization of employees
- spills, property damage, fires, explosions, vehicle damage

ACCIDENT/INCIDENT CAUSES

Accidents occur when hazards escape detection during preventive measures, such as a job or process safety assessment, when hazards are not obvious, or as the result of combinations of circumstances that were difficult to foresee. A thorough accident investigation may identify previously overlooked physical, environmental, or process hazards, the need for new or more extensive safety training, or unsafe work practices.

The primary focus of any accident investigation will be the determination of the facts surrounding the incident and the lessons that can be learned to prevent future similar occurrences. The focus of the investigation will NEVER be to place blame. The process will be positive and thought of as an opportunity for improvement.

WHEN ACCIDENT/INCIDENT INVESTIGATIONS ARE REQUIRED

As a rule, investigations will be conducted for:

- All injuries (even the very minor ones)
- All accidents with potential for injury
- Fires, explosions, Spills
- Property and/or product damage situations
- All "Near Misses" where there was potential for serious injury

Near-miss and incident reporting and investigation allow you to identify and control hazards before they cause a more serious incident. Accident/incident investigations are a tool for uncovering hazards that either were missed earlier or hazards where controls were defeated. However, it is important to remember that the investigation is only useful when its objective is to identify root causes. In other words, every contributing factor to the incident must be uncovered and recommendations made to prevent recurrence.

Accident/Incident Investigation Plan

When a serious accident occurs in the workplace, everyone will be too busy dealing with the emergency at hand to worry about putting together an investigation plan, so the best time to develop effective accident investigation procedures is before the accident occurs. Part of an effective Accident and Incident Investigation Plan is to assign responsibilities

The Plan will Include Procedures that Determine

- Who will be notified of accident?
- Who is authorized to notify outside agencies? (Fire, police, etc.)
- Who is assigned to conduct investigations?
- Training required for accident investigators:
- Who receives and acts on investigation reports?
- Timetables for conducting hazard correction.

GATHER INFORMATION

The next step is to gather useful information about what directly and indirectly contributed to the accident.

The proper equipment will be available to assist in investigating, writing equipment such as paper, pens, measuring equipment, cameras, small tools, audio recorder, Personal Protective Equipment (PPE), marking devices such as flags, equipment manuals, etc.

The following tools will be used to gather as much information as possible:

- Locate witnesses, ensuring unbiased testimony, & obtain appropriate interviewing location
- To ensure detailed interviews, interviewers must be trained
- Interview eyewitnesses as soon as possible after the accident. Interview witnesses separately, never as a group. Statements must be collected
- Interview other interested persons such as supervisors, co-workers, etc.
- Follow-up interviews with all witnesses
- Review related records such as: training records, disciplinary records, medical records, maintenance records, OSHA 300 log, safety committee records

Documentation

All incident investigations will be documented in a written report and include the following:

- Name of injured employee
- The time, date, and location of the incident
- The severity and a detailed description, including the cause of incident or injury
- Name of the investigator and the date the investigation took place
- Evidence collected
- Corresponding corrective actions

The incident can also be documented by photography, video recording or sketching the scene.

Evidence

Evidence must be collected, secured, and preserved immediately following the incident and will include witness statements and interviews.

Evidence is defined as; environmental factors such as weather conditions, illumination, temperature, ventilation, and physical factors such as age and medical conditions, people, equipment, material, and papers must be preserved, secured, and collected through, notes, photographs, witness statements, flagging, and impounding of documents and equipment.

Develop a Sequence of Events

Use the information gathered to develop a detailed description of the accident. Make sure the accident is documented in enough detail to enable an individual unfamiliar with the situation to envision the sequence of events. Do not just describe the accident itself; include a description of events that led up to the accident.

Analyze the Accident/Incident

The next step is to determine the cause(s) of the accident. This is the most difficult step because first, the events must be analyzed to discover surface cause(s) for the accident, and then, by asking “why” a number of times, the related root causes are uncovered. Remember, surface causes are usually obvious and not too difficult to determine. However, it may take a great deal more time to accurately determine the weaknesses in the management system, or root causes, that contributed to the conditions and practices associated with the accident.

SURFACE CAUSES

The surface causes of accidents are those hazardous conditions and individual unsafe employee/manager behaviors that have directly caused or contributed in some way to the accident.

Hazardous Conditions may Exist in any of the Following Categories

- Materials
- Machinery
- Equipment
- Tools
- Chemicals
- Environment
- Workstations
- Facilities
- People
- Workload

It is important to know that most hazardous conditions in the workplace are the result of unsafe behaviors that produced them. Individual unsafe behaviors may occur at any level of the organization.

Some Example of Unsafe Employee/Manager Behaviors Include

- Failing to comply with rules
- Using unsafe methods
- Taking shortcuts
- Horseplay
- Failing to report injuries
- Failing to report hazards
- Allowing unsafe behaviors
- Failing to train
- Failing to supervise
- Failing to correct
- Scheduling too much work
- Ignoring worker stress

ROOT CAUSES

The root causes for accidents are the underlying system weaknesses that have somehow contributed to the existence of hazardous conditions and unsafe behaviors that represent surface causes of accidents. Root causes always pre-exist surface causes. Inadequately designed system components have the potential to feed and nurture hazardous conditions and unsafe behaviors. If root causes are left unchecked, surface causes will flourish! Root causes may be separated into two categories:

System Design Weaknesses

Missing or inadequately designed policies, programs, plans, processes, and procedures will affect conditions and practices generally throughout the workplace. Defects in system design represent hazardous system conditions.

System Implementation Weaknesses

Failures to initiate, carry out, or accomplish safety policies, programs, plans, processes, and procedures. Defects in implementation represent ineffective management behavior.

System design weaknesses: missing or inadequate safety policies/rules; training program not in place; poorly written plans; inadequate process; no procedures in place; develop preventive actions.

System implementation weaknesses: safety policies/rules are not being enforced; safety training is not being conducted; adequate supervision is not conducted; incident/accident analysis is inconsistent; lockout/tagout procedures are not reviewed annually.

Corrective Actions

GTG Automation, Inc. must include on in the written investigation, immediate corrective actions to be taken as well as long term actions to prevent the recurrence of the incident. All of the work done to this point culminates with recommendations to prevent similar accidents from happening in the future. Recommendations will relate directly to the surface and root causes of the accident. These recommendations will include recommended actions such as:

- Assigned responsibilities relative to the corrective actions
- Actions will be tracked to closure
- Engineering controls (for example, local exhaust ventilation or use of a lift assisting device)
- Work practice controls (for example, pre-plan work, and remove jewelry and loose-fitting clothing before operating machinery)
- Administrative controls (e.g., standard operating procedures or worker rotation)
- Personal protective equipment (for example, safety glasses or respirators)

It is crucial that, after making recommendations to eliminate or reduce the surface causes, that the same procedure is used to recommend actions to correct the root causes. If root causes are not corrected, it is only a matter of time before a similar accident occurs.

Written Incident Report

Written incident reports will be prepared and include an incident report form and a detailed narrative statement concerning the event. The format of the narrative may include an introduction, methodology, summary of the incident, investigation board members names, narrative of the event, findings, and recommendations. Photographs, witness statements, drawings, etc. will be included

Documentation and Communications of Lessons Learned

Lessons learned will be reviewed and communicated to affected employees. Changes to processes must be placed into effect to prevent reoccurrences or similar events.

SUMMARY

A successful accident investigation determines not only what happened but determines how and why the accident occurred. Investigations are crucial as an effort to prevent a similar or perhaps more disastrous sequence of events.

Research has shown that a typical accident is the result of many related and unrelated factors that somehow all come together at the same time. Usually, ten or more factors contribute to a serious accident. Although, this combination of factors normally makes an investigation very time consuming and resource intensive, the good news is that the accident can normally be prevented by removing only a few of the contributing factors.

EMPLOYEE INCIDENT REPORT

Reported By:	Date of Report:
Title / Role:	Incident No:
Employee Incident Information	
Employee Name:	Date:
Title / Role:	Time:
Location:	
Specific Area of Location:	
Additional Person(s) Involved:	
Witnesses:	
Incident description including any events leading to or immediately following the incident:	
Employee explanation of events / circumstances:	
Resulting action executed, planned, or recommended:	

CODE OF CONDUCT:

Proactive management includes Supervisory leadership and control to change unproductive activities. Conformance with safety policies, rules and regulations is a necessary component of our Safety Program

Employee safety responsibilities are communicated during initial orientation. Safety rules and regulations are reviewed with employees by their supervisors and are part of the documented Safety Training Process

Supervisors understand and enforce safety rules as a part of their job. This process may involve coaching, counseling, verbal or written reprimands and discipline in the form of suspension and/or termination. When appropriate, documented verbal warnings and reprimands are issued and carried out by supervisors

Failure to adhere to any of the Safety Rules and Safe Work Practices will result in disciplinary action. All discipline will be documented in the employee's folder. Discipline may be more severe depending on the offense

_____ Employee Name:	_____ Employee Signature	_____ Date
_____ Reporting Staff Name:	_____ Reporting Staff Signature:	_____ Date
_____ HR Name:	_____ HR Signature:	_____ Date

ACCIDENT /INCIDENT REPORT

Date	Time	Day of Week ☐ S ☐ M ☐ T ☐ W ☐ T ☐ F ☐ S	Shift ☐ 1 ☐ 2 ☐ 3	Department
Injured Person				
Name:		Address:		
Age:	Phone:			
Job Title:		Supervisor Name		
Length of Employment at Job Title:		Length of Employment with Company:		
Employee Classification: ☐ Fulltime ☐ Part Time ☐ Contractor ☐ Temporary				
Nature of Injury		☐ Foreign Body	☐ Other (specify):	
☐ Strain/Sprain	☐ Bruising	☐ Dislocation	Remarks:	
☐ Fracture	☐ Chemical Reaction	☐ Internal		
☐ Laceration/Cut	☐ Amputation	☐ Burn/Scald		
Treatment		Name of Treating Physician or Facility:		
☐ First Aid	Address:			
☐ Emergency Room				
☐ Drs Office				
☐ Hospitalization				
Damaged Property				
Property, Equipment or Material Damaged		Describe Damage		
Object or Substance Inflicting Damage				
Incident Description				
Describe what happened: (attach any photographs or diagrams if necessary):				
Root Cause Analysis (check all that apply)				
Unsafe Acts	Unsafe Conditions	Management Deficiencies		
☐ Improper Work Technique	☐ Poor Workstation Design/Layout	☐ Lack of Written Policies & Procedures		
☐ Safety Rule Violation	☐ Congested Work Area	☐ Safety Rules Not Enforced		
☐ Improper PPE Or PPE Not Used	☐ Hazardous Substances	☐ Hazards Not Identified		
☐ Operating Without Authority	☐ Fire or Explosion Hazard	☐ PPE Unavailable		
☐ Failure to Warn or Secure	☐ Inadequate Ventilation	☐ Insufficient Worker Training		
☐ Operating at Improper Speeds	☐ Operating at Improper Speeds	☐ Insufficient Supervisor Training		
☐ By-Passing Safety Devices	☐ Improper Tool or Equipment	☐ Improper Maintenance		
☐ Guards Not Used	☐ Insufficient Knowledge of Job	☐ Inadequate Supervision		
☐ Improper Loading or Placement	☐ Slippery Conditions	☐ Inadequate Job Planning		
☐ Improper Lifting	☐ Poor Housekeeping	☐ Inadequate Hiring Practices		
☐ Servicing Machinery in Motion	☐ Excessive Noise	☐ Inadequate Workplace Inspection		
☐ Horseplay	☐ Inadequate Hazards Guarding	☐ Inadequate Equipment		
☐ Drug or Alcohol Use	☐ Defective Tools/Equipment	☐ Unsafe Design or Construction		
☐ Unnecessary Haste	☐ Insufficient Lighting	☐ Unrealistic Scheduling		
☐ Unsafe Act of Others	☐ Inadequate Fall Protection	☐ Poor Process Design		
☐ Other:	☐ Other:	☐ Other:		

ACCIDENT/INCIDENT ANALYSIS			
Using the root cause analysis list on the previous page, explain the cause(s) of the incident in as much detail as possible.			
Make sketches or illustrations to help describe incident:			
How bad could the accident have been? ☐ Very Serious ☐ Serious ☐ Minor	What is the chance of the accident happening again? ☐ Frequent ☐ Occasional ☐ Rare		
PREVENTATIVE ACTIONS			
Describe actions that will be taken to prevent recurrence:	Deadline	By Whom	Complete
INVESTIGATION TEAM			
Name	Signature	Position	

TRAINING RECORD

Trainer:	
Signature:	
Date:	
CONTENT OF TRAINING:	
ATTENDEES	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has adopted this Behavior-based Safety Program for the safety of our employees and help prevent occupational injuries and illness.

The elements of our program consist of:

- Common Goals - Employee and Managerial commitment to the process
- Creating a systematic, ongoing process that defines a set of behaviors that reduce the risk of work-related injury, derived from safety assessments
- Training personnel in the Observation Process
- Observation and data collection on the frequency of critical safety practices
- Feedback and reinforcement to encourage and support positive safety practices
- Action Plan - Team meetings to decide on how to proceed, based on the data
- Review - Monitoring the progress of the Action Plan on a regular basis

OBSERVATION

A critical element in our Behavior-based Safety (BBS) Program depends on site observation. Site observation includes direct and open communication with the employees involved. The observer will:

- Meet with the worker at the site and introduce himself and the job being done
- Observe and monitor the worker, noting his safe behaviors
- Monitor the At-risk behaviors the worker is putting himself in

Observation Process Training

Training in the observation process will be established and implemented to the proper personnel. These individuals will be experienced employees of the Company. Training will consist of either classroom or on the job training.

Elements of the Training Program include:

- Who is to be trained
- Ensuring employees know the basic elements of the Behavior-based Program
- Ensuring that all employees involved in the process are trained in the classroom or on the job

The types of training that will be provided are:

- Management training: to ensure the common goals and process of the program are being met
- New employee training: effectively communicating the program to all employees
- Refresher training: to be performed as needed or when changes are made to the policy or procedure of the program

This training will include:

- Program objectives and incident report reviews
- How to conduct the site observations
- The observer's knowledge of the job procedures they observe
- Knowledge of the correct work and safety procedures involved
- How to complete the observation form
- How to determine and analyze At-risk behaviors
- Feedback training and role play (mentoring and coaching)- Employees should be aware they may be observed at any time

This training process will be documented in order to keep on record those qualified to observe on site behaviors and effectively implement the program's elements.

FEEDBACK

Communication is a crucial element in a successful Behavior-based Safety Program. To effectively accomplish this, feedback is of key importance.

The observer will start by commending the safe behavior the worker was doing during his work. You then want to explain, one by one, the At-risk behaviors the worker was doing. Then the observer asks the worker why he was putting himself at risk. For example, if the worker is welding a piece of metal and the sparks are flying in the workers direction. The observer would then ask the worker why he was not wearing protective clothing, like flame-retardant apron.

At this time the observer and worker will discuss the at-risk behaviors until the worker agrees to try the suggested recommendation made by the observer. The worker might be aware of his at-risk behavior or maybe not. The worker may be doing the at-risk behavior for a long time.

The Observer's job here is to highlight this behavior, then explain the associated negative consequences with this behavior. The above discussion and agreement is the individual feedback which helps the worker to change his behavior. This feedback is considered as a form of reward since:

- The worker got commendable comments on his safe behavior.
- The worker understood his at-risk behavior without being reprimanded at site or reported to his superiors for further penalties.

Key elements for the observer to remember during the feedback process are:

- Reviewing the observation with the employee
- Start with positive comments on behavior and procedure
- Reinforce these behaviors
- Describe and discuss the unsafe portions observed
- Determine the reasons for the unsafe actions with open-ended questions to the worker.

Re-emphasize that there are no negative consequences at this stage, so long as the observer and worker agree on the change of behavior.

DATA COLLECTION

At the end of the observation, the Observer will:

- Fill out an Observation Form with the safe and at-risk behaviors he noticed
- Record the date, time and location of the observations
- Note the workers comments and reasons for the at-risk behavior
- Record recommended safe behavior

The worker's name or identification number are not noted in the Observation Form.

- These Company forms will be used by GTG Automation, Inc. to summarize the observation process. Recording this interaction is important for later detailed analysis by the committee in charge of the program
- Data gathering and the Observation Form will be gathered and entered into an electronic database. Reports will be generated for the committee to analyze at risk behavior trends
- Information taken from the observation and feedback phase of the program will be compiled in useful data and implemented in the action plan

ELEMENTS OF THE ACTION PLAN

In order to address unsafe behaviors GTG Automation, Inc. will construct its Action Plan based on Observation Reports, trend analysis and recommendations from the Observers and employees. Greg Griffin is responsible for the procedures of the Action Plan.

Action planning will include:

- Regularly scheduled meetings to analyze Behavior-based report findings
- Evaluating unsafe behaviors
- Designating responsible parties and time frames to complete the Action Plan
- Ensuring support of management

The committee will:

- Produce a set of recommendations to correct workers' behavior
- Recommendations may be as simple as providing Personal Protective Equipment (PPE) to workers in certain location, or increase work force in another location
- Some of the recommendations require site modification or costly machinery. Such recommendations are sent to top management for necessary approvals

The committee's responsibility is to ensure that recommendations will:

- Change the at-risk behaviors at the targeted location
- Eliminate hazards and risks caused by hardware or wrong design

FOLLOW-UP

Any Action Plans set out by GTG Automation, Inc. at the direction of Greg Griffin will be completed in a time frame agreed upon by the entire committee.

Regularly scheduled meetings will be held to:

- Assign responsibility for the completion of the Action Plan
- Ensure that the guidelines of the Action Plan are being carried out
- To document the Action Plan and its progress

Behavior-Based Safety Program Employee Training Form

I, _____, have read or been informed of the Behavior-Based Safety Program and its elements.

- ☐ I am aware of the companies Safe Work procedures including the Company's Code of Safe Practices.
- ☐ I understand I may be observed in my job performance or assigned task by a designated Observer and this person will inform me that I am being observed.
- ☐ I understand that the Observer will communicate to me the positive and At-risk behaviors I may display on completion of his/her observation.
- ☐ I agree to do my utmost to implement any of the Observers' recommendations they make in order to improve my performance and safety.
- ☐ I understand my cooperation and communication is key to the success of the Behavior-based program.
- ☐ I understand that the Observations of my job performance will not include my name or identifying mark and is used only for statistical information in the program.
- ☐ I agree to follow the procedures of any Action Plan as set out by the Company.

Employee Signature: _____

Date: _____

BBS Training Form

Company Name:		
Date of Training:		
Trainer's Name:		
Trainee:	☐ Initial Training	☐ Refresher Training
The trainee (observer) named above has been trained to observe the following jobs:		
Work Type/Job	Trained	Not Trained
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐
	☐	☐

I, _____, understand that my training in the above listed jobs qualifies me to observe employees while doing their job(s), conduct feedback with employee(s) and implement the established goals of the Behavior-based Safety Program. I have also displayed the required knowledge in the following areas:

- Knowing the BBS Program objectives
- How to conduct observations
- Knowledge of the jobs being observed
- The correct safety procedures of these jobs
- Filling out the Observation Form
- How to identify At-risk behaviors

Signature: _____ Date: _____

Observation Form

Observer Name:		Date:
Job being observed:		
Job Step	Procedure Comments	
	Positive Behaviors:	At-risk Behaviors
1		
Recommendations:		
	Positive Behaviors:	At-risk Behaviors
2		
Recommendations:		
	Positive Behaviors:	At-risk Behaviors
3		
Recommendations:		
	Positive Behaviors:	At-risk Behaviors
4		
Recommendations:		
Employee Comments:		

Observer's Signature _____ Date: _____

POLICY

GTG Automation, Inc. has adopted the following program to ensure that short-service employees are identified, appropriately supervised, trained, mentored and managed. This program is adopted to prevent accidents such as personal injury, injury to others, environmental damage and/or property damage by the short service employee.

GTG Automation, Inc. defines a short-service employee (SSE) as any person or employee with less than six (6) months of experience in his/her current position or with one's current employer. A person can also be classified as an SSE if they change jobs within the Company they are working for or as a new hire for the same type of position for another company.

GTG Automation, Inc. is responsible for ensuring that the following policy and safe work practices are enforced.

REFERENCES

Although OSHA has no specific requirements regulating short-service employees, GTG Automation, Inc. has adopted this policy for the general safety of its employees and will follow industry best practices.

RESPONSIBILITIES OF EMPLOYER

GTG Automation, Inc. is responsible for leadership of the safety and health program, for its effectiveness and improvement, and for providing the safeguards required to ensure safe conditions

GTG Automation, Inc. is responsible for informing a host facility (hiring client) if an SSE will be performing work at their facility or job site.

Supervisors are responsible for developing the proper attitudes toward safety and health in themselves and in those they supervise, and for ensuring that all operations are performed with the utmost regard for the safety and health of all personnel involved, including themselves.

RESPONSIBILITIES OF EMPLOYEE

Employees are responsible for wholehearted, genuine operation with all aspects of the Safety and Health Program including compliance with all rules and regulations – and for continuously practicing safety while performing their duties

HAZARDS

High Hazard Areas

SSEs may be prohibited from entering and working in high-hazard areas in certain situations, these may include:

- Naturally occurring radioactive material (NORM)
- H²S areas
- Confined spaces

PROCEDURES (SAFE PRACTICES)

Work Crew Assignments and Restrictions

- A single employee as his own crew is not considered an SSE
- Employees defined as SSE are not permitted to work alone
- When crew/group sizes of less than five (5) are assembled, no more than one (1) SSE per group/crew is allowed
- When working with crew/group sizes larger than five (5) members, the number SSEs will not exceed 20% of the crew/group makeup.
- If the crew/group exceeds the twenty percent (20%) makeup of SSEs, a written variance form is required, which will serve as a mitigation plan. This variance will be approved by the Supervisor and/or Manager in charge of the project

Communication and Notification

The processes for the proposed crew/group, when using an SSE, are outlined in the Short Service Employee Form. Before beginning the job assignment, the Supervisor/Manager in charge will submit the completed SSE form for all the jobs that will contain SSE personnel, to the project's coordinator, on-site supervisor, or contractor. The work owner or supervisor/person in charge will decide the SSE approval status and will keep the original completed form in the project files.

Identification

All SSE personnel will be easily identifiable from more seasoned employees using one of the following methods:

- Wearing a standardized color high-visibility hard hat
- Wearing a standardized color vest
- Any other method which identifies the employee as an SSE

Monitoring SSE's

The supervisor will monitor their employees, which includes the SSE personnel for their safety performance, compliance with company safety policies and procedures and Environmental, Health and Safety (EHS) awareness.

The identifier marking the SSE may be removed from the SSE Program at the discretion of the supervisor at the end of the required six-month period if the SSE has:

- Worked safely
- Adhered to all EHS policies
- Had no recordable incidents attributed to them

The supervisor will require the employee who fails to complete the six (6) months free of recordable incidents, to get the operator to approve in writing before allowing the person to return to the operator's property.

Mentoring Process

All SSE's will be assigned a mentor for the first six (6) months of employment. A mentor's responsibility is to develop the SSE personnel by providing guidance, instructions and supervision. A mentor may be assigned only one (1) SSE per crew/group and will never allow an assigned SSE to work alone by always being onsite to monitor the SSE.

The mentor will meet the following requirements:

- Knowledgeable and experienced, and have up-to-date orientation training
- Be familiar with the SSE's job, have the oversight responsibilities required and all hazards accompanied with the job
- Be familiar with all site policies, procedures and any required specialized actions with the work to be done
- Show the ability to recognize any hazards and/or unsafe acts
- Are able and willing to challenge their employees on the job if they do not meet site procedures, policies, or other requirements and will see that the stop-work authority is enforced
- Participate actively in the behavior-based safety process

Note: A mentor will keep a helpful eye on new hires in your crew. Take time to describe the layout of the project, the best method to access the work, or how to work a tool they have never used before.

Subcontractor Management

Subcontractors hired by the Company will adhere to applicable policies and procedures put in place regarding SSEs.

Subcontractors working on-site will have assigned mentors who monitor their employees only. Mentoring of outside employees will be done on an individual basis and as required. They will also be managed by this policy.

REQUIREMENTS

SSE Plan

GTG Automation, Inc. has established this Short-Service Employee (SSE) plan to verify all work is being carried out safely by requiring SSE supervisors to:

- Communicate the SSE policy and procedure at all pre-job meetings.
- Submit the crew/group makeup and all SSE form(s) to the on-site representative of the work owner for approval.
- Ensure the on-site representative validates the crew/group makeup and experience level.
- See that the on-site representative approves the SSE variance form.
- Make sure the on-site representative posts the forms to the appropriate database if required.

SSE Review

To ensure each Short-Service Employee is progressing satisfactorily through the SSE program, the Company will document progress of everyone from start to completion.

Based on the unique characteristics of the assigned work of the SSE, a checklist will be developed for each SSE employee with a record of milestone requirements met. These requirements, based on the unique assigned area, group, or work, such as:

- Receiving the required safety orientation
- Attending the required safety training
- The SSE demonstrates the ability to do the job required
- SSE can use tools/machines/equipment safely
- The ability to identify the hazards at the work site and how to protect oneself.

Additional key milestones will be added.

Program Review

This Short Service Employee Program will be reviewed on a regular basis to ensure the practices are kept up to date by performing the following:

- Continuous monitoring of the SSE
- Ensuring all changes/updates to the forms are submitted before beginning work and whenever a change may occur thereafter

PERSONAL PROTECTIVE EQUIPMENT (PPE)

Short-Service Employees will be provided required PPE at the expense of the employer. SSE will receive training in:

- PPE that is required in various locations
- How to inspect, don, doff clean and maintain required PPE

TRAINING

Short-Service Employees will be properly trained in the knowledge and skills necessary to conduct their assigned jobs safely and efficiently.

Training will include:

- Federal, state, industry and company requirements
- Hazard(s) present in the workplace.
- The policies, procedures and processes utilized to control these hazards and prevent illnesses, injuries, property damage and/or environmental incidents.
- The proper use of PPE and all its requirements

CONTRACTOR SHORT-SERVICE EMPLOYEE FORM & VARIANCE

A supervisor will complete and submit this form to work owner supervision for approval prior to arrival on location. The work owner supervision will approve the individual SSE before he/she arrives on location.

I SSE Information					
Contractor Company Name:					
SSE Name:					
Request Date:		Date of Employment:		Current Job Title:	
Years Related Experience		Yrs.	Months	Experience in Current Position	
Is this worker in compliance with your Substance Abuse Policy?				☐ Yes	☐ No
Have site owner, contractor and HSE policies been reviewed with SSE?				☐ Yes	☐ No
Assigned Mentor's Name:			Mentor's Experience:		
List all training provided to the SSE:			List any previous special training:		
SSE(s) identified by: Hard Hat -High Visibility Vest -High Visibility			Other:		Color;

II. SSE Crew Composition Requirements

Choose one (1) of the crew types below. If any of the stated limitations are exceeded, proceed to the variance form on next page.

Single person crew-cannot be an SSE (Variance Required)

2-4-person crew-no more than one (1) SSE

5 or more-person crew-no more than 20% SSE(s) per crew

Exceeding 20% SSE per crew (Variance Required)

III. SSE Review and Approval

Contractor Supervising Manager:

Date:

CPL Work Location Supervisor:

Date:

Work Owner:

Date:

IV. Contractor SSE Form Repository

CSM Data Base:

Date:

CPL Work location

Date:

Work Owner file:

Date:

This form is to be filled out whenever the conditions on this form or any other element of the Short Service Employee Policy cannot be met.

IV. Variance Information	
Variance Justification (What are the current circumstances and what will be done to ensure an acceptable level of risk?)	
Alternatives to Variance (If the variance is denied, what are the alternatives to completing the scope of the work? Briefly detail the cost and operational impact of the alternatives.)	

List the steps to be taken to manage/mitigate the SSE risk to an acceptable level:

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

V. Variance Review and Approvals

Variance Expiration Date: _____

Contractor Manager/Supervisor

Approves Denies

Signed: _____ Date: _____

Work Owner's on-site representative Approves Denies

Signed _____ Date: _____

Note: For large jobs, please use a separate sheet to list all SSEs on the crew by name and job title.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
CONTENT OF TRAINING:	
ATTENDEES	
Print Name:	Signature:

POLICY

GTG Automation, Inc. is committed to the safety and health of our employees and to providing access to employee medical records. Therefore, the following Access to Medical Records Safety Program has been adopted.

GTG Automation, Inc. has implemented this plan to ensure that access to employee exposure and medical records are available to employees at all times in accordance with 29 CFR §1910.1020(e) Greg Griffin is the Company administrator who has the overall supervisory responsibility for the effectiveness of this program and for maintaining medical and training records.

Definitions

Employee exposure record means a record containing any of the following kinds of information:

- Environmental (workplace) monitoring or measuring of a toxic substance or harmful physical agent, including personal, area, grab, wipe, or other form of sampling, as well as related collection and analytical methodologies, calculations, and other background data relevant to interpretation of the results obtained
- Biological monitoring results which directly assess the absorption of a toxic substance or harmful physical agent by body systems (e.g., the level of a chemical in the blood, urine, breath, hair, fingernails, etc.) but not including results which assess the biological effect of a substance or agent or which assess an employee's use of alcohol or drugs
- Safety data sheets indicating that the material may pose a hazard to human health
- In the absence of the above, a chemical inventory or any other record which reveals where and when used and the identity (e.g., chemical, common, or trade name) of a toxic substance or harmful physical agent

Employee medical record means a record concerning the health status of an employee that is made or maintained by a physician, nurse, or other health care personnel, or technician, including:

- Medical and employment questionnaires or histories (including job description and occupational exposures)
- Results of medical examinations (pre-employment, pre-assignment, periodic, or episodic) and laboratory tests (including chest and other X-ray examinations taken for the purpose of establishing a baseline or detecting occupational illnesses and all biological monitoring not defined as an "employee exposure record")
- Medical opinions, diagnoses, progress notes, and recommendations
- First aid records
- Descriptions of treatments and prescriptions, and employee medical complaints

"Employee medical record" does not include medical information in the form of:

- Physical specimens (e.g., blood or urine samples) which are routinely discarded as a part of normal medical practice
- Records concerning health insurance claims if maintained separately from GTG Automation, Inc.'s medical program and its records, and not accessible to GTG Automation, Inc. by employee name or other direct personal identifier (e.g., social security number, payroll number, etc.)
- Records created solely in preparation for litigation which are privileged from discovery under the applicable rules of procedure or evidence
- Records concerning voluntary employee assistance programs (alcohol, drug abuse, or personal counseling programs) if maintained separately from GTG Automation, Inc.'s medical program and its records

PURPOSE

The purpose of this plan is to provide employees and their designated representatives a right of access to relevant exposure and medical records; and to provide representatives of the Assistant Secretary a right of access to these records in order to fulfill responsibilities under the Occupational Safety and Health Act.

GTG Automation, Inc. is responsible for assuring compliance with this section, but the activities involved in complying with the access to medical records provisions can be carried out, on behalf of GTG Automation, Inc., by the physician or other health care personnel in charge of employee medical records.

Except as expressly provided, nothing in this section is intended to affect existing legal and ethical obligations concerning the maintenance and confidentiality of employee medical information, the duty to disclose information to a patient/employee or any other aspect of the medical-care relationship or affect existing legal obligations concerning the protection of trade secret information.

GTG Automation, Inc. will establish and maintain an accurate record for each employee with occupational exposure, in accordance with §1910.1020. Training records will include the dates and contents of training, and the names and job titles of persons attending. Training records will be maintained for 3 years from the date of training and medical records will be maintained for at least the duration of employment plus 30 years. Employee exposure records must be retained for the duration of employment plus 30 years. An exposure record is a record which measures or monitors the amount of toxic substances or harmful physical agents to which the employee is or has been exposed.

GTG Automation, Inc. will ensure that all records required by this section will be available when requested by employees, Assistant Secretary, and the Director. Medical records need employee written consent before release. GTG Automation, Inc. will comply with the requirements involving transfer of records.

Access to Records

- Whenever an employee or designated representative requests access to a record, GTG Automation, Inc. will assure that access is provided in a reasonable time, place, and manner
- If GTG Automation, Inc. cannot reasonably provide access to the record within fifteen (15) working days, GTG Automation, Inc. will, within the fifteen (15) working days, inform the requestor of the reason for the delay and the earliest date when the record can be made available

Whenever an employee or designated representative requests a copy of a record, GTG Automation, Inc. will assure that either

- A copy of the record is provided without cost to the employee or representative
- The necessary mechanical copying facilities (e.g., photocopying) are made available without cost to the employee or representative for copying the record
- The record is loaned to the employee or representative long enough to copy

Analyses Using Exposure or Medical Records

- GTG Automation, Inc. will, upon request, assure the access of each employee and designated representative to each analysis using exposure or medical records concerning the employee's working conditions or workplace
- Whenever access is requested to an analysis which reports the contents of employee medical records by either direct identifier (name, address, social security number, payroll number, etc.) or by information which could reasonably be used under the circumstances indirectly to identify specific employees (exact age, height, weight, race, sex, date of initial employment, job title, etc.) GTG Automation, Inc. will ensure that personal identifiers are removed before access is provided

If GTG Automation, Inc. can demonstrate that removal of personal identifiers from an analysis is not feasible, access to the personally identifiable portions of the analysis need not be provided

OSHA Access

GTG Automation, Inc. will, upon request, assure the prompt access of representatives of the Assistant Secretary of Labor for Occupational Safety and Health to employee exposure and medical records and to analyses using exposure or medical records.

Employee Information

Upon an employee's first entering into employment, and at least annually thereafter, each employer will inform current employees covered by this section of the following: the existence, location, and availability of any records covered by this section; the person responsible for maintaining and providing record access; and each employee's rights of access to these records.

Trade Secrets

If GTG Automation, Inc. denies a written request for disclosure of a specific chemical identity, the denial must:

- Be provided to the health professional, employee, or designated representative within thirty days of the request
- Be in writing
- Include evidence to support the claim that the specific chemical identity is a trade secret
- State the specific reasons why the request is being denied
- Explain in detail how alternative information may satisfy the specific medical or occupational health need without revealing the specific chemical identity

Transfer of Records

If GTG Automation, Inc. is ceasing to do business, GTG Automation, Inc. will transfer all records subject to this section to the successor employer. The successor employer will receive and maintain these records.

If GTG Automation, Inc. is ceasing to do business and there is no successor employer to receive and maintain the records subject to this standard, GTG Automation, Inc. will notify affected current employees of their rights of access to records at least three (3) months prior to the cessation of GTG Automation, Inc.'s business.

If GTG Automation, Inc. either is ceasing to do business and there is no successor employer to receive and maintain the records, or intends to dispose of any records required to be preserved for at least thirty (30) years, GTG Automation, Inc. must transfer the records to the Director of the National Institute for Occupational Safety and Health (NIOSH) if so required by a specific occupational safety and health standard.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has adopted this program for employee safety on or around “Vehicle Mounted Elevating and Rotating Work Platforms” also known as Elevating Work Platforms (EWP).

REFERENCES

- §1910.67 – Vehicle-Mounted Elevating and Rotating Work Platforms
- §1926.453 – Aerial Lifts
- §1926.952 – Aerial Devices Working Near Energized Lines or Equipment

RESPONSIBILITIES

GTG Automation, Inc. has implemented and enforces these work practices and procedures to assure that no employee will be exposed to hazards during aerial lifting operations.

Greg Griffin is designated by GTG Automation, Inc. as the Competent Person in authority over all aerial device work procedures. Greg Griffin will ensure that all safety measures and systems are in place and correctly installed, all safety procedures are adhered to, and ensure regular inspections of the operational site and aerial equipment are made. Only authorized personnel are permitted to operate an aerial lift.

Responsibilities During Elevating Work Platform Operations

Because elevating work platforms are often rented from an equipment supplier, there is confusion as to the responsibilities of the parties involved.

The owner or supplier must ensure that the machine:

- Is maintained in good operating condition
- Conforms to appropriate regulations and standards
- Includes the operator’s manual and correct load rating charts

GTG Automation, Inc. and supervisors on the project must:

- Ensure that the operator is trained and competent to operate his equipment
- Ensure that the machine has the correct load rating capacity for the job
- Maintain the equipment and all its protective devices
- Maintain a daily inspection log for each platform
- Ensure that workers use appropriate personal protective equipment
- Keep the manufacturer’s operating manual with the equipment
- Train workers on each type of equipment that they will be using
- Use watchmen or cones to direct traffic (away from the equipment when in use)

The operators and workers using the equipment must:

- Receive adequate training to be fully competent
- Only operate the machine when competent
- Operate the machine in a safe manner as prescribed by the manufacturer and according to Company safety and health policies
- Inspect the equipment each day or each shift before use
- Perform function tests before use
- Report any defects to the supervisor
- Read, understand, and obey the manufacturer's safety rules, including the operating manual and warning decals. When a defect is reported to the supervisor, the equipment must be taken out of service until the repairs are completed and the equipment is inspected and approved for use

TRAINING

Greg Griffin will verify that all employees are trained in and familiar with required work practices and procedures in the use of any equipment required, proper Personal Protective Equipment (PPE), and safety procedures which must be followed to safeguard personnel involved in aerial lifting operations or who work in the vicinity of aerial lifting operations.

DEFINITIONS

Aerial Device or Aerial Work Platform – means any vehicle-mounted device, telescoping or articulating or both, that is designed and manufactured to raise personnel to an elevated work position on a platform supported by scissors, masts, or booms.

Aerial Ladder – means an aerial device that consists of a single- or multiple-section rung ladder.

Articulating Boom Platform – means an aerial device that has two or more hinged boom sections.

Authorized Person – means a person who is approved and assigned to perform specific types of duties by the employer and who is qualified to perform those duties because of his or her training or experience.

Boom – An elevating member, the lower end of which is so attached to a rotating or non-rotating base that permits elevation of the free or outer end in vertical plane.

Commercial Chassis – means a vehicle that is built for over-the-road (roadway) travel.

Elevating Work Platform – A device designed to elevate a platform in a substantially vertical axis (Vertical Tower, Scissor Lift).

Insulated Aerial Device – means an aerial work platform that is designed with dielectric components to meet specific electrical insulating ratings for work on or near energized lines and apparatus.

Platform – means the portion of an aerial work platform, such as a bucket, basket, stand, cage, or the equivalent, that is designed to be occupied by personnel and is a component of an aerial device.

Qualified Person – means a person who possesses a recognized degree, certificate, professional standing, or skill and who, by knowledge, training, and experience, has demonstrated the ability to deal with problems relating to the subject matter, the work, or the project.

Qualified Line Clearance Tree Trimmer – means an employee trained to work in proximity of energized power transmission and distribution lines. An employee in a training program is included in this definition.

SAFE PRACTICES

- Aerial lifts must be designed and constructed in conformance with the applicable requirements of the American National Standards for "Vehicle Mounted Elevating and Rotating Work Platforms", ANSI A92.2.
- Each work platform will be inspected, maintained, repaired, and kept in proper working order in accordance with the manufacturer's maintenance and repair manuals

On a daily basis, before the work platform is used, it must be given a thorough inspection, which will include:

- Inspection for defects such as cracked welds, hydraulic leaks, damaged control cable, loose wire connections, and tire damage
- Inspection of functional controls for proper operation
- Lift controls will be tested each day prior to use to determine that such controls are in safe working condition
- Tests will be made at the beginning of each shift during which the equipment is to be used to determine that the brakes and operating systems are in proper working condition
- Critical safety components of mechanical elevating and rotating equipment whose failure would result in a free fall or free rotation of the boom will receive a thorough visual inspection before use on each shift
- Vehicles will have a reverse signal alarm audible above the surrounding noise level or the vehicle will be backed up only when an observer signals that it is safe to do so
- For power lines rated 50 kV. or below, minimum clearance between the lines and any part of the crane or load will be 10 feet
- Any suspect items discovered through inspection must be carefully examined and a determination made by a qualified service person as to whether they constitute a safety hazard. All unsafe items must be corrected before further use of the work platform
- Any work platform not in safe operating condition will be removed from service until it is repaired. All repairs will be made by a qualified service person in conformance with the manufacturer's operating, maintenance, and repair manuals

- Aerial lifts may be "field modified" for uses other than those intended by the manufacturer provided the modification has been certified in writing by the manufacturer or by any equivalent entity
- Manufacturer's boom, basket, and platform load limits will not be exceeded
- Each work platform will be equipped with a mechanical parking brake, which will hold the unit on any slope it is capable of climbing. When possible, wheel chocks will be installed before using an aerial lift on an incline
- Employees will always stand firmly on the floor of the basket and will not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.
- Approved fall protection will be worn, and a lanyard attached to the boom or basket when working from an aerial lift.
- No aerial vehicular equipment having an obstructed view to the rear may be operated on off-highway jobsites where any employee is exposed to the hazards created by the moving the vehicle, unless the vehicle has a reverse signal alarm audible above the surrounding noise level or the vehicle is backed up only when a designated employee signals that it is safe to do so
- Aerial vehicular equipment provided with outriggers will be operated with the outriggers extended and firmly set as necessary for the stability of the specific configuration of the equipment. Outriggers may not be extended or retracted outside of clear view of the operator unless all employees are outside the range of possible equipment motion
- When the work area or the terrain prevents the use of outriggers, the equipment may be operated only within its maximum load ratings for the particular configuration of the equipment without outriggers
- Mechanical elevating and rotating equipment used to lift or move material will be used within its maximum load rating and other design limitations for the conditions under which the work is being performed
- A designated employee other than the equipment operator will observe the approach distance to exposed lines and equipment and give timely warnings before the minimum approach distance is reached

The following clearances will be maintained when operating aerial work platforms or other equipment under, over, by, or near energized electric power lines:

Before using the work platform, the operator will:

- Read and understand the manufacturer's operating instructions and safety rules, and be trained on them by a qualified person
- Read and understand all decals, warnings, and instructions on the work platform
- Before the work platform is used, the operator will survey the area for hazards such as: untapped earth fills; ditches; drop-offs or holes; bumps and floor obstructions; debris; overhead obstructions and high voltage conductors; other possible hazardous conditions

Before each elevation of the work platform, the operator will:

- Check for overhead obstructions and high-voltage conductors. A minimum distance of ten feet from energized high-voltage conductors must be maintained at all times between the conductors and the operator and platform equipment
- Ensure that the load and its distribution on the platform are in accordance with the manufacturer's rated capacity. The manufacturer's recommended load limits must never be exceeded
- Ensure outriggers and stabilizers are used according to manufacturer's instructions
- Ensure that guardrails are properly installed, and gates are closed

Before and during driving while the platform is elevated, the operator will:

- Be required to look in the direction of, and keep a clear view of, the path of travel and assure that the path of travel is firm and level
- Maintain a safe distance from obstacles, debris, drop-offs, holes, depressions, ramps, or other hazards to safe elevated travel
- Maintain a safe distance from overhead obstacles
- The operator will limit travel speed according to conditions. Conditions to be observed are Ground surface, congestion, slope, location of personnel, and other factors that may create a hazard of collision or injury to personnel
- Personnel will maintain a firm footing on the platform while working thereon unless they are secured by safety harness and lanyard devices fixed to manufacturer-approved anchor points. Use of railings or planks, ladders, or any other device on the work platform for achieving additional height is prohibited
- The operator will immediately report defects or malfunctions which become evident during operation and must stop use of the work platform until correction has been made
- Altering or disabling of safety devices or interlocks is prohibited
- Stunt driving and horseplay is prohibited
 - An aerial device that does not meet the requirements will not be used unless it has been inspected and modified as required to conform to the essential stability, structural, electrical insulation, and operational requirements of ANSI A92.2

Each aerial device placed in service will have a conspicuously displayed legible plate or other legible marking verifying the aerial device is designed and manufactured in accordance with the following applicable specifications:

- ANSI Standard A92.2, "Vehicle-Mounted Elevating Work Platforms", which applies to vehicle-mounted devices installed on commercial chassis and covers the following type of units:
- Extensible boom aerial devices
- Aerial ladders
- Articulating boom aerial devices
- Vertical towers
- A combination of any of the equipment specified

- ANSI Standard A92.3, "Manually Propelled Elevating Work Platforms", which applies to work platforms which are manually propelled, which are vertically adjustable by manual or powered means, and which may be towed or manually moved horizontally on wheels or casters that are an integral part of the work platform base
- ANSI Standard A92.5, "Boom-Supported Elevating Work Platforms", which applies to all integral frame, boom-supported elevating work platforms which telescope, articulate, rotate, or extend beyond the base dimensions
- ANSI Standard A92.6, "Self-Propelled Elevating Work Platforms", which applies to self-propelled vertically adjustable integral chassis work platforms. Such work platforms are power operated with primary controls for all movement operated from the platform

The following information will be displayed on all work platforms in a clearly visible, accessible area and in as permanent a manner as possible:

- Warnings, cautions, or restrictions for safe operation in accordance with ANSI requirements
- The rated workload will be clearly displayed at each entrance to the platform

VEHICLE MOUNTED ELEVATING & ROTATING WORK PLATFORMS

There are two basic types of elevating work platforms – boom and scissor. Both types come in:

- “On-Slab” models for use on smooth hard surfaces such as concrete or pavement.
- Rough-Terrain models used on firm level surfaces: graded and compacted soil or gravel.

Both types share three major components: base, lifting mechanism, and platform assembly.

SCISSOR-TYPE MACHINES

These are raised and lowered by hydraulic pistons and an expanding scissor mechanism. Platforms are available in various configurations with different capabilities for extension and movement. Some have extendable platforms or platforms that can rotate. Extendable platforms will be retracted before raising or lowering the device.

On-Slab Units

- Not designed for uneven or sloping ground
- Normally have solid rubber tires
- Generally powered by rechargeable DC battery
- Some are powered by internal combustion engine, either gasoline or propane
- Most have “pothole protection” – a metal plate lowered close to the ground to afford some protection against inadvertent movement into depressions or debris

Rough-Terrain Units

- Similar in design to on-slab machines
- Built to handle rigorous off-slab challenges
- Normally have wider wheelbases, larger wheels, and pneumatic tires
- Some fitted with outriggers for extra stability
- Usually powered by internal combustion engines: gasoline, diesel, or propane
- DC Battery powered units are also available, but are not common
- Lifting mechanism is hydraulic

Scissor-lifts range in capacity from 500 to several thousand pounds. They are available with platform heights often reaching 50 feet or more. Scissor-lifts must be set up on stable, level ground, even with outriggers deployed. A slight imbalance or instability is amplified when the machine is raised.

Although fixed to the platform, the controls are moveable from one side of the platform to the other. This enables the operator to see the path of travel. The controls must be oriented correctly so that the operator does not inadvertently move the machine in the wrong direction. Many machines have color-coded directional arrows on the chassis to aid the operator in moving the machine.

SELF-PROPELLED BOOM-SUPPORTED PLATFORMS

- Normally fitted with rough-terrain undercarriages
- Some smaller on-slab units
- Platforms have lifting capacity of about 500 pounds or two workers
- Lack capacity of scissor-type machines; not intended for lifting materials
- Usually powered by an internal combustion engine: gasoline, diesel, or propane

Booms

- Telescopic, articulating, or combination of both
- Raised and extended by hydraulic cylinders
- Can reach up to 150 feet
- Can extend well beyond the wheelbase

As with mobile cranes, stability decreases with length of boom and boom angle as the center of gravity moves in relation to the platform position. The machine will overturn if the center of gravity moves outside the machine's base.

Machines come with load charts that show safe operating configurations. Machines with booms long enough to cause overturning at low boom angles are required to have radius-limiting interlocks to prevent operation in unstable configurations. The reach chart indicates the safe operating configurations for a machine operating on a level surface. The reach diagram shows the safe operating envelope. The machine does not achieve its maximum height directly overhead, nor does it achieve its maximum reach at ground level.

Users must be familiar with the operating range of the individual make and model of the equipment they are using. This knowledge is essential in order to position the machine correctly and reach the work location safely.

NON-SELF-PROPELLED OR PUSH-AROUNDS

These units are not self-propelled and must be transported from one location to another with an independent power source or manually in the case of the smaller devices. The machines are intended primarily for use on smooth, level, hard surfaces or on-slab conditions. Some trailer-mounted units are available. Some can fold up to pass through a standard door and can be transported by pick-up truck. As a result, they are suitable for maintenance or renovation work.

PUSH-AROUNDS

- Raising mechanism normally powered by gasoline, propane or electric motors
- Normally raised and lowered by hydraulic cylinders
- Platform capacities vary from 300 to 1000 pounds or more
- Devices with capacity less than 500 pounds are Not Recommended for construction – this type is better suited to maintenance activities
- Platforms usually do not exceed 36 feet in height
- As platform is raised, risk of overturning increases
- Extra care required when operating at maximum height

EQUIPMENT SELECTION

Elevating work platforms are designed for different uses. It is essential to select the appropriate equipment for the job.

Typical Mistakes

- Using an on-slab machine on rough terrain
- Using a unit undersized with respect to height, reach, and lifting capacity
- Lifting large materials that overhang the platform
- Using a scissor lift where the reach of a boom-type machine is needed
- Extending the platform with planks, ladders, or other devices because the machine cannot reach the required height

Factors to Consider

- Capacity – Does the machine have the lifting capacity, the reach, and the height to complete the task?
- Surface Conditions – Are the surface conditions hard or soft, sloped or level? Will the ground have an effect on the type of machine selected?
- Platform Size and Configuration – Do you need a regular or extendable platform? Is rotation required? Are there space restrictions to consider?
- Mobility – Is a boom type better suited than a scissor lift to the task?

- Material to be Lifted – Will the machine be able to lift the size and weight of material required for the job?
- Access – Will the machine be able to travel around the workplace safely? Are there obstructions or depressions that will restrict the use of certain machines?
- Operator Skill or Training – Are the people on site competent to operate the machine? If a propane-powered engine is used, has the operator received propane training?
- Work Environment – If the work is to be done indoors, or in a poorly ventilated area, will an electrically powered machine be required?

FUNDAMENTAL ELEVATING WORK PLATFORM HAZARDS

- Machine Tipping or Overturning – Many factors cause instability – sudden stops, depressions, drop-offs, overreaching, overloading, etc. Overturning and tipping result in many fatalities and injuries
- Overriding Safety Features – Disarming features such as the tilt or level warning and the dead man switch can prevent operators from knowing they are in danger
- Overhead Power line Contact – Contacting overhead wires can cause electrocution
- Falls from Elevated Platforms – Many falls occur because workers get in a hurry and fail to observe standard fall protection procedures. Many such falls cause serious injury or even fatalities
- Makeshift Extensions – When the machine cannot reach the working height desired, do not compensate by using scaffold planks, ladders, blocks of wood, or other makeshift arrangements. Such practices lead to falls and machine instability
- Overloading the Platform – Elevating work platforms overloaded or loaded unevenly can become unstable and fail. Boom-type machines are especially sensitive to overloading. Always stay within the operating range specified by the manufacturer
- Failure to Cordon Off –
- Elevating work platforms have been struck by other construction equipment or oncoming traffic when the work area is not properly marked or cordoned off
- Workers have been injured when they inadvertently entered an unmarked area and were struck by falling material, tools, or debris
- In unmarked areas, workers have also been injured by swinging booms and pinched by scissor mechanisms
- Accidental Contact – Many elevating work platforms have blind spots. Moving the machine or platform may cause contact with workers or with obstacles. Use a designated signaler on the ground to guide the operator when the path of travel is not clear, or access is tight
- Improper Maintenance or Modifications – Elevating work platforms will be maintained by competent workers in accordance with manufacturer's instructions. No modifications will be made to the machine without the manufacturer's approval
- Improper Blocking During Maintenance – Failing to block, or improperly blocking the machine, boom, or platform can cause serious crushing injuries and property damage.

- Improper Access – Do not enter or leave the platform by climbing the scissors or the boom. Do not use extension ladders to gain access. Ladders exert lateral loads on the platform that can cause overturning. For the safest access, lower the machine completely
- Moving with the Platform Raised – Lower the platform before moving the machine unless: The machine is designed to move with the platform raised, or the supporting surface is smooth and level. Slight dips and drops are amplified when the platform is raised and can cause the machine to overturn
- Improper Refueling – Take care when refueling. Gasoline, for instance, will be kept in approved containers and dispensed to prevent spills and sparking
- Pinch Points – Clothing, fingers, and hands can get caught in scissor mechanisms. As platforms are raised, machines may sway. Workers can be pinched between guardrails and the structure. Position the platform so that work takes place above guardrail height

STABILITY AND TIPPING

- In general, elevating work platforms are well manufactured and are safe to use within their specific limitations. However, as with any equipment or tool, there are dos and don'ts to follow.
- One of the most dangerous hazards in operating elevating work platforms is tipping over. This can be caused by one or more of the following factors:
 - Sudden movement of the unit or parts of the unit when elevated
 - Making sudden stops while in motion with platform elevated
 - Uneven or overloading of the platform
 - Traveling or operating on a slope or uneven terrain
 - Changing the weight distribution of the machine by replacing parts with others of a different weight or adding attachments not approved by the manufacturer
 - Holes or drop-offs in the floor surface causing one wheel to drop suddenly
 - Operating the equipment in windy conditions (refer to the operator's manual for safe operating conditions)

It is important that users understand what makes a platform stable and what causes it to overturn. To understand stability, one must understand the concept of center of gravity, tipping axis (or tipping point), and forces that shift the center of gravity.

Stability is resistance against tipping over. Stability depends on the location of the center of gravity in relation to the tipping axis.

CENTER OF GRAVITY

Every object has a center of gravity. It is the point where the object's weight would be evenly distributed or balanced. If a support were placed under that point, the object would be perfectly balanced.

The center of gravity is usually located where the mass is mostly concentrated. However, the location does not always remain the same.

Any action that changes the machine's configuration – such as raising the platform, extending the boom, or traveling on a slope – can change the location of the center of gravity.

Tipping Axis and Area of Stability

When an EWP turns over, it tips around an axis or point. This is called the tipping axis or tipping point. EWPs typically have four tipping axes – front, back, left, and right.

Each EWP has its own area of stability. This varies from platform to platform and from model to model. In most cases, the area of stability is bound by the four tipping axes (or the four tires or outriggers). The platform is stable as long as the center of gravity remains inside the area of stability. This is the key to safe operation.

When the center of gravity shifts beyond the area of stability, the machine will tip over. Some factors that can cause a shift beyond the stability area are overloading, moving on excessively sloped ground, a sudden drop of one wheel, and shock loading.

Raising the platform also raises the EWP's center of gravity. When a scissor lift is situated on a slope, and the platform is raised, the platform's center of gravity will move toward the tipping axis. If the center of gravity moves beyond the tipping axis, the platform will overturn.

Boom-supported aerial devices work in the same way. When the boom is extended outward, the center of gravity moves outwards towards the tipping axis. The aerial device will overturn if the boom is extended such that the center of gravity moves beyond the axis. Boom-type machines have an interlocking system that prevents the machine from moving into an unstable configuration.

FACTORS AFFECTING STABILITY

Dynamic Forces

Dynamic forces are forces generated by movement or change of movement. For example, applying the brakes suddenly or traveling too fast around corners can cause instability – as in a car or van. Sudden stops while raising or lowering the platform can also cause instability.

Traveling

Traveling the platform over rough or uneven ground can also cause instability. Lower the platform fully or retract telescoping sections while traveling, particularly on uneven surfaces.

EQUIPMENT INSPECTION

All components that bear directly on the safe operation of the EWP and can change from day to day must be inspected daily. Inspection is mostly visual – done in a quick but thorough manner.

Check the operator's manual for a complete list of pre-operational checks. See the end of this section for Daily Inspection Checklists for Elevating Work Platforms and Aerial Devices.

MINIMUM REQUIREMENTS

Before climbing onto the platform, check:

- Tires for proper pressure and wheels for loose or missing lug nuts
- Steer cylinder, linkage, and tie rods for loose or missing parts, damage, & leaks
- Hydraulic oil for leaks and fluid level. Hydraulic hoses, lift cylinder(s), and connections for leaks or loose connections
- Fuel supply – adequate fuel, filler cap in place, no damage, leaks, or spills
- Battery for fluid level and state of charge
- Proper connection of all quick-disconnect hoses
- Structural components for damage, broken parts, cracks in welds, including scissor arms, outrigger arms, and pads
- Ladder or steps for damage and debris (ladder must be firmly secured to the platform and relatively free of grease, mud, and dirt)
- Beacon and warning lights for missing and defective lenses or caps
- Ground controls (manual and powered) – including emergency stop switch and platform lower/lift switch – for proper function and damaged and missing control sticks/switches
- Decals and warning signs to make sure they are clean, legible, and conspicuous

After mounting the platform, check:

- Platform assembly for missing or loose parts, missing or loose lock pins & bolts
- Platform floor for structural damage, holes, or cracked welds and any dirt, grease, or oil
- Operator's manual to make sure it is in place
- Extendable platform deck for ease of extension/retraction and proper function of locking position of platform
- Guardrails to make sure they are in place and secure
- Access gate for ease of movement, missing parts, latch, and locking capabilities
- All fall protection anchorage points
- All control mechanisms for broken or missing parts
- All emergency controls for proper function – stopping, descending, master OFF switch
- All safety devices such as tilt and motion alarms for malfunction
- Swivels for freedom of rotation
- Scissors for smooth movement up and down
- Brakes for stopping capabilities
- Horn for proper function

MANUALS, SIGNS, AND DECALS

Signs clearly visible to the operator at the controls must indicate:

- The equipment's rated working load
- All limiting operating conditions, including the use of outriggers, stabilizers, and extendable axles
- The specific firm, level surface conditions required for use in elevated position
- Such warnings as may be specified by the manufacturer
- Other than for a boom-type elevating work platform, the direction of machine movement for each operating control
- The name/number of the ANSI standard to which the platform was designed
- The name and address of the owner

In addition to the above, ANSI standards require the following signs:

- The make, model, serial number, and manufacturer's name and address
- The maximum platform height
- The maximum travel height, if not equal to the maximum platform height
- The nominal voltage rating of the batteries if battery-powered
- A warning to study the operating manual before using the equipment
- A statement as to whether or not the platform is insulated
- A notice outlining the required inspections
- The capacity in each configuration
- Diagrams/description of various configurations in which the platform can be used
- Warnings against replacing, without the manufacturer's consent, components critical to the machine's stability – for example, batteries or ballasted tires with lighter weight components (the minimum weights of such components must be specified)

Many of these signs are vital to the operation of the machine and the protection of workers. All signs and decals must be kept clear of dust and grease so they can be easily read. Torn or damaged signs must be replaced.

Standards require the manufacturer provide a manual that contains:

- Description, specifications, and capacities of the platform
- The operating pressure of the hydraulic or pneumatic system that is part of the work platform
- Instructions regarding operation and maintenance, including recommended daily, weekly, and monthly inspection checklists
- Information on replacement parts
- The manual must be stored on the equipment in a weatherproof storage container

SAFE PRACTICES

Operators must be familiar with the requirements for the specific machine they will use:

- The manufacturer's operating manual
- The manufacturer's warning and caution signs on the machine
- The location of all emergency controls and emergency procedures
- The daily maintenance checks to perform

General Safety Guidelines for EWP's and Aerial Devices

- Always check for overhead power lines before moving the machine or operating the platform. The limits of approach from overhead power lines must be observed. If work must be done within these limits, decide with the owner of the utility to have the power line de-energized. Allow for movement or sway of the lines as well as the platform. Be aware of overhanging tools or equipment
- Wear a full body harness and tie off to a designated tie-off point while the machine is moving
- Do not leave the machine unattended without locking it or otherwise preventing unauthorized use
- Do not load the platform above its Rated Working Load (RWL). Wherever possible, keep the load below 2/3 of the RWL
- Make sure that all controls are clearly labeled with action and direction
- Keep guardrails in good condition and ensure that gate is securely closed before moving the platform. Do not remove guardrails while the platform is raised
- Shut off power and insert the required blocking before maintenance or servicing
- Deploy stabilizers or outriggers according to the manufacturer's instructions
- Position the boom in the direction of travel where possible
- Keep ground personnel away from the machine and out from under platform
- Do not access the platform by walking on the boom
- Do not try to push or move the machine by telescoping the boom
- Do not use the machine as a ground for welding
- Do not use a boom-supported platform as a crane
- Do not operate the equipment in windy conditions. For safe wind speeds, refer to the operator's manual
- Do not place the boom or platform against any structure to steady either the platform or the structure
- Secure loads and tools on the platform so that machine movement will not dislodge them
- Make sure that extension cords are long enough for the full platform height and will not be pinched or severed by the scissor mechanism
- Use three-point contact and proper climbing techniques when mounting or dismounting from the machine

Important Note: Never operate equipment on which you have not been trained or which you are not comfortable operating. Your safety and that of others on site depends on competent, knowledgeable operation of the equipment.

Work Area Inspection

Before operating elevating work platforms and aerial devices, check the work area for:

- Drop offs or holes in the ground
- Slopes, bumps or floor obstructions
- Debris
- Overhead obstructions
- Overhead wires power lines or other electrical conductors
- Hazardous atmospheres
- Adequate operating surface (ground or floor)
- Sufficient ground or floor support to withstand all forces imposed by the platform in every operating condition, wind and weather conditions

FALL PROTECTION

The fall protection required for persons who work on aerial lifts depends on the type of aerial lift used. The table below shows acceptable fall protection.

Type of Lift	Fall Protection Required
Vehicle-Mounted Elevating and Rotating Work Platforms (ANSI A92.2 devices)	Platforms other than buckets or baskets must include guardrail systems – guardrails, a mid-rail, and toe boards. Each person who works on a boom-supported platform must wear a body harness and lanyard attached to the boom or basket.
Manually Propelled Elevating Aerial Platforms (ANSI A92.3 devices)	The platform must have a guardrail at least 42 inches $\pm$ 3 inches above the floor, a mid-rail, and toe boards at least 4 inches high.
Boom-Supported Elevating Work Platforms (ANSI A92.5 devices)	The platform must have a guardrail at least 42 inches $\pm$ 3 inches above the floor, a mid-rail, and toe boards at least 4 inches high. Each worker on the platform must wear a body harness and lanyard attached to the boom or platform.
Self-Propelled Elevating Work Platforms (ANSI A92.6 devices)	The platform must have a guardrail 42 inches $\pm$ 3 inches above the floor, a mid-rail, and toe boards at least 4 inches high.

Fall Protection for Elevating Work Platforms

- Personnel will maintain firm footing on the platform while working on the platform. The use of railings, planks, ladders, or any other devices on the platform for achieving additional height is prohibited
- A safety harness that has a lanyard which complies with construction safety standard "Fall Protection", and which is affixed to attachment points provided and approved by the manufacturer will be provided by GTG Automation, Inc. and used by any occupant of an aerial work platform described in this section. A fall arrest system will only be used where the aerial lift is designed to withstand the vertical and lateral loads caused by an arrested fall
- A body belt may be used with a restraint device with the lanyard and the anchor arranged so that the employee is not exposed to any fall distance. A restraint device is required where the aerial lift cannot withstand the vertical and lateral loads imposed by an arrested fall
- Belting off to an adjacent pole, structure, or equipment while working from an aerial work platform is prohibited
- An employer will not allow employees to exit an elevated aerial work platform, except where elevated work areas are inaccessible or hazardous to reach. Employees may exit the platform with the knowledge and consent of GTG Automation, Inc.. When employees exit to unguarded work areas, fall protection will be provided and used as required

Fall Protection for Aerial Devices

- Employees will always stand firmly on the floor of the basket, and will not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position
- Boom and basket load limits specified by the manufacturer will not be exceeded
- A safety belt or harness will be used with a lanyard attached to the boom or basket when working from an aerial lift. The safety belt, harness, and lanyard will be provided by GTG Automation, Inc.. An in-plant, industrial-type aerial device used on a level surface and equipped with a platform with approved railings is exempt from this rule
- Body belts are not acceptable as part of a personal fall arrest system. The use of a body belt in a tethering system or in a restraint system is acceptable
- A boom platform will be provided with a rail or other structure around its upper periphery that will be not less than 38 inches above the floor of the platform and with a toe board not less than 4 inches high. A basket of a cherry picker will be considered to meet this requirement. A platform may have the guardrail removed from the working side if a safety belt and lanyard is worn by the employee on the platform
- Belting off to an adjacent pole, structure, or equipment while working from an aerial device will not be permitted
- Climbers will not be worn while on an aerial device unless gaff guards are provided

OSHA REGULATIONS AND RESPONSIBILITIES

OSHA regulations include the following requirements:

- Elevating work platforms must be engineered and tested to meet the relevant standard for that equipment
- Aerial devices must be checked each day before use by a trained worker
- The owner or supplier must keep a log of all inspections, tests, repairs, modifications, and maintenance
- The log must be kept up to date and include names and signatures of persons who performed inspections and other work
- Workers must be given oral and written instruction before using the platform for the first time. Instruction must include items to be checked daily before use

Vehicle Mounted Elevating and Rotating Work Platforms & Aerial Devices

This section provides for the safe operation and maintenance by GTG Automation, Inc. and the safe use by the employee of vehicle mounted elevating and rotating work platforms in, around, and about a place of employment. Firefighting equipment and powered industrial trucks are not included in these rules.

Employer Responsibility

An employer will provide each employee who will operate the aerial work platform with instruction and training regarding the equipment that will be used. Such instruction and training will ensure that each operator complies with the minimum following provisions:

- Is instructed by a qualified person in of the purpose and function of each control
- Is trained by a qualified person or reads and understands the manufacturer's operating instructions and safety rules
- Understands by reading or by having a qualified person explain, all decals, warnings, and instructions displayed on the aerial work platform
- Reads and understands the provisions of these rules or be trained by a qualified person on their content

The manufacturer's operating instructions and safety rules will be provided and maintained in a legible manner on each unit by GTG Automation, Inc.

Maintain an aerial device free of defects and hazards that could cause an injury.

Employee Responsibility

- Operate an aerial device only after being trained and authorized by GTG Automation, Inc.
- Report known defects and hazards concerning an aerial device to the supervisor

EQUIPMENT INSTRUCTIONS AND MARKING

Each unit will have a manual containing instructions for maintenance and operations. If a unit can be operated in different configurations, then these will be clearly described, including the rated capacity in each configuration.

Each aerial device placed in service will have a conspicuously displayed legible plate or other legible marking verifying the aerial device is designed and manufactured in accordance with the following applicable specifications:

- ANSI A92.2 – Vehicle Mounted Elevating and Rotating Aerial Devices
- ANSI A92.3 – Manually Propelled Elevating Work Platforms
- ANSI A92.5 – Boom Supported Elevating Work Platforms
- ANSI A92.6 – Self-Propelled Elevating Work Platforms

The above plates will contain the following data, when applicable:

- Make, model, and manufacturer's serial number
- Rated capacity
- Maximum capacity at the maximum platform height
- Platform height
- Maximum travel height
- Maximum recommended operating pressure of hydraulic or pneumatic system(s) or both
- Caution or restrictions of operation or both
- Operating instructions
- Manufacturer's rated line voltage (dielectric capability)

Alternative configurations will require in addition to the above:

- Charts, schematics, or scales of capacities in operating positions
- Cautions, restrictions, of operation of all alternate or combinations
- Employees will be instructed in the proper use of the platform

All aerial devices and elevating work platforms will be assembled and erected in accordance with these rules and will be maintained in safe operating condition.

All electrical tests will conform to the requirements of the applicable the National Fire Protection Association NFPA 70 Standard or equivalent DC voltage test approved by the equipment manufacturer or equivalent entity.

FACTORS OF SAFETY IN DESIGN OF WORK PLATFORM ASSEMBLY

- Where the platform is supporting its rated workload by a system of wire ropes or lift chains, or both, the safety factor of the wire or chain will not be less than 6 to 1
- All critical components of a hydraulic or pneumatic system used in a work platform will have a bursting strength that exceeds the pressure attained when the system is subjected to the equivalent of four times the rated workload. Critical components are those in which a failure would result in a free fall or free rotation of the boom. All noncritical hydraulic components will have a bursting safety factor of at least 2 to 1
- Automatic safety devices or systems will be provided to prevent free fall of the work platform will a failure of the power supply or elevating system occur

CONSTRUCTION, MODIFICATION, REMOUNTING, TESTING, AND USE

- An aerial device purchased, modified, or remounted must meet the requirements of ANSI A92.2
- A permanent label or tag will be affixed to an aerial device purchased, modified, or remounted certifying compliance
- An employer modifying the basic design of an aerial device will secure approval of the modification in writing from the manufacturer of the aerial device, a firm offering an equivalent service, or a qualified engineer knowledgeable in the aerial device operations. The results of the modification will be at least as safe as the original design
- An aerial device will bear a permanent plate stating the designed rating capacity
- An aerial device will be mounted on a vehicle capable of sustaining, or reinforced to sustain, the imposed load. The vehicle will be a stable support for the aerial device
- The lifting and outrigger system of an aerial device will be equipped with a means, such as but not limited to, a pilot operated check valve to ensure that the system will not permit the work platform to drop in a free fall in event of a power or hydraulic line failure
- An aerial device that does not meet the requirements ANSI A92.2 will not be used unless it has been inspected and modified as required to conform to the essential stability, structural, electrical insulation, and operational requirements
- In addition to the welding requirements prescribed in ANSI A92.2, an aerial device will conform to the AWS D2.0

MAINTENANCE AND REPAIRS

- The materials used in the repair of aerial devices and elevating work platforms will conform to standard specifications of strength, dimensions, and weights, and will be selected to safely support the rated workload
- Electrical wiring and equipment will meet National Fire Protection Association (NFPA) 70 provisions
- All exposed surfaces will be free from sharp edges, burrs, or hazardous projections

Electrical Ratings

- The rating plate required will include a statement as to whether the aerial device is insulated or is non-insulated and, if insulated, the rated line voltage for which the aerial device was designed and tested
- The insulating portion of an aerial device will not be altered in any manner that might reduce its insulating value

SAFETY FACTORS AND YIELD POINTS

- The design of the basic structural elements of the aerial device including the platform and its component parts will have a yield point of not less than 3 times the rated load. Structural materials not having a clearly defined yield or break point will have a designed safety factor of not less than 5
- The designed safety factor of not less than 4 will apply to hydraulic and pneumatic parts which would, on failure, permit a free fall, free rotation of the boom, or loss of stability
- Noncritical components will have a bursting safety factor of not less than 2

Controls

- The controls for the operation of an aerial device will be permanently labeled as to their function
- Controls for an aerial device will be designed or guarded to prevent inadvertent start
- Articulating, extensible boom platforms, or both, primarily designed as personnel carriers, will be equipped with both upper and lower controls. functions
- Upper controls will be located within reach of the operator
- Lower controls will be capable of overriding the upper controls. Except in case of an emergency, the lower controls will not be operated unless permission has been obtained from the employee in the basket or on the work platform

Stability Requirements for New or Modified Aerial Devices

Each new or modified aerial device will be inspected and tested before initial use to assure compliance with all of the following requirements.

- An aerial device, mounted on an approved vehicle, when used in a specific configuration, will be capable of sustaining a static load $1\frac{1}{2}$ times its rated load capacity in every position that the load can be placed in when the vehicle is on a firm and level surface. If having the outriggers extend to a firm footing is part of the definition of the configuration, they will be extended to provide leveling for the purpose of determining whether the mobile unit meets the stability requirements
- An aerial device, mounted on an approved vehicle, when used in a specific configuration, will be capable of sustaining a static load $1\frac{1}{3}$ times its rated load capacity in every position that the load can be placed in the when the vehicle is on a slope of 5 degrees downward in the direction most likely to cause overturning. If having the outriggers extended to a firm footing is part of the definition of the configuration, they will be extended to provide leveling for the purpose of determining whether the mobile unit meets the stability requirements

- If other facilities, such as a means of turntable leveling, are provided to minimize the effect of the sloping surface, then those facilities will be utilized when determining if the mobile unit meets the stability requirements
- Vertical towers designed specifically for operation only on a level surface will be excluded from this requirement
- None of the stability tests described will produce instability of the mobile unit or cause permanent deformation of any component. The lifting of a tire or outrigger on the opposite side of the load does not necessarily indicate a condition of instability
- Verification by the manufacturer or an equivalent entity that the stability of an aerial device meets the requirements may be used to demonstrate compliance

Inspection and Tests

- An aerial device will be inspected and tested at least annually for permanent deformation and cracks by using 1 ½ times the rated load and for defects by visual inspection during and following the load test
- An annual electrical test of insulated aerial devices will be made. An equivalent DC voltage test may be used in place of the prescribed AC voltage
- Field inspection and tests will be performed only by an authorized and trained employee or outside service
- Lift controls will be tested each day before use to determine that the controls are in safe working condition. An aerial device with defective controls will not be used until repaired

Use

- Any overhead line will be considered energized until the owner, owner representative, or utility indicates otherwise, and the line has been visibly grounded, and the owner, owner representative, or utility will be notified and provided with all pertinent information of the job before the commencement of operations near electrical lines
- Except as prescribed or where insulating barriers not a part of or an attachment to the aerial device have been erected to prevent physical contact with the lines, an aerial device will maintain the distances from energized distribution and transmission power lines and equipment prescribed in table 1
- A qualified lineman or a qualified line clearance tree trimmer performing work on or near an exposed power transmission or distribution line from an aerial lift will maintain distances prescribed in table 2, unless the employee is insulated or guarded from the energized part by gloves or gloves and sleeves, or insulated, isolated, or guarded from any other conductive part or the energized part is insulated from the employee
- A qualified telecommunications employee will maintain the distances prescribed in table 3 when working from an aerial lift, unless the employee is insulated, isolated, or guarded from any other conductive part or the energized part is insulated from the employee
- The insulated bucket, gloves, and sleeves used to comply will be rated at more than the voltage to be worked on or that with which they might come into contact

- An in-plant, industrial-type aerial lift designed to be used on level surfaces will not be used on slopes, unless the aerial lift is adjusted to a firm, level plane
- A safety belt or harness will be used with a lanyard attached to the boom or basket when working from an aerial lift. The safety belt, harness, and lanyard will be provided by GTG Automation, Inc.. An in-plant, industrial-type aerial device used on a level surface and equipped with a platform with approved railings is exempt from this rule
- A boom platform will be provided with a rail or other structure around its upper periphery that will be not less than 38 inches above the floor of the platform and with a toe board not less than 4 inches high. A basket of a cherry picker will be considered to meet this requirement. A platform may have the guardrail removed from the working side if a safety belt and lanyard is worn by the employee on the platform
- The designed rated capacity for a given altitude will not be exceeded
- A proximity warning device may be used, but not in place of meeting the requirements of this rule

Table 1

Minimum Clearance Distances for Equipment		
Voltage	Clearance With Boom Raised	Clearance Boom Lowered and No Load in Transit
To 50 kV	10 feet	4 feet
Over 50 kV	10 feet + .4 inches per each 1 kV over 50 kV	10 feet
50 to 345 kV		10 feet
346 to 750 kV		15 feet

Table 2

Minimum Working Distances for Qualified Line Clearance Tree Trimmers and Qualified Linemen	
Voltage Range Phase to Phase (KV)	Minimum Working Distance
2.1 to 15.0	2'0"
15.1 to 35.0	2'4"
35.1 to 46.0	2'6"
46.1 to 72.5	3'0"
72.6 to 121.0	3'4"
138.0 to 145.0	3'6"
161.0 to 169.0	3'8"
230.0 to 242.0	5'0"
345.0 to 362.0	*7'0"
550.0 to 552.0	*11'0"
700.0 to 765.0	*15'0"
*NOTE: For 345 — 362 kV., 500 — 552 kV., and 700 — 765 kV., the minimum working distance and the minimum clear hot stick distance may be reduced that such distances are not less than the shortest distance between the energized part and a grounded surface.	

Table 3

Minimum Approach Distances for Qualified Telecommunications Employees	
Voltage Range (Nominal Phase to Phase)	Minimum Approach Distances
300 V and less	12"
Over 300 V, not over 750 V	18"
Over 750 V, not over 2 kV	24"
Over 2 kV, not over 15 kV	36"
Over 15 kV, not over 37 kV	42"
Over 37 kV, not over 87.5 kV	48"
Over 87.5 kV, not over 121 kV	54"
Over 121 kV, not over 140 kV	--

Vehicles

- Before a vehicle supporting an aerial ladder is moved for highway travel, the ladders will be secured in the lower position, and the manually operated device at the base of the ladder, or other effective means, will be used to prevent elevation or rotation of the ladder
- Before a vehicle supporting an aerial lift is moved for travel, the boom will be inspected to ensure that it is properly cradled, and the outriggers are in the stowed position
- A vehicle supporting an aerial device will not be moved when the boom is elevated with employees in working position, unless the equipment is specifically designed for this type of operation and meets the requirements
- Brakes will be set and outriggers, when used, will be positioned on pads or a solid surface
- Wheel chocks will be installed before using an aerial device on an incline

ELEVATING WORK PLATFORMS

These rules apply to equipment that has a primary function of elevating personnel, together with their tools and necessary materials, on a platform that is mechanically positioned. The following American National Standard Institute (ANSI) units are covered:

- ANSI Standard A92.2, "Vehicle-Mounted Elevating Work Platforms"
- ANSI Standard A92.3, "Manually Propelled Elevating Work Platforms"
- ANSI Standard A92.5, "Boom-Supported Elevating Work Platforms"
- ANSI Standard A92.6, "Self-Propelled Elevating Work Platforms"

Equipment not Covered

- Equipment that has a primary function other than elevating personnel, such as fork trucks or cranes that are adapted to elevating personnel, is not covered by these rules
- Firefighting equipment

Construction

- Aerial work platforms will be designed, constructed, and tested so as to follow the requirements of ANSI standards A92.2, A92.3, A92.5, and A92.6
- Aerial work platforms will not be field-modified for uses other than those intended by the manufacturer, unless the modification has been certified in writing by the manufacturer or by any other equivalent entity, such as a nationally recognized testing laboratory, to be in compliance with the applicable ANSI standard and this rule, and to be at least as safe as the equipment was before modification

Directional controls will follow all of the following provisions:

- Be of the type that will automatically return to the off or neutral position when released
- Be protected against inadvertent operation
- Be clearly marked as to their intended function
- An overriding control will be provided in the platform which must be continuously activated for platform directional controls to be operational and which automatically returns to the off position when released
- Aerial work platforms will be equipped with emergency controls at ground level
- Emergency ground level controls will be clearly marked as to their intended function and be capable of overriding the platform controls

All of the following information will be clearly marked in a permanent manner on each aerial:

- Special workings, cautions, or restrictions necessary for operation
- Rated workload
- A clear statement of whether or not the aerial work platform is electrically insulated
- Rotating shafts, gears, and other moving parts that are exposed to contact will be guarded as required
- Attachment points will be provided for fall protection devices for personnel who occupy the platform on aerial work platforms

Inspection, Maintenance, and Testing

An employer will comply with all of the following requirements:

- Each aerial work platform will be inspected, maintained, repaired, and kept in proper working condition in accordance with the manufacturer's operating, maintenance, and repair manuals
- Any aerial work platform found not to be in a safe operating condition will be removed from service until repaired. All repairs will be made by an authorized person in accordance with the manufacturer's operating, maintenance, and repair manuals
- If the aerial work platform is rated and used as an insulated aerial device, the electrical insulating components will be tested for compliance with the rating of the aerial platform in accordance with ANSI standard A92.2, Section 6

Such testing will comply with all of the following provisions:

- The test will be performed not less than annually
- Written, dated, and signed test reports will be made available by GTG Automation, Inc. for examination by OSHA
- The insulated portion of an aerial device will not be altered in any manner that might reduce its insulating value
- All danger, caution, and control markings and operational plates will be legible and not obscured

Pre-operation Procedures

Before use on each work shift, an aerial work platform will be given a visual inspection by the operator for defects that would affect its safe operation and use. The inspection will consist of not less than both of the following procedures:

- Visual inspection for all of the following: cracked welds, bent or broken structural members, hydraulic or fuel leaks, damaged controls and cables, loose wire, tire condition, fuel and hydraulic fluid levels, slippery conditions on the platform
- Operate all platform and ground controls to ensure that they perform their intended function
- Before the aerial work platform is used, and during use on the job site, the operator will inspect the operational area for all of the following: ditches, drop-offs, holes, debris, bumps and floor obstructions, overhead obstructions, power lines
- The area around the aerial work platform will also be inspected to assure clearance for the platform and other parts of the unit
- All unsafe items found as a result of the inspection of the aerial work platform or work area will be corrected before further use of the aerial work platform
- When the specified clearances cannot be maintained, the owner of electrical lines or the authorized representative will be notified and provided with all pertinent information before the commencement of operations near electrical lines
- Any overhead wire will be considered to be an energized line until the owner of the line or the authorized representative states that it is de-energized

OPERATING PROCEDURES

- The aerial work platform will be used only in accordance with the manufacturer's operating instructions and safety rules.
- The following clearances will be maintained when operating aerial work platforms or other equipment under, over, by, or near energized electric power lines:

VOLTAGE	MINIMUM CLEARANCE
0 to 50 kV	10 feet
More than 50 kV	10 feet + .4 inch per kV

The clearance apply to the

requirements of this rule do not following situations:

- Where work is performed from an insulated aerial device that is insulated for the work and the work is performed in accordance with the provisions of construction safety standard "Power Transmission and Distribution" and "Telecommunications"
- Where the electric power transmission or distribution lines have been de-energized and visibly grounded at the point of work or where insulating barriers that are not a part of an attachment to the aerial work platform have been erected to prevent physical contact with the line
- Where work is being performed by journeymen electricians on equipment up to .5kV.

- Two journeymen electricians will be required for work within the minimum clearance on equipment over .5kV
- Proximity warning devices may be used, but will not be used instead of meeting the requirements of this rule
- The manufacturer's rated load capacity will not be exceeded. GTG Automation, Inc. will ensure that the load and its distribution on the platform are in accordance with the manufacturer's specifications. The aerial work platform rated load capacity will not be exceeded when loads are transferred to the platform at elevated heights
- Only personnel, their tools, and necessary materials will be on or in the platform
- The guardrail system of the platform will not be used to support any of the following: materials, other work platforms, employees
- Personnel will maintain firm footing on the platform while working on the platform. Using railings, planks, ladders, or anything on the platform for more height is prohibited
- Fuel gas cylinders will not be carried on platforms that would allow gas accumulation
- A safety harness that has a lanyard which is in compliance with construction safety standard "Fall Protection", and which is affixed to attachment points provided and approved by the manufacturer will be provided by GTG Automation, Inc. and used by any occupant of an aerial work platform described in these rules. A fall arrest system will only be used where the aerial lift is designed to withstand the vertical and lateral loads caused by an arrested fall
- A body belt may be used with a restraint device with the lanyard and the anchor arranged so that the employee cannot fall. A restraint device is required where the aerial lift cannot withstand the vertical and lateral loads imposed by an arrested fall
- Do not belt off to adjacent pole, structure, or equipment while on an aerial work platform
- An employer will not allow employees to exit an elevated aerial work platform, except where elevated work areas are inaccessible or hazardous to reach. Employees may exit the platform with the knowledge and consent of GTG Automation, Inc.. When employees exit to unguarded work areas, fall protection will be provided and used as required
- Only aerial work platforms that are equipped with a manufacturer's installed platform controls for horizontal movement will be moved while in the elevated position
- Before and during driving while elevated, an operator of a platform will:
- Look in the direction of, and keep a clear view of, the path of travel and make sure that the path is firm and level.
- Maintain a safe distance from: obstacles, debris, drop-offs, holes, depressions, ramps, overhead obstructions, overhead electrical lines, other hazards to safe elevated travel.
- Outriggers or stabilizers are to be used in accordance with the manufacturer's instruction. Outriggers and stabilizers will be positioned on pads or a solid surface
- Aerial work platforms will be elevated only when on a firm and level surface or within the slope limits allowed by the manufacturer's instructions

- A vehicle-mounted aerial work platform will have its brakes set before elevating
- A vehicle-mounted work platform will have wheels chocked before using on an incline
- Climbers will not be worn while performing work from an aerial work platform
- Platform gates will be closed while the platform is in an elevated position
- Stunt driving and horseplay are prohibited
- Altering, modifying, or disabling safety devices or interlocks is prohibited
- GTG Automation, Inc. will prevent ropes, cords, and hoses from entangling in the aerial work platform
- A platform operator will ensure that the area surrounding the aerial work platform is clear of personnel and equipment before lowering the platform
- Before and during travel, except as provided for horizontal movement, an operator will do all of the following: inspect to see that booms, platforms, aerial ladders, or towers are properly cradled or secured; ensure that outriggers are in a stored position; limit travel speed according to the following factors; condition of the surface; congestion; slope; location of personnel; other hazards
- The aerial work platform will not be positioned against another object to steady the platform
- The aerial work platform will not be operated from a position on a truck, trailer, railway car, floating vessel, scaffold, or similar equipment
- The boom and platform of the aerial work platform will not be used to move or jack the wheels off the ground unless the machine is designed for that purpose by the manufacturer
- If the platform or elevating assembly becomes caught, snagged, or otherwise prevented from normal motion by adjacent structures or other obstacles so that control reversal does not free the platform, all personnel will be removed from the platform before attempts are made to free the platform

Elevating Work Platform Equipment

- The platform deck will be equipped with a guardrail or other structure around its upper periphery that will be 42 inches high, plus or minus 3 inches, with a mid-rail. (Chains or the equivalent may be substituted where they give equivalent protection.) Where the guardrail is less than 39 inches high, an approved personal fall protection system will be used
- The configuration of an elevating work platform may include a ladder for personnel to use in reaching the platform deck. Any ladder device used in this way will have rungs located on uniform centers not to exceed 12 inches
- Any elevating work platform equipped with a powered elevating assembly and having a platform height exceeding 60 inches will be supplied with safe emergency lowering means compatible with the specific elevating assembly employed
- Any powered elevating work platform will have both upper and lower control devices. Controls will be plainly marked as to their function and guarded to prevent accidental operation. The upper control device will be in or beside the platform, within easy reach of the operator. The lower control device will have the capability to lower the platform where the operator's safety is in jeopardy
- An emergency stopping device will be provided at the upper controls of elevating work platforms
- Elevating Work Platforms will include: toe boards at sides and ends that will be at least 4 inches high; EXCEPTION: Toe boards may be omitted at the access openings; a hinged trap access door, if applicable; a platform whose minimum width will not be less than 16 inches

Guarding of Moving Parts

All rotating shafts, gearing, and other moving parts will be guarded.

Stability on Inclined Surfaces

Unless recommended for such use by the manufacturer, no elevating work platform will be used on an inclined surface. Procedures for maintaining stability must be clearly outlined in the special warnings section of user's manual. The user will not deviate from the manufacturer's instructions.

Operating Instructions (Elevating Work Platforms)

- No employee will ride, nor tools, materials, or equipment be allowed on a traveling elevated platform unless the following conditions are met: the travel speed at Maximum Travel Height does not exceed 3 feet per second; self-propelled units will be equipped with electrical or other interlock means that will prevent driving them with the platform height greater than the Maximum Travel Height or at speeds greater than permitted at Maximum Travel Height; the surface upon which the unit is being operated is level with no hazardous irregularities or accumulation of debris that might cause a moving platform to overturn
- Units will be assembled, used, and disassembled in accordance with the manufacturer's instructions
- Units will be assembled and used only by personnel who have been trained in their use. Units will be inspected for damaged and defective parts before use
- Units will not be loaded in excess of the design working load and will be taken out of service when damaged or weakened from any cause. They will not be used until repairs are completed
- Employees will not sit, stand, or climb on the guardrails of an elevating work platform or use planks, ladders, or other devices to gain greater working height or reach
- Employees will not work on units when exposed to high winds, storms, or when they are covered with ice or snow (unless provisions have been made to ensure the safety of the employees)
- Employees climbing or descending vertical ladders will have both hands free for climbing

NOTE: Remove foreign substances from your shoes (e.g. mud, grease).

- Where moving vehicles are present, the work area will be marked with warnings such as flags, roped off areas or other effective means of traffic control will be provided
- Unstable objects such as barrels, boxes, loose brick, tools, debris, will not be allowed to accumulate on the work level
- In operations involving production of small debris, chips, etc., and the use of small tools and materials, and where persons are required to work or pass under the equipment, screens will be required between toe boards and guardrails. The screen will extend along the entire opening, will equal No. 18 gage U.S. Standard Wire ½-inch mesh

PIN-ON PLATFORMS

- Pin-on platforms will be securely pinned to the boom or boom extension
- Employees on the elevated pin-on platform will be secured to the boom by a safety belt and lanyard or a body belt and safety strap
- Aerial baskets or platforms will not be supported by adjacent structure(s) when workers are on the platform or in the basket while in an elevated position
- Lift controls will be tested in accordance with the manufacturer's recommendations or instructions prior to use to determine that such controls are in safe working condition.
- Only authorized persons will operate an aerial device
- Belting off to an adjacent pole, structure, or equipment while working from an aerial device will not be permitted
- Employees will not sit or climb on the edge of the basket or use planks, ladders or other devices to gain greater working height
- Boom and basket and platform load limits specified by the manufacturer will not be exceeded
- When elevating personnel with the vehicle stationary the braking systems will be set
- Provided they can be safely installed, wheel chocks will be installed before using an aerial device on an incline
- When used, outriggers will be positioned on pads or a solid surface. All outriggers will be equipped with hydraulic holding valves or mechanical locks at the outriggers
- Climbers will not be worn while performing work from an aerial device
- When an insulated aerial device is required, the aerial device will not be altered in any manner that might reduce its insulating value
- An aerial device truck will not be moved when the boom is elevated in a working position with employees in the basket or platform except when all of the following are complied with:
 - The equipment is specifically designed for this type of operation.
 - All controls and signaling devices are tested and are in good operating condition.
 - An effective communication system will be maintained at all times between the basket or platform operator and where applicable, the vehicle operator.
 - The route to be traveled is surveyed immediately prior to the work trip, checking for overhead obstructions, traffic, holes in the pavement, ground or shoulder, ditches, slopes, etc., for areas other than paved, a survey will be made on foot.
 - The speed of the vehicle does not exceed three (3) miles per hour.
 - Only one employee is in the basket.
 - Both the driver and/or the elevated employee have been specifically trained for this type of work (towering) in accordance with the manufacturer's recommendations.
 - Lower-level controls will not be operated unless permission has been obtained from the employee in the device, except in case of emergency
 - Before moving an aerial device for travel, the boom(s) will be inspected to see that it is properly cradled, and outriggers are in stowed position

- An employee, while in an elevated aerial device, will be secured to the boom, basket or tub of an aerial device through the use of a safety belt, body belt, or body harness equipped with safety strap or lanyard.
- Safety belts/body belts are prohibited for use in personal fall arrest systems but may be used as part of a fall restraint or positioning device system.
- Safety belts/body belts used as part of a positioning device system will be rigged such that an employee cannot free fall more than 2 feet.
- A body harness may be used in a personal fall restraint, positioning or fall arrest system. When a body harness is used in a fall arrest system, the lanyard will be rigged with a deceleration device to limit maximum arresting force on an employee to 1,800 pounds and prevent the employee from hitting any levels or objects below the basket or platform and will limit free fall to a maximum of 6 feet.

ATTACHMENTS

- Aerial Lift Equipment Daily Inspection/Checklist
- Scissor Lift Operator Daily Inspection/Checklist

AERIAL LIFT EQUIPMENT DAILY INSPECTION/CHECKLIST

Use only equipment which is in safe working condition. DO NOT operate equipment that need repair.									
Company			Location of Use		Time		Date		
Operator's Name					Supervisor's Name				
Inspector(s) Name					Hour Meter Reading				
Equipment Type			Equipment ID Number			Manufacturer			
General Site Information							Ok	Repair	N/A
Hazard assessment of work area?							☐	☐	☐
Controls in place for identified hazards?							☐	☐	☐
Work areas properly signed and barricaded?							☐	☐	☐
Operator's manual on lift?							☐	☐	☐
Ground man available for emergency descent who is knowledgeable of descent valve operation?							☐	☐	☐
Ok	Repair	N/A	Carrier Vehicle				Ok	Repair	N/A
☐	☐	☐	Motor		Cab		☐	☐	☐
☐	☐	☐	Crank case oil if clean and full		Steering		☐	☐	☐
☐	☐	☐	Engine coolant is about 2' below cap		Lights		☐	☐	☐
☐	☐	☐	Clutch/converter		Tires properly inflated		☐	☐	☐
☐	☐	☐	Driveline		Cuts or bulges in the tires		☐	☐	☐
☐	☐	☐	Transmission fluid at proper level		Wheels and lug nuts secure		☐	☐	☐
☐	☐	☐	Frame		Fire extinguishers		☐	☐	☐
☐	☐	☐	Brakes		Cab glass		☐	☐	☐
☐	☐	☐	Differentials		Warning lights and alarm		☐	☐	☐
☐	☐	☐	Outriggers		Access		☐	☐	☐
Ok	Repair	N/A	Hydraulics				Ok	Repair	N/A
☐	☐	☐	Relief valve(s)		Pumps		☐	☐	☐
☐	☐	☐	Restrictor valve(s)		Bearings		☐	☐	☐
☐	☐	☐	Pipelines		Check hydraulic oil level		☐	☐	☐
☐	☐	☐	Hose lines		Mounting bolts		☐	☐	☐
☐	☐	☐	Outrigger cylinders		Swing gear		☐	☐	☐
☐	☐	☐	Boom crowd cylinders		Swing pinion		☐	☐	☐
☐	☐	☐	Control valves		Seals - Hydraulic		☐	☐	☐
☐	☐	☐	Swing motor		Leaks		☐	☐	☐
Ok	Repair	N/A	Boom				Ok	Repair	N/A
☐	☐	☐	Shipper welds		Support Roller		☐	☐	☐
☐	☐	☐	Boom welds		Boom pins		☐	☐	☐
☐	☐	☐	Pins- Boom Pivot		Boom main section		☐	☐	☐
Ok	Repair	N/A	Operational Checks				Ok	Repair	N/A
☐	☐	☐	Operators familiar with load charts?		Out rigger pads not cracked?		☐	☐	☐
☐	☐	☐	Test emergency descent valve?		Hydraulic hoses in good condition?		☐	☐	☐
☐	☐	☐	Safety pressure relief valves check out?		Vehicle is leveled, working properly?		☐	☐	☐
☐	☐	☐	Back-up alarm is working?		Brakes & brake systems check out?		☐	☐	☐
☐	☐	☐	Does the horn work?		Does boom swing break work properly?		☐	☐	☐
Outriggers fully extended, working properly, and swing radius barricades in place?							☐	☐	☐
Boom angle indicator is available and working?							☐	☐	☐
Swing through 360 degrees, does boom angle indicator stay the same throughout rotation?							☐	☐	☐
Engine is started and gauges are checked and working properly?							☐	☐	☐
Extend out the boom, are all sections extending evenly?							☐	☐	☐

_____ Signature	_____ Date
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Items to check during the daily inspection:

- Check all welds between cylinders and booms for cracks or wear
- Inspect all pivot pins for security of their locking devices
- Check exposed cables, sheaves, and leveling devices for wear and secure attachment
- Inspect hydraulic system for frayed hoses and leaks
- Check lubrication and fluid levels
- Inspect boom and basket for cracks or abrasions
- Check for the load capacity posting
- Operate boom from ground controls through one complete cycle

Prestart Checks:

- Ensure that there are no obstacles around the work platform and in the path of travel such as holes, drop offs, ditches, soft fill, or debris
- Check overhead clearances
- Make sure the batteries are fully charged. Disconnect the AC charger cord from the external power source
- Make sure that the Free-Wheeling Valve is fully closed
- Make sure all guardrails and lock-pins are in place and locked in position
- Make sure both side battery and hydraulic trays are closed and locked

What to do when using a bucket or other aerial device:

- Wear a safety harness connected to the boom. Do not attach safety harness to adjacent pole or structure
- Ensure that no one is in the area before lowering stabilizers, outriggers, or the boom
- Ensure that each axle is horizontal when vehicle is parked on a hill. Work with the boom pointed uphill beyond the vehicle center
- Protect a roadway job site with traffic warning signs, lights, and barricades. Determine if extended boom movements will interfere with traffic
- Secure all tools when not in use
- Maintain the recommended distance from electrical wires unless you and the bucket are certified for electrical work
- Face the direction of travel
- Operate hydraulic controls slowly for smooth platform motion

What not to do:

- Do not stand on top of a bucket or use planks or ladders to gain extra height
- Do not exceed the rated load limit
- Do not ride from one job to another in the bucket
- Do not climb from bucket to another position without being secured to new position
- Do not work above other workers. Clear the area below
- Do not throw tools to or from an elevated bucket
- Do not attempt to slow any air or hydraulic leak by using your hand or body

SCISSOR LIFT OPERATOR DAILY INSPECTION/CHECKLIST

Company		Time	Date		
Inspector(s) Name		Foreman/Supervisor's Name			
Location	Equipment Type	Equipment ID Number	Manufacturer		
Mechanical			Ok	Repair	N/A
Structural damage or cracked welds – Visual walk-around inspection			☐	☐	☐
Parking brake – Check operation			☐	☐	☐
Tires/wheels & fasteners – Visually inspect, check operation & tightness			☐	☐	☐
Railings & railing lock pins – Visually inspect & check tightness			☐	☐	☐
Entry chains or gates – Check operation & tightness			☐	☐	☐
Bolts and fasteners – Check tightness			☐	☐	☐
Safety Bar – Check operation			☐	☐	☐
Wheel Bearings & Kingpins – Visually inspect, check operation & lubricate			☐	☐	☐
Pothole Protection – Visually inspect & check operation			☐	☐	☐
Steering cylinder & tie rod – Visually inspect, check operation & lubricate			☐	☐	☐
Guides/rollers & slider pads – Visually inspect, check operation, and ensure there is no metal-to-metal contact with slider, slider side, or running surface. Check for free movement of surface. Also check for free movement of the slider pin through the slider			☐	☐	☐
Ground man available for emergency descent who is knowledgeable of descent valve operation?			☐	☐	☐
Electrical			Ok	Repair	N/A
Battery fluid level – Visually inspect			☐	☐	☐
Cables & wiring harnesses – Visually inspect			☐	☐	☐
Battery Terminals – Visually inspect check tightness			☐	☐	☐
Control switches – Visually inspect/check operation			☐	☐	☐
Terminals & Plugs – Check tightness			☐	☐	☐
Limit switches – Check operation			☐	☐	☐
Generator/receptacle – Visually inspect & check operation			☐	☐	☐
Hydraulic			Ok	Repair	N/A
Hydraulic oil reservoir level – Check oil level.			☐	☐	☐
Hydraulic Hoses/Fittings – Visually inspect & check for leaks			☐	☐	☐
Lift/lowering time – Check operation & refer to specification tables			☐	☐	☐
Cylinders – Visually inspect & check operation			☐	☐	☐
Emergency lowering – Check operation			☐	☐	☐
Lift capacity – Check relief valve setting & refer to specification tables			☐	☐	☐
Miscellaneous			Ok	Repair	N/A
Manual – Visually check that proper manual is in box			☐	☐	☐
Placards, I.D. plates, warnings & control labels – Replace if missing/illegible			☐	☐	☐
Prestart Checks			Ok	Repair	N/A
Hydraulic oil reservoir level – Check oil level.			☐	☐	☐
Hydraulic Hoses/Fittings – Visually inspect & check for leaks			☐	☐	☐
Lift/lowering time – Check operation & refer to specification tables			☐	☐	☐
Cylinders – Visually inspect & check operation			☐	☐	☐
Emergency lowering – Check operation			☐	☐	☐
Lift capacity – Check relief valve setting & refer to specification tables			☐	☐	☐
NOTE: At any point during this inspection there are any deficiencies, do not operate lift any further. Notify the proper personnel or repair unit as needed. Do not operate equipment without proper authorization and training.					
Inspector's Name		Inspector's Signature		Date	

Items to check during the daily inspection:

- Tires for proper pressure and wheels for loose or missing lug nuts
- Steer cylinder, linkage, and tie rods for loose or missing parts, damage, & leaks
- Hydraulic oil for leaks and fluid level. Hydraulic hoses, lift cylinder(s), and connections for leaks or loose connections
- Fuel supply – adequate fuel, filler cap in place, no damage, leaks, or spills
- Battery for fluid level and state of charge
- Proper connection of all quick-disconnect hoses
- Structural components for damage, broken parts, cracks in welds, including scissor arms, outrigger arms, and pads
- Ladder or steps for damage and debris (ladder must be firmly secured to the platform and relatively free of grease, mud and dirt)
- Beacon and warning lights for missing and defective lenses or caps
- Ground controls (manual and powered) – including emergency stop switch and platform lower/lift switch – for proper function and damaged and missing control sticks/switches
- Decals and warning signs to make sure they are clean, legible, and conspicuous

After mounting the platform, check:

- Platform assembly for missing or loose parts, missing or loose lock pins & bolts
- Platform floor for structural damage, holes, or cracked welds and any dirt, grease, or oil that can create a hazard
- Operator's manual to make sure it is in place
- Extendable platform deck for ease of extension/retraction and proper function of locking position of platform
- Guardrails to make sure they are in place and secure
- Access gate for ease of movement, missing parts, latch, and locking capabilities
- All fall protection anchorage points
- All control mechanisms for broken or missing parts
- All emergency controls for proper function – stopping, descending, master OFF switch
- All safety devices such as tilt and motion alarms for malfunction
- Swivels for freedom of rotation
- Scissors for smooth movement up and down
- Brakes for stopping capabilities
- Horn for proper function

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

—

POLICY

GTG Automation, Inc. will use Ground Fault Circuit Interrupters (GFCI) on all jobsites when possible. When GFCI equipment is infeasible, the Assured Equipment Grounding Conductor Program (AEGCP) with the following guidelines, procedures, engineering controls, and work practices will be enforced to eliminate injuries from malfunctions, improper grounding and defective electrical tools and systems

RESPONSIBILITIES

Greg Griffin is the Competent Person in charge of the AEGCP.

TRAINING

Greg Griffin will provide training to ensure that the grounding requirements, purpose, function, and proper use of tools to be used in the normal function of their jobs is understood by employees and that the knowledge and skills required for the safe application, and usage is acquired by employees.

PROCEDURES

- A written description of this program, are available on the jobsite for inspection or copying by OSHA and any affected employee from Greg Griffin upon request.
- This AEGCP applies to all GTG Automation, Inc. sites, covering all cord sets and receptacles that are not part of the building or structure, and equipment connected by cord and plug which are available for use or used by employees.
- GTG Automation, Inc. will not provide or allow employees to use equipment that does not meet the AEGCP requirements.

Installation

Equipment grounding conductors shall be installed as follows:

All 120-volt, single-phase, 15- and 20-ampere receptacles shall be of the grounding type and their contacts shall be grounded by connection to the equipment-grounding conductor of the circuit supplying the receptacles in accordance with the applicable requirements of the National Electrical Code.

All 120-volt cord sets (extension cords) shall have an equipment-grounding conductor that shall be connected to the grounding contacts of the connector on each end of the cord.

The exposed noncurrent-carrying metal parts of 120 volt cord and plug connected tools and equipment that are likely to become energized shall be grounded in accordance with the applicable requirements of the National Electrical Code.

Inspections and Tests

Each day, before use, employees are required to visually inspect each extension cord, or other device, and any equipment connected by cord and plug, for external defects, such as deformed or missing pins or insulation damage, and for signs of possible internal damage. Cord sets, devices, and receptacles that are fixed and not exposed to damage are exempt from this inspection. Employees are prohibited from using damaged or defective equipment. Any equipment found to be damaged or defective will be immediately tagged "DO NOT USE" and removed from service.

Inspections and tests performed as required by this program will be recorded as to the identity of each receptacle, cord set, and cord and plug connected equipment that passed the test and will indicate the last date tested or interval for which it was tested. This record will be kept by means of logs, color-coding, or other effective means and will be maintained until replaced by a more current record. These records will be made available at the jobsite for inspection by OSHA and any affected employees.

Testing Schedule

All required tests must be performed by a competent person: All equipment grounding conductors will be tested for continuity and will be electrically continuous. Each receptacle and attachment cap or plug will be tested for correct attachment of the equipment grounding conductors. The equipment grounding conductor will be connected to its proper terminal:

- Before first use
- Before equipment is returned to service following any repairs
- Before equipment is used after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over)
- At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage shall be tested at intervals not exceeding six months

Test Records

- A log will be kept on the job-site of all tests performed. These records will be kept until replaced by a newer record. The log will include:
 - Pass/Fail record of each receptacle, cord set, and cord- and plug-connected equipment that was tested
 - Date of testing or test intervals
 - The equipment will be marked with the test date or a color-coded tape will delineate the most recent test, for example

WINTER	White
SPRING	Green
SUMMER	Red
FALL	Orange

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to ensure that no employee is exposed to Benzene past the permissible exposure limits (PELs). Greg Griffin is responsible for enforcing these engineering controls and work practices:

- Provide employees with information and training at their initial assignment to a work area where benzene is present. Training will be conducted annually thereafter if exposures are above the action level
- Develop a written schedule for implementing work practice and engineering controls for employee's exposure above the PEL in order to reduce the affected employee exposure below the PEL
- These plans will be reviewed and revised based on the most recent exposure monitoring data, to reflect the current status of the program
- Employees will be informed of all regulated areas and are properly trained in entrance procedure, safety requirements, and practices when in regulated areas
- Establish a regulated area wherever the airborne concentration of benzene exceeds or can reasonably be expected to exceed the permissible exposure limits, either the 8-hour time weighted average exposure of 1 ppm or the short-term exposure limit of 5 ppm for 15 minutes
- Written compliance programs will be given upon request for to OSHA, affected employees and designated employee representatives

TRAINING

GTG Automation, Inc. will institute, and enforce participation, a training program for all employees potentially exposed to benzene.

GTG Automation, Inc. conduct training for employees who are assigned to workplaces where there is a potential for exposure to benzene. This training must occur prior to or at the time of initial assignment, and whenever a new exposure to benzene is introduced into the work area. The training will be repeated annually thereafter if exposures are above the action level.

The training program will be conducted in a manner which the employee is able to understand and will include:

- Requirements of OSHA's Benzene Standard and information available in Appendices A and B of the standard as well as how to access or obtain a copy of it in the workplace
- Description of the medical surveillance program and the information contained in Appendix C of OSHA's Benzene Standard
- Information on the quantity, location, manner of use, release and storage of benzene and the specific operations in the workplace that could result in exposure to benzene

The supervisor will inform all affected employees of the location of written training materials and will make these materials readily available, without cost, to the affected employees.

Employees will be instructed as to potential locations where they may be exposed to Benzene including petroleum refining sites, tank gauging (tanks at producing, pipeline, and refining operations), field maintenance, confined spaces.

Training will be provided before initial assignment and at least annually.

EXPOSURE MONITORING

It is the policy of GTG Automation, Inc. that determination of airborne exposure levels will be made from air samples that are representatives of each employee's exposure to benzene over an eight (8) period.

The PEL for benzene is 1-part benzene per million parts air (ppm). Since this is an 8-hour average, short-term exposures above the PEL are permitted as long as the average exposure over an 8-hour period does not exceed the PEL.

However, OSHA has set a Short Time Exposure Limit (STEL) for benzene that cannot be exceeded. The STEL is the greatest concentration of benzene in air to which exposure may occur for a fifteen-minute period. The current STEL is 5 ppm.

The action level is 0.5 ppm, measured over 8 hours. At this level, certain provisions of the standard, such as employee exposure monitoring and medical surveillance, are initiated. The action level is set lower than the PEL to better protect against overexposure. GTG Automation, Inc. will continue monitoring at the required frequency until at least two consecutive measurements, taken at least seven (7) days apart, are below the action level at which time GTG Automation, Inc. may discontinue monitoring.

Results	Frequency
Less than the action level (0.5 ppm) twice within 7 days	May discontinue monitoring
At or above the action level (0.5 ppm), and at or below the PEL (1 ppm)	Annual
Above the PEL	Semi-annual

Employee Notification

GTG Automation, Inc. within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees.

Whenever the results indicate that the representative employee exposure exceeds the permissible exposure limit, GTG Automation, Inc. will include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken to reduce exposure to or below the permissible exposure limit.

METHODS OF COMPLIANCE

GTG Automation, Inc. will establish and implement a written program to reduce exposures to or below the permissible exposure limit by means of engineering and work practice controls.

Written plans for these compliance programs will include at least the following:

- A description of each operation in which benzene is used, e.g. machinery used, material processed, controls in place, crew size, employee job responsibilities and maintenance practices
- Engineering plans and studies used to select methods to control benzene exposure
- A report of the technology considered in meeting the permissible exposure limit
- Monitoring data
- A detailed schedule for implementation of the engineering controls and work practices that cannot be implemented immediately and for the adaption and implementation of any additional engineering and work practices necessary to meet the permissible exposure limit
- Whenever the employer will not achieve the permissible exposure limit with engineering controls and work practices, the employer must include in the compliance plan an analysis of the effectiveness of the various controls, will install engineering controls and institute work practices on the quickest schedule feasible, and will include in the compliance plan and implement a program to minimize the discomfort and maximize the effectiveness of respirator use

Written plans for the program will be submitted upon request to the Assistant Secretary and the Director and will be available at the worksite for examination and copying by the Assistant Secretary, Director, or any affected employee or authorized employee representatives.

GTG Automation, Inc. will review and update the program annually or more often to reflect the current status.

RESPIRATORY PROTECTION

GTG Automation, Inc. has implemented and will maintain a Respiratory Protection Program in accordance with §1910.134. The Respiratory Protection Program and respiratory protective equipment is provided for all employees with potential for exposure to Benzene.

For employees who use required respirators, GTG Automation, Inc. will provide respirators that comply with the Respiratory Protection Program and OSHA. Respirators will be used during periods necessary to install or implement feasible engineering and work practice controls and emergencies.

For air-purifying respirators, Greg Griffin will ensure the replacement of the air-purifying element when it expires or at the beginning of each shift in which it is used, whichever comes first. An air-purifying element with a National Institute of Occupational Safety and Health (NIOSH) approved end-of-service-live indicator for benzene may be used until the indicator shows no further useful life.

GTG Automation, Inc. will provide affected employees with the appropriate respiratory protection that is approved by the National Institute for Occupational Safety and Health (NIOSH) based on the following requirements:

Greg Griffin will select approved respirators according to the table below:

Airborne concentration of benzene or condition of use	Respirator type
(a) Less than or equal to 10 ppm	(1) Half-mask air-purifying respirator with organic vapor cartridge.
(b) Less than or equal to 50 ppm	(1) Full facepiece respirator with organic vapor cartridges.
	(1) Full facepiece gas mask with chin style canister ¹ .
(c) Less than or equal to 100 ppm	(1) Full facepiece powered air-purifying respirator with organic vapor canister ¹ .
(d) Less than or equal to 1,000 ppm	(1) Supplied air respirator with full facepiece in positive-pressure mode.
(e) Greater than 1,000 ppm or unknown concentration	(1) Self-contained breathing apparatus with full facepiece in positive pressure mode.
	(2) Full facepiece positive-pressure supplied-air respirator with auxiliary self-contained air supply.
(f) Escape	(1) Any organic vapor gas mask; or
	(2) Any self-contained breathing apparatus with full facepiece.
(g) Firefighting	(1) Full facepiece self-contained breathing apparatus in positive pressure mode.
¹ Canisters must have a minimum service life of four (4) hours when tested at 150 ppm benzene, at a flow rate of 64 LPM, 25 °C, and 85% relative humidity for non-powered air purifying respirators. The flow rate will be 115 LPM and 170 LPM respectively for tight fitting and loose-fitting powered air-purifying respirators	

Employees who cannot use a negative-pressure respirator will be allowed to use a respirator with less breathing resistance, such as a powered air-purifying respirator or supplied-air respirator.

PERSONAL PROTECTIVE EQUIPMENT

Personal protective clothing and equipment like boots, gloves, long sleeves, goggles, aprons, and face protection will be provided at no extra cost to the employee and must be worn where appropriate to prevent eye exposure and limit dermal exposure to liquid benzene. Eye and face protection will meet the requirements of 29 CFR 1910.133.

VENTILATION

Adequate ventilation will be ensured in all enclosed work areas.

Regular monitoring of air quality in work areas will be provided to ensure that PELs are not being exceeded. Records of all monitoring tests will be kept available at the Company office.

SIGNS & LABELS

All containers or vessels containing Benzene will be appropriately labeled to indicate the contents and the hazards of the contents GTG Automation, Inc. will post signs demarcating regulated areas bearing the legend:

- DANGER
- BENZENE
- CANCER HAZARD
- FLAMMABLE
- NO SMOKING
- AUTHORIZED PERSONNEL ONLY
- RESPIRATOR REQUIRED

MEDICAL SURVEILLANCE

GTG Automation, Inc. will institute medical surveillance programs for all employees exposed to benzene at concentrations at or exceeding the action level on 30 or more days per year above the PEL 10 or more days for employees who have been exposed to more than 10 PPM of benzene for 30 or more days in a year prior to the effective date.

All medical procedures, including administration of medical disease questionnaires, will be performed by or under the supervision of a licensed physician and will be provided without cost to the employee, without loss of pay, and at a reasonable time and place. An accredited laboratory will conduct all laboratory tests.

Initial medical surveillance must occur prior to assignment to a job. The initial examination must consist of the following elements:

A detailed occupational history which includes:

- Past work exposure to benzene or any other hematological toxins
- A family history of blood dyscrasias including hematological neoplasms
- Blood dyscrasias including genetic hemoglobin abnormalities, bleeding abnormalities, abnormal function of formed blood elements
- Renal or liver dysfunction
- Medicinal drugs routinely taken
- Previous exposure to ionizing radiation
- Exposure to marrow toxins outside of the current work situation
- A complete physical examination
- Laboratory tests, which must consist of a complete blood count including a leukocyte, count with differential, a quantitative thrombocyte count, hematocrit, hemoglobin, erythrocyte count, and erythrocyte indices (mean corpuscular volume (MCV), mean corpuscular hemoglobin (MCH), and MCH concentration (MCHC)). The examining physician will review the results of these tests
- Additional tests the examining physician deems necessary

The physical examination must pay special attention to the cardiopulmonary system and will include a pulmonary function test for all employees required to wear respirators for at least 30 days a year.

GTG Automation, Inc. will provide each affected employee with a medical examination annually following the initial examination. These periodic examinations must include at least the following elements:

- A brief history regarding any new exposure to potential marrow toxins, changes in medicinal drug use and the appearance of physical signs relating to blood disorders
- A complete blood count including a leukocyte count with differential, quantitative thrombocyte count, hemoglobin, hematocrit, erythrocyte count and erythrocyte indices (MCV, MCH, MCHC)
- Appropriate additional tests as necessary, in the opinion of the examining physician, in consequence of alterations in the components of the blood or other signs which may be related to benzene exposure

In addition to the monitoring required above, if an employee is exposed to benzene in an emergency, the GTG Automation, Inc. will have the employee provide a urine sample at the end of the employee's shift and have a urinary phenol test performed on the sample within 72 hours. The urine specific gravity will be corrected to 1.024. If the result of the urinary phenol test is below 75 mg phenol/L of urine, no further testing is required. If the result of the urinary phenol test is equal to or greater than 75 mg phenol/L of urine, the GTG Automation, Inc. will provide the employee with a complete blood count including an erythrocyte count, leukocyte count with differential and thrombocyte count at monthly intervals for a duration of three (3) months following the emergency exposure.

- If the results of the complete blood count required for the initial, periodic, and emergency examinations indicate any of the following abnormal conditions exist, then the blood count will be repeated within 2 weeks
- The hemoglobin level or the hematocrit falls below the normal limit [outside the 95% confidence interval (C.I.)] as determined by the laboratory for the particular geographic area and/or these indices show a persistent downward trend from the individual's pre-exposure norms, provided these findings cannot be explained by other medical reasons
- The thrombocyte (platelet) count varies more than 20 percent below the employee's most recent values or falls outside the normal limit (95% C.I.) as determined by the laboratory; and the leukocyte count is below 4,000 per mm³ or there is an abnormal differential count

The referred hematologist's or internist's evaluation will include a determination as to the need for additional tests, and the GTG Automation, Inc. will assure that these tests are provided. Supervisors will provide the following information to the examining physician:

- A copy of OSHA's Benzene Standard and Appendix A, B, and C of the standard
- A description of the affected employee's duties related to benzene
- The employee's actual or representative exposure level
- A description of any personal protective equipment used or to be used
- Information from previous employment-related medical examinations of the affected employee which is not otherwise available to the examining physician

The examining physician must provide a written opinion that contains the results of the affected employee's medical examination within 15 days of the examination, limited to the following information:

- The occupationally pertinent results of the medical examination and tests
- The physician's opinion concerning whether the employee has any detected medical condition(s) that would place the employee's health at increased risk of material impairment from exposure to benzene
- Any recommended limitations upon the employee's exposure to benzene, including removal from benzene exposure, or upon the employee's use of respirators, protective clothing, or other protective equipment
- A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions resulting from benzene exposure which require further explanation or treatment

GTG Automation, Inc. will not reveal specific records, findings, and diagnoses in the written opinion with no bearing on the employee's ability to work in a benzene-exposed workplace.

Medical Removal Plan

When referred to a hematologist/internist, the employee will be removed from areas where exposure may exceed the action level until evaluated. Following the examination, a decision will be made with the primary physician to allow the employee to return to areas where benzene exposure is above the action level or remove the employee. This decision will be reported, in writing, to the employee. The physician will state the required probable duration of removal from occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision.

For any removed employee, GTG Automation, Inc. will provide a follow-up examination where the physician, in consult with the hematologist/internist, will decide within six months of the date the employee was removed as to whether the employee will be returned to the usual job or whether the employee will be removed permanently.

Whenever an employee is temporarily removed from benzene exposure, the GTG Automation, Inc. will transfer the employee to a comparable job for which the employee is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible, but in no event higher than the action level. The GTG Automation, Inc. will maintain the employee's current wage rate, seniority, and other benefits. If there is no such job available, the GTG Automation, Inc. will provide medical removal protection benefits until such a job becomes available or for 6 months, whichever comes first.

In the case that an employee is removed permanently from benzene, the employee will be given the opportunity to transfer to another position which is available or later becomes available for which the employee is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible but in no event higher than the action level. GTG Automation, Inc. will assure that such employee suffers no reduction in current wage rate, seniority, or other benefits as a result of the transfer.

Medical Removal Protection Benefits

GTG Automation, Inc. will provide to the affected employee six months of medical removal protection benefits immediately following each occasion an employee is removed from exposure to benzene because of hematological findings, unless the employee has been transferred to a comparable job where benzene exposures are below the action level. Those benefits include the current wage rate, seniority, and other benefits of an employee as though the employee had not been removed.

GTG Automation, Inc. obligation to provide medical removal protection benefits to a removed employee will be reduced to the extent that the employee receives compensation for earnings lost during the period of removal either from a publicly or employer-funded compensation program, or from employment with another employer made possible by virtue of the employee's removal.

Record Keeping

GTG Automation, Inc. will maintain an accurate record of:

- Exposure monitoring data, which must be maintained for at least thirty years, including the dates, number, duration, and results of each of the samples taken, including a description of the procedure used to determine representative employee exposures
- A description of the sampling and analytical methods used
- A description of the type of respiratory protective devices worn if any
- The name, social security number or company ID number, job classification and exposure levels of the employee monitored and all other employees whose exposure the is intended to represent. Medical surveillance records, which will be maintained for the at least the duration of the employment plus thirty years, including:

The name and social security number or GTG Automation, Inc. ID number of the employee

- The copy of the physicians written opinion on the initial, periodic, and special examinations, including results of medical examinations and all tests, opinions, and recommendations.
- Any employee medical complaints related to benzene exposure.
- A copy of the information provided to the physician; and
- A copy of the employee's medical and work history related to exposure to benzene or any other hematologic toxins.

Upon request, GTG Automation, Inc. will provide records maintained as a requirement of this policy for examination and copying to OSHA. Employee exposure and medical records required by this policy will be provided upon request for examination and copying, to the subject employee or former employee or to anyone having the specific written consent of the subject employee or former employee.

BENZENE AWARENESS

All employees who may be exposed to benzene need to know the following characteristics, health effects and safety precautions including when to wear the needed Personal Protective Equipment (PPE), not smoking and even when to use the available fire extinguishers and what to do in an emergency.

Benzene Characteristics

Benzene is a flammable, clear colorless liquid with a pleasant, sweet odor. The smell is not enough warning of the hazardous presence of benzene and should not be relied upon alone. Other characteristics include:

- 2.7 times denser than air
- Slightly dissolves in water
- Floats on top of water
- Considered toxic

Benzene is extremely flammable with a flash point of 12 degrees Fahrenheit (-11 degrees Celsius), an autoignition temperature of 1,076 degrees Fahrenheit (580 degrees Celsius), and a lower explosion limit (LEL) of 1.3% and an upper flammable limit (UFL) of 7.5%.

It is important that all ignition sources are controlled when working with benzene. The vapors of benzene are heavier than air and may travel along the ground and be ignited by open flames or sparks at locations remote from where the benzene is used, handled, or stored.

Fire Extinguishers

Employees will be provided training on the use of carbon dioxide, dry chemical, or foam type fire extinguishers. of will be readily available and employees will know where they are located and how to operate them,

Health Effects

Low level exposure can lead to inflammation of the nasal airways and throat.

High level exposures can severely damage the lungs causing fluid accumulation and bleeding, which is often fatal.

Long-term effects of benzene on the blood of those exposed which include, harmful effects on the bone marrow and can cause a decrease in red blood cells, leading to anemia. The Department of Health and Human Services (DHHS) has determined that benzene causes cancer in humans and that long-term exposure to high levels of benzene can cause leukemia.

Benzene exposure can lead to excessive bleeding and negatively affect the immune system, increasing the chance for infection.

Females that have breathed high levels of benzene for many months, experienced irregular menstrual periods and decrease in the size of their ovaries.

SMOKING

Smoking is prohibited in areas where Benzene is used or stored.

EMERGENCY RESPONSE PLANS

Before any employees begin work they will know the site specific emergency plans including how to recognize and warn others of a benzene related emergency, how to recognize there is an emergency, what to do and where to go including who to report to at primary and secondary meeting locations.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. is committed to the safety and health of our employees and to preventing the spread of bloodborne pathogens by eliminating occupational exposure to blood and other potentially infectious materials (OPIM). Therefore, GTG Automation, Inc. adheres to the following bloodborne pathogen policy and Exposure Control Plan (ECP).

To eliminate occupational exposure to OPIM, all employees will follow the policy of universal precautions, which is assuming all blood and body fluids are infectious and taking the necessary precautions to not contact them without the proper personal protective equipment (PPE), and properly disinfecting themselves and the environment afterwards. GTG Automation, Inc. will communicate the location of the ECP to all employees and inform them it is readily available upon request.

If employees — such as those designated as responsible for first aid and medical assistance, or those doing work in certain medical or sanitation facilities — are exposed to bloodborne pathogens, all measures within this program will be taken to prevent the spread of disease. Greg Griffin is responsible for evaluating the effectiveness of the program and maintaining all records.

RESPONSIBILITIES

Employer Responsibilities

- Enact and enforce an exposure control plan to prevent occupational exposure to potentially infectious materials
- Identify employees who may reasonably be anticipated to come into contact with blood and other potentially infectious materials
- Provide for post-exposure evaluation and follow-up should an employee be exposed to potentially infectious materials
- Ensure employees receive appropriate bloodborne pathogens training
- Ensure an adequate supply of Personal Protective Equipment
- Ensure that all records required by this section shall be made available upon request of employees, Assistant Secretary & the Director for examination & copying. Medical records must have written consent of employee before being released

Safety Committee Responsibilities

- Develop and implement a site-specific exposure control plan
- Identify employees who may reasonably be anticipated to come into contact with blood and other potentially infectious materials
- Develop, conduct, and document training for bloodborne pathogens safety
- Investigate exposure incidents and recommend work-practice changes
- Make exposure determinations without regards to the use of (PPE)
- Recommend personal protective equipment (PPE), if necessary

Employee Responsibilities

- Offer input on ECP as appropriate, including identification, evaluation, and selection of new control methods
- Follow all elements of the bloodborne pathogens policy and training
- Notify a supervisor if they encounter any problems or concerns related to this policy

TRAINING

GTG Automation, Inc. shall provide training to all employees who are exposed, or potentially exposed, to infectious materials and assures employee participation in the BBP training program. GTG Automation, Inc. will provide this training at no cost to the employee during working hours.

Training will be provided: Upon hire, at the time of assignment to/prior to working on tasks where occupational exposure may take place; and annually thereafter. GTG Automation, Inc. will provide additional training when tasks or procedures are added or changed that affect the employee's occupational exposure. It is acceptable for additional training to be limited to addressing only the changes or additions to the employees' exposure. GTG Automation, Inc. will use only training material that is appropriate in content and vocabulary to educational level, literacy, and language of employees. Training records shall be documented and retained for a minimum of three (3) years.

Training Components

The training program will contain, at a minimum, the following elements:

- An accessible copy of the regulatory text of CFR 1910.1030, this bloodborne pathogen policy and exposure control plan, and an explanation of its contents
- A general explanation of the epidemiology and symptoms of bloodborne diseases
- An explanation of the modes of transmission of bloodborne pathogens
- An explanation of the appropriate methods for recognizing tasks and other activities that may involve exposure to blood and other potentially infectious materials
- An explanation of the use and limitations of methods to prevent or reduce exposure, including engineering controls, work practices, and personal protective equipment
- Information on the types, proper use, location, removal, handling, decontamination, and disposal of personal protective equipment
- An explanation of the basis for selection of personal protective equipment (PPE)
- Information on the hepatitis B vaccine, including information on its efficacy, safety, method of administration, the benefits of being vaccinated, and that the vaccine and vaccination will be offered free of charge to employees who face occupational exposure
- Information on the appropriate actions to take and persons to contact in an emergency involving blood or other potentially infectious materials
- An explanation of the procedures to follow if an exposure incident occurs, including the method of reporting the incident and the medical follow-up that will be made available
- Information on the post-exposure evaluation and follow-up that the employer is required to provide for the employee following an exposure incident
- An explanation of the applicable signs, labels, and/or color coding
- An opportunity for interactive questions and answers with the person conducting the training session
- The person conducting the training will be knowledgeable in the subject matter of the training program as it relates to the workplace

Training Records

Greg Griffin is responsible for maintaining all GTG Automation, Inc. training records. Training records will include the following information:

- Dates of the training sessions
- Contents or a summary of the training sessions
- Names and qualifications of persons conducting the training
- Names and job titles of all persons attending the training sessions
- Employee training records will be maintained for three years from the date on which the training occurred

SAFE PRACTICES

Exposure Determination

It is crucial to determine which jobs expose an employee to blood and other potentially infectious material, as well as the means by which that exposure might occur. Accordingly, the GTG Automation, Inc. safety committee or management will determine which job classifications can reasonably expect occupational exposure to potentially infectious material. The following will be determined and documented:

- Job classifications in which all employees have occupational exposure
- Job classifications in which some employees have occupational exposure
- Tasks and procedures in which occupational exposure occurs
- Further, input from non-managerial employees exposed to contaminated sharps and infectious material is vital to the success of this exposure control plan, and every employee is encouraged to offer suggestions that will help the effectiveness of the exposure control plan

The various types of bodily fluid that an affected employee may reasonably be exposed to such as blood, mucus, and saliva, must be included in the exposure control plan.

Engineering and Work Practice Controls

As part of this exposure control plan, GTG Automation, Inc. will seek methods to eliminate occupational exposure to the greatest extent possible. GTG Automation, Inc. will examine regularly, and maintain or replace, engineering controls to ensure their effectiveness.

Handwashing

- GTG Automation, Inc. will provide accessible handwashing facilities to every employee. If providing handwashing facilities is not feasible, GTG Automation, Inc. will provide antiseptic towelettes or an appropriate antiseptic hand cleanser in conjunction with clean cloth/paper towels
- For construction projects, employers must: provide onsite general washing facilities (one per 20 employees), keep them in sanitary condition, and provide suitable cleaning agents/towels for the removal of hazardous and other substances

- In addition to basic workplace hygiene requirements, employees will wash their hands as soon as possible after removing gloves or other PPE
- Should an employee's skin or mucous membrane be exposed to potentially infectious materials, the employee will immediately wash their skin with soap and water or flush their mucous membranes with water

Sharps

- Employees will handle and dispose of contaminated sharps in a way that prevents unnecessary exposure to hazards. Employees will not bend, recap, or remove contaminated sharps unless no alternative is feasible, and it can be done using a mechanical device or one-handed technique
- As soon as possible after use, contaminated reusable sharps will be placed in a container that is: puncture resistant, labeled or color-coded appropriately, leak-proof on the sides and bottom, and made so employees cannot reach into it

Other Engineering and Work-Practice Controls

- Do not store food or drink, eat, drink, smoke, apply cosmetics or handle contact lenses near possible exposures
- Employees may not use their mouths to suck up potentially infectious materials
- Containers used to store, or transport potentially infectious materials should be closable, prevent leaks, be appropriately labeled or color-coded, and puncture resistant
- Employees will examine any equipment that may be contaminated before servicing or shipping and will decontaminate it as necessary and feasible. If decontamination is impossible, the employee will attach a label to the equipment, and inform all appropriate personnel of the contamination to ensure they take proper precautions

Personal Protective Equipment (PPE)

- When there is occupational exposure, the employer shall provide, at no cost to the employee, appropriate personal protective equipment. The employer shall ensure that PPE is used unless the employee temporarily and briefly declined to use PPE in rare circumstances. The employer shall repair or replace PPE as needed to maintain its effectiveness.
- Appropriate PPE is impermeable to blood or OPIM under normal conditions and durations
- PPE will be provided and maintained free to employees in appropriate sizes, and provisions will be made should an employee be allergic to gloves normally provided
- An employee may decline using appropriate PPE under "rare and extraordinary circumstances" when PPE use might prevent the delivery of health care or public safety services. These exceptions will be investigated and documented to prevent future occurrences
- PPE will be removed as soon as feasible before leaving the general work area. After removal, the employee will place contaminated PPE in an appropriate area or container to be stored, washed, decontaminated, or disposed of

Gloves

Employees must wear gloves if they anticipate hand contact with OPIM. Do not reuse single-use gloves, and replace as quickly as possible if torn, punctured, or compromised.

Masks, Eye Protection, and Face Shields

Employees will wear masks, together with proper eye-protection devices whenever splashes, spray, spatter, or droplets of blood or other potentially infectious materials may be generated and eye, nose, or mouth contamination can be reasonably anticipated.

Gowns, Aprons, etc.

Employees will wear appropriate protective clothing like gowns or clinic jackets when appropriate; the type of protective clothing is determined by the nature of exposure and will be sufficient to protect against occupational exposure.

Housekeeping

All equipment shall be cleaned and decontaminated after contact with blood or other potentially infectious materials.

Employees will use an appropriate disinfectant to clean and decontaminate contaminated or potentially contaminated work surfaces after any spill of infectious materials, and at the end of the work shift. GTG Automation, Inc. will replace protective surface coverings as soon as possible if they are contaminated. Bins, cans, pails, or other receptacles that may become contaminated should be inspected and decontaminated regularly, in addition to being decontaminated as soon as feasible after visible contamination. Employees must not pick up, by hand, any broken glassware that may be contaminated. Use a brush/dustpan or tongs.

Employees will keep the workplace clean and sanitary. GTG Automation, Inc. will implement a written schedule for cleaning and decontamination based on the demands of the site.

GTG Automation, Inc. will replace protective surface coverings as soon as possible if they are contaminated. Bins, cans, pails, or other receptacles that may become contaminated should be inspected and decontaminated regularly, in addition to being decontaminated as soon as feasible after visible contamination. Employees must not pick up, by hand, any broken glassware that may be contaminated. Use a brush/dustpan or tongs.

Laundry

All equipment and laundry shall be cleaned and decontaminated after contact with blood or other potentially infectious materials.

Employees will handle any contaminated laundry as little as possible. They must put such laundry into a color-coded or labeled container at the site where it was used. Wet laundry should be placed into a leak-proof container. Employees handling contaminated laundry must use appropriate PPE. Employees must never take or wear contaminated clothing outside of the work site.

HEPATITIS B VACCINATION

GTG Automation, Inc. will make available the hepatitis B vaccination series at no cost to any GTG Automation, Inc. employee who faces occupational exposure. If not vaccinated, employees will be informed of the opportunity to be vaccinated within 24 hours of an exposure incident.

An employee occupationally exposed to potentially infectious material may decline the hepatitis B vaccine but must sign a declination statement to be kept on file. Anyone who declines vaccination may request and receive the vaccination later at no cost.

Medical records relating to employees' hepatitis B vaccination status and post-exposure evaluation and follow-up must be kept for 30 years plus the duration of employment.

POST-EXPOSURE EVALUATION AND FOLLOW UP

Should an exposure incident occur, the employee should contact Greg Griffin (or designate) immediately.

In Case of Exposure

A licensed health care professional will conduct a confidential medical evaluation and follow-up and will provide a medical opinion on diagnosis/course of action, as soon as possible following an exposure incident. After administering initial first aid (cleaning the wound, flushing the eyes or other mucous membranes, etc.), follow the procedure below:

1. Document the routes of exposure and how the exposure occurred
2. Identify and document the source individual (unless the employer can establish that identification is infeasible or prohibited by state or local law)
3. Obtain consent and arrange to have the source individual tested as soon as possible to determine human immunodeficiency virus (HIV), hepatitis C virus (HCV), and hepatitis B virus (HBV) infectivity; convey and document conveyance of the source individual's test results to the employee's health care provider. If the source individual is known to be HIV, HCV, and/or HBV positive, new testing is not necessary
4. Provide the exposed employee with the source individual's test results and with information about applicable disclosure laws and regulations concerning the identity and infectious status of the source individual (e.g., laws protecting confidentiality)
5. After obtaining consent, collect the exposed employee's blood as soon as feasible after an exposure incident, and test the blood for HBV and HIV serological status. This will establish a baseline for periodic testing over the next six months. Depending upon the circumstances of the exposure, post-exposure prophylaxis may be recommended to reduce the risk of infection from HIV or HBV
6. If the employee does not give consent for HIV serological testing during collection of blood for baseline testing, preserve the baseline blood sample for at least 90 days; if the exposed employee elects to have the baseline sample tested during this waiting period, perform testing as soon as feasible

Administrative Responsibilities Following Exposure

GTG Automation, Inc. will ensure that the health care professional responsible for post-exposure evaluation and follow-up receives the following:

Counseling

GTG Automation, Inc. will ensure that post-exposure counseling will be given to employees following an exposure incident. Counseling should include Centers for Disease Control and Prevention (CDC) recommendations for prevention and transmission of bloodborne infections including HIV, HBV, and HCV. Counseling must be made available regardless of the employee's decision to accept serological testing.

RECORDKEEPING

Medical Records

GTG Automation, Inc. will maintain a confidential medical record for every employee with occupational exposure that will include at least the following:

- Name and social security number of the employee
- Copy of the employee's HBV status (with dates of all Hep B vaccinations)
- Copy of all post-exposure documentation and healthcare professional's written opinion
- Copy of the information provided to the healthcare professional
- Do not share or report this record unless the employee provides written consent

Is responsible for maintaining all GTG Automation, Inc. medical records.

Sharps Injury/Exposure Incident Log

A Sharps Injury Log is a record of each exposure incident involving a sharp. The purpose of the Sharps Injury Log is to generate a record of exposure incidents that will include enough information about the cause of the incidents to allow the company to analyze them and take preventive action.

The Sharps Injury Log must include:

- The date and time of the sharps-related exposure incident
- The type and brand of the sharp involved in the incident
- A description of the incident including:
 - The job classification of the exposed employee
 - The department or work area where the incident occurred
 - The procedure being performed
 - How the incident occurred
 - The body part injured
 - For sharps with engineered sharps injury protection (ESIP) if the safety mechanism was activated
 - If the incident occurred before action, during activation or after activation of the mechanism; for sharps without ESIP, the employee's opinion if ESIP could have prevented the injury

Sharps injuries/exposures must be recorded on the log within 14 working days of when the incident was reported to the employer.

The Sharps Injury Log must be maintained for five years from the date of the occurrence of the exposure incident.

HAZARD COMMUNICATION

Label containers of regulated biological waste, any container used to store or transport potentially infectious material, as well as contaminated equipment, to prevent exposure. Labels for such containers will include the legend depicted in Figure 1.

All such labels will be fluorescent orange or orange-red and be attached on, or as close as feasible to, the container.



Figure 1

REVIEW AND UPDATE OF EXPOSURE CONTROL PLAN (ECP)

The GTG Automation, Inc. safety committee will review this ECP and update it at least annually, and whenever necessary, to reflect new or changed tasks and procedures that affect occupational exposure.

Reviews and updates will:

- Reflect changes in technology that eliminate or reduce exposure to bloodborne pathogens
- Document the annual consideration and implementation of effective medical, and commercially available, devices and services designed to eliminate or minimize occupational exposure

GTG Automation, Inc. will seek the input of non-managerial employees to identify, evaluate, and select controls to reduce occupational exposure. This input will be documented as part of this ECP.

ATTACHMENTS

- Exposure Control Plan Documentation
- Declination Statement
- Exposure Incident Report
- Evaluating Physician's Written Opinion
- Sharps Injury Log

These forms may be reproduced for the purposes of implementing and maintaining a safety and health program.

EXPOSURE CONTROL PLAN DOCUMENT FORM

Exposure Determination	
Jobs in which all employees have occupational exposure to potentially infectious materials	Task or procedure where exposure occurs
Jobs in which some employees have occupational exposure to potentially infectious materials	Task or procedure where exposure occurs
Engineering controls and work practice controls:	
The following types of PPE are available in the following locations:	
Personal Protective Equipment	Location

HEPATITIS B DECLINATION STATEMENT FORM

Declination Statement	
I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.	
Employee Signature:	Date:

Declination Statement	
I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.	
Employee Signature:	Date:

Declination Statement	
I understand that due to my occupational exposure to blood or other potentially infectious materials I may be at risk of acquiring Hepatitis B virus (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself. However, I decline Hepatitis vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of acquiring Hepatitis B, a serious disease. If in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with Hepatitis B vaccine, I can receive the vaccination series at no charge to me.	
Employee Signature:	Date:

EXPOSURE INCIDENT REPORT FORM

(Routes and Circumstances of Exposure Incident)—Please Print		
Employee's Name		Date
Date of Birth	SS#	
Telephone (Business)		(Home)
Job Title		
Date of Exposure	Time of Exposure	AM PM
Hepatitis B Vaccination Status		
Location of Incident		
Describe job duties you were performing when the exposure incident occurred		
Describe the circumstances under which the exposure incident occurred		
What happened that resulted in the incident?		
What body fluid(s) were you exposed to?		
What was the route of exposure? (e.g., mucosal contact, contact with non-intact skin, percutaneous)?		
Describe any personal protective equipment in use at time of exposure incident		
Did PPE fail?	If yes, how?	
Identification of source individual(s) (names)		
Other pertinent information		

EVALUATING PHYSICIAN'S WRITTEN OPINION FORM

To the Evaluating Physician:

This employee may have suffered an exposure incident to a Bloodborne Pathogen. In accordance with OSHA standards covering post-exposure evaluation and follow up, the following documents are provided for you:

- A copy of OSHA regulations covering Occupational Exposure to Bloodborne Pathogens
- A description of the exposed employee's duties as they relate to the exposure incident
- Documentation of the routes of exposure and circumstances under which exposure occurred
- Results of the source individual's blood testing, if available
- All medical records relevant to this employee's appropriate treatment, including vaccination status

After you have determined whether there are contra-indications to vaccination of this employee with Hepatitis B vaccine, please state in the space below if:

Vaccine was indicated:	Vaccine was received:
------------------------	-----------------------

(All other findings are to remain confidential and are not to be included on this page.)

Please return this sheet to this employee.

Thank you for your evaluation of this employee.

Physician's Name (printed):	Date:
Physician's Signature:	

[illegible]

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this plan to ensure no employee is exposed to Cold Stress Illnesses in the workplace and will evaluate if coldness could be a problem on a particular day based on temperature levels, and then implement adequate controls, methods, or procedures to reduce the risk of cold stress.

RESPONSIBILITIES

Employers

- Adjust work practices as necessary when labor complain of cold stress
- Make controlling exposures through engineering controls the primary means of control wherever possible
- Oversee cold stress training and acclimatization for new labor and for labor who have been off the job for a while
- Provide worker education and training, including periodic safety meetings on cold stress during cold weather or during work in cold environments
- Monitor the workplace to determine when cold conditions arise
- Determine whether labor is drinking enough water
- Determine a proper work/rest regimen for labor
- Arrange first aid training for labor
- When working in a refrigerated workplace for instance, a contractor may wish to adopt the plant's protective clothing program if one exists
- Ensure that the program and procedures are documented and available to all labor

Safety Committee Responsibilities

- Assist in ensuring cold stress management is followed when necessary
- Assist in training employees to recognize and control workplace hazards
- Monitor the workplace for hazards
- Encourage employees to report hazards
- Implement appropriate controls
- Ensure corrective action is taken promptly

Employees

- Follow instructions and training for controlling cold stress
- Be alert to symptoms in yourself and others
- Get adequate rest and sleep

TRAINING

GTG Automation, Inc. will ensure employees who are required to work in cold weather conditions receive initial and annual training regarding the health effects cold stress can have on the body.

Training includes but is not limited to:

- Proper rewarming procedures and appropriate first aid treatment
- How to dress for the cold
- Buddy system procedures
- Use of warming shelters
- Recognition of frostnip and frostbite
- Recognition of the signs and symptoms of impending hypothermia
- Additional special training for those workers working in remote locations

HAZARD / RISK ASSESSMENT

GTG Automation, Inc. will ensure that a hazard / risk assessment is conducted prior to each project to identify the potential risk for cold exposure. Specifically, the company will identify the jobs, tasks and/or company employees who are at risk for cold exposure and conduct a risk assessment based on job classification.

Cold stress applies to work environments where workers may be exposed to either artificial or natural cold.

- Artificially cold workplaces include cold storage rooms, freezers, and refrigerated transportation units
- Industries where workers may be exposed to natural cold include fishing, forestry, construction, and the petroleum industry
- Exposure in this document is exposure to cold air or water either as part of routine work procedures or as a result of accidental or an unplanned event
- Accidental or unplanned events include a worker falling into water such as from a boat or breaking through ice (cold water immersion) or a worker becoming stranded outdoors in the cold

Signs and Symptoms

GTG Automation, Inc. will ensure employees are made aware and familiar with the signs and symptoms of cold weather induced health problems.

- Non-freezing cold injuries include chilblain, immersion foot, trench foot.
- Freezing injuries include: frostnip, frostbite

Areas that do not have major muscles to produce heat are at the greatest risk

- The toes, fingers, ears and nose fall into this category
- The body preserves heat by favoring the internal organs. This reduces the flow of blood to the extremities under cold conditions

Hands and feet tend to get cold more quickly than the torso because:

- They lose heat more rapidly, since they have a higher surface area-to-volume ratio
- They are more likely to be in contact with colder surfaces than other parts of the body
- *The eyes will be protected with goggles in high wind chill conditions. If left unprotected the corneas of the eyes may freeze*
- *The most severe cold injury is hypothermia.* Hypothermia is the excessive loss of body heat and the resulting lowering of the inner core temperature (internal temperature of the body). Hypothermia can be fatal

Non-freezing Injuries

Chilblains are a mild cold injury caused by prolonged and repeated exposure for several hours to air temperatures from above freezing (32°F) to as high as 61°F.

- In the affected skin area, there will be redness, swelling, tingling and pain
- Immersion foot occurs in individuals whose feet have been wet but not freezing cold for days or weeks. It can occur at temperatures up to 50°F. The primary injury is to nerves and muscle tissue
- Symptoms include tingling and numbness; itching, pain, swelling of the legs, feet or hands; or blisters. The skin may be red initially and turn to blue or purple as the injury progresses. In severe cases, gangrene may develop
- A similar condition of the hands can occur if a person wears wet gloves for a prolonged period under cold conditions. Symptoms are similar to immersion foot

Trench foot results from prolonged exposure to a damp or wet environment from above the freezing point to about 50°F

- Depending on the temperature, the onset of symptoms may range from several hours to many days, but the average is three days

Trench foot is more likely to occur at lower temperatures while immersion foot is more likely to occur at higher temperatures and longer exposure times.

Freezing Injuries

Frostnip is the mildest form of freezing cold injury. It occurs when ear lobes, nose, cheeks, fingers or toes are exposed to the cold and the top layers of skin freeze. The skin of the affected area turns white, and it may feel numb. The top layer of skin feels hard, but the deeper tissue still feels normal (soft).

- Prevention of frostnip can be achieved by wearing warm clothing and footwear. Frostnip is treated by gentle rewarming, e.g., holding the affected tissue next to unaffected skin of the victim or of another person
- As for all cold-induced injuries, never rub the affected parts. Ice crystals in the tissue could cause damage if the skin is rubbed. Do not use very hot objects, such as hot water bottles, to rewarm the area or person

Frostbite is a common injury caused by exposure to extreme cold or by contact with extremely cold objects, especially those made of metal. It may also occur at normal temperatures from contact with cooled or compressed gases.

- Frostbite occurs when tissue temperature falls below the freezing point (30°F) or when blood flow is obstructed
- Blood vessels may be severely, and permanently damaged and blood circulation may stop in the affected tissue
- In mild cases, the symptoms include inflamed skin patches accompanied by slight pain
- In severe cases, there can be tissue damage, without pain, or there could be burning or prickling sensations and blisters
- Frostbitten skin is highly susceptible to infection and gangrene may develop
- Wind chill factors can allow frostbite to occur in above freezing temperatures

First aid for frostbite, immersion foot, and trench foot

- Seek medical attention
- Move the victim to a warm area, if possible
- Gently loosen or remove constricting clothing or jewelry that may restrict circulation
- Loosely cover the affected area with a sterile dressing
- Quickly transport the victim to an emergency care facility
- DO NOT attempt to rewarm the affected area on site but do try to stop the area from becoming any colder. Without the proper facilities, tissue that has been warmed may refreeze and cause more damage
- DO NOT rub the area or apply dry heat
- DO NOT allow the victim to drink alcohol or to smoke

Hypothermia

Hypothermia occurs when the body is unable to replace body heat faster than it is lost. Symptoms normally begin when the core body temperature drops below the normal 98.6° F to around 95° F.

The sensation of cold followed by pain in exposed parts of the body is the first sign of mild hypothermia. The affected person may attempt to generate some heat by shivering or stomping their feet.

As the temperature continues to drop, or as the exposure time increases, the feeling of cold and pain starts to diminish because of increasing loss of sensation. If no pain can be felt, serious injury can occur without the victim noticing it.

The affected person may lose coordination, have slurred speech, become disoriented, and the skin may be pale and cold. Muscular weakness and drowsiness usually occur when the body temperature falls below 91°F.

When the affected persons body temperature reaches 81°F, coma most likely sets in, while heart activity stops around 68°F, and the brain stops functioning at around 63°F.

GTG Automation, Inc. will ensure that employees are knowledgeable on how to administer first aid on cold induced injuries or illnesses, therefore the following procedures must be followed.

First Aid for Hypothermia

- Hypothermia is a medical emergency. At the first sign, find medical help immediately
- The survival of victims depends on their co-worker's ability to recognize the symptoms of hypothermia
- The victim is generally not able to notice his or her own condition

First aid for hypothermia includes the following steps:

- Seek medical help
- Ensure that wet clothing is removed
- Place the victim between blankets so the body temperature can rise gradually. (Body to body contact can help warm the victim's temperature slowly)
- Give warm, sweet (caffeine-free, non-alcoholic) drinks, unless the victim is rapidly losing consciousness, unconscious or convulsing
- Quickly transport the victim to an emergency medical facility
- Do NOT apply direct heat, i.e., hot water bottles

Factors that influence your response to cold

A cold environment challenges the worker in three ways: air temperature, air movement (i.e., wind speed), humidity (i.e., wetness).

- To work safely, these challenges have to be counterbalanced by proper insulation, such as layered protective clothing, physical activity and by controlling exposure, e.g., work/rest schedule

Air Temperature: Air temperature is measured by an ordinary thermometer in degrees Fahrenheit (°F) or degrees Celsius (°C).

Wind Speed: Various types of commercially available anemometers are used to measure wind speed or air movement.

Humidity: Water conducts heat away from the body 25 times faster than dry air.

Physical Activity: The production of body heat by physical activity is difficult to measure. However, tables are available in literature, which shows metabolic rates for a variety of activities. Metabolic heat production is measured in kilo calories (kcal) per hour. One kilocalorie is the amount of heat needed to raise the temperature of one kilogram of water by 24°F.

Work/rest Schedule: Regular rest breaks in a heated area are recommended for anyone working in the cold. The frequency of breaks depends on the air temperature and wind speed, as well as the degree of physical activity.

Protective Clothing: To be protected from the cold, workers will dress in layers.

The inner layers will trap moisture and wick it away from the body; the middle layers provide insulation; the outer layers protect against the wind and weather.

- As work activity and environmental conditions change, workers will be able to easily add or remove layers

Wind Chill

At any temperature, you feel colder as the wind speed increases. The combined effect of cold air and wind speed is expressed as equivalent chill temperature (ECT) or simply wind chill temperature in degrees Fahrenheit or Celsius.

- It is essentially the air temperature that would feel the same on exposed human flesh as the given combination of air temperature and wind speed
- It can be used as a general guideline for deciding clothing requirements and the possible health effects of cold
- In some parts of the United States, the term wind chill factor is used. This is a measurement of a heat loss rate caused by exposure to wind and it is expressed as the rate of energy loss per unit area of exposed skin per second (e.g., joules/[second-metre²] or watts/metre², W/m²)
- The American Conference of Governmental Industrial Hygienists (ACGIH) has adopted the work warm-up schedule (see table 1), developed by the Saskatchewan Department of Labor as Threshold Limit Values (TLVs) for cold stress

CONTROLLING COLD STRESS

Environmental Measures

- Temperature and wind conditions will be known, e.g., weather report on the radio, current weather office information
- Steps will be taken to protect workers from wind (or indoors from drafts or forced air from air handling units). The combination of low temperatures and even moderate winds can quickly create dangerous working conditions
- Ensure that heated rest areas, such as a truck cab, tent or hut, are available

Equipment Design

For work below the freezing point, metal handles and bars will be covered by thermal insulating material. Also, machines and tools will be designed so that they can be operated without a person having to remove mittens or gloves.

Work Practices

A schedule of regular rest breaks will be established to allow workers to warm up. These breaks will be not less than 10 minutes in length and will be taken in a heated area.

- Heated warming shelters, e.g., tents, cabins, rest rooms, will be provided
- When entering the heated shelter, outer and middle clothing layers (as necessary) will be removed to prevent overheating and to allow dampness to evaporate. A change of dry clothing may be necessary since returning to cold work while damp or sweaty may result in rapid chilling
- Warm fluids will be consumed at the work site to provide energy and warmth and to replace fluids lost during work
- Recognize the symptoms of cold stress. The onset of severe shivering, the feeling of excessive fatigue, drowsiness, irritability or euphoria is indications to immediately return to the shelter

The following additional precautions apply at colder temperatures:

- Workers will be under constant protective observation by a buddy or supervisor
- Work rate will not be high enough to cause sweating. If heavy work must be performed, rest periods in heated shelters and the opportunity to change into dry clothing will be provided
- New employees will not be required to work full-time in the cold during the first days of employment until they become accustomed to the working conditions and required protective clothing
- Weight and bulkiness of clothing will be included in estimating required work performance
- Work will be arranged to minimize periods of standing or sitting still
- Workers will be appropriately trained

Personal Measures

Diet - Workers have increased energy requirements when working in the cold. Consider adding additional wholesome foods to the diet, such as pasta, potatoes, rice, dairy products, nuts, meat, herring and salmon. Light snacks and warm fluids will be taken during rest breaks. Alcohol must not be consumed when working in the cold. Alcohol produces a deceptive feeling of warmth but may contribute to dehydration and impair judgment.

Dressing for the Cold - Clothes must be layered to manage moisture and keep dry. Insulating layers must trap air for warmth, and the worker must be protected from the wind and weather.

To remain comfortable as weather and work conditions change, clothing layers will be added or removed, or ventilation openings in clothing opened or closed.

Workers must make every effort to avoid sweating and becoming damp. Clothing selections are normally made on the basis of staying warm while inactive. Consider the work to be performed and the weather conditions, then have workers dress so that layers can be shed, and they can still remain comfortably warm. If clothing layers do become damp and remain that way, workers will be prepared to replace them before becoming chilled and hypothermic. If a worker is sweating, then his or her clothing is probably too warm for the conditions and tasks being performed.

GTG Automation, Inc. will provide plenty of liquids to affected workers and discourage the use of caffeine and alcohol that can lead to dehydration. The company program will address work schedules so that work is performed in the warmest part of the day when possible. The program should encourage affected company employees to take frequent breaks and to eat a high-calorie diet to maintain energy.

Hand Wear

- Mittens keep hands warmer than gloves since fingers are together. With gloves, fingers are separated and lose heat from one another
- Have workers wear thin liners under gloves or mittens. Liners need not be removed when removing the gloves
- Removable glove and mitten liners can be replaced and dried when they become damp
- New mitten styles, including three-finger lobster claws that keep fingers warm yet offer good dexterity are available
- Windproof over mist offer additional hand protection, without adding significant bulk

Headwear

- A hat or other head protection must be worn in the cold

- Avoid cotton and use synthetic fabrics or wool instead
- Workers must use an appropriate hard hat liner to reduce heat loss when wearing a hard hat
- Select a hat appropriate for the weather conditions and activity level. Consider thickness, extent of head coverage (e.g., open face, full balaclava, ear coverage), need for windproof, effect on vision and hearing, and ability to fit into or overprotective headwear, if required
- A facemask and eye protection may sometimes be necessary

Footwear

- Warm, insulated safety footwear is essential. Boots will have thick soles for insulation while standing in snow or on cold concrete. Footwear selection will be based on the work being performed, the surfaces on which the worker will work and the weather conditions to which the worker will normally be exposed. Tight-fitting boots reduce circulation and can make feet feel cold
- Footwear will be sized so that it will accommodate an extra layer(s) of socks
- A synthetic sock liner, worn beneath a synthetic blend or wool outer sock, wicks moisture away from the skin, keeping feet drier and warmer

Special Precautions

- Exposure to vibration may increase a worker's susceptibility to cold injury because of the way that vibration can reduce circulation, particularly in the extremities
- Work performed in snow- or ice-covered terrain may require tinted safety eyewear and/or sunglasses with side shields. If there is a potential for eye injury from blowing snow or ice crystals, special safety goggles will be worn. As well, workers in such situations will be prepared for white-out conditions and have a plan in place regarding movement and navigation under such conditions
- Alcohol must be avoided – it produces a deceptive feeling of warmth but can affect circulation, fluid balance and judgment
- Limit the consumption of caffeine-containing beverages because they act as diuretics and affect hydration
- Workers with health conditions that affect normal body temperature regulation or impair circulation, such as Raynaud's Syndrome or diabetes, will take appropriate precautions when working in the cold. This might include more layers, including hat and mitts, and less time in the cold environment
- Body parts that have sustained a frostnip or frostbite injury are sensitive to re-injury, so extra care must be taken to protect/cover these areas

If loose or bulky clothing is worn, special care will be taken when working around moving equipment or machinery to prevent clothing entrapment

If a worker is or may be exposed to:

- thermal conditions that could cause cold stress or injury
- thermal conditions that could cause a worker's core body temperature to fall below 96.8°F (36°C)
- thermal conditions that are below the levels classified as "little danger" to workers in the criteria for the cooling power of wind on exposed flesh in the cold stress section of the ACGIH Standard

COOLING POWER OF WIND (IMPERIAL UNITS)

The ACGIH criteria, in the Fahrenheit scale, are listed in the following table as it appears in "Cold Stress" of Threshold Limit Values and Biological Exposure Indices (the ACGIH Standard). The table

Estimated wind speed (in mph)	Actual temperature reading (degrees Fahrenheit)											
	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
	Equivalent chill temperature (degrees Fahrenheit)											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	-50	-60
5	48	37	27	16	6	-5	-15	-26	-36	-47	-57	-68
10	40	28	16	4	-9	-24	-33	-46	-58	-70	-83	-95
15	36	22	9	-5	-18	-32	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-25	-39	-53	-67	-82	-96	-110	-121
25	30	16	0	-15	-29	-44	-59	-74	-88	-104	-118	-133
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109	-125	-140
35	27	11	-4	-20	-35	-51	-67	-82	-98	-113	-129	-145
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116	-132	-148
Wind speeds greater than 40 mph have little additional effect	LITTLE DANGER In < 1 hour with dry skin. Maximum danger of false sense of security.				INCREASING DANGER Danger from freezing of exposed flesh within one minute.				GREAT DANGER Flesh may freeze within 30 seconds.			
	Trench foot and Immersion foot may occur at any point on this chart.											

shows the cooling power of wind on exposed flesh. If there is a wind, use the wind speed in the first column and the actual temperature across the top to find what the equivalent temperature would be under calm conditions.

Note: Equivalent chill temperature requiring dry clothing to maintain core body temperature above 36 C (96.8 F) per cold stress TLV.

Cold Stress Risk Assessment (Risk Assessment)

If a worker is or may be exposed to cold stress conditions specified earlier the employer will conduct a cold stress risk assessment to determine the potential for hazardous exposure of workers

GTG Automation, Inc. will ensure that a cold stress hazard / risk assessment is conducted prior to each project to identify the potential risks for cold exposure. Specifically, the company will identify the jobs, tasks and/or company employees who are at risk for cold exposure and conduct a risk assessment based on job classification. The first step in a cold stress assessment is to determine the areas, occupations or tasks that place workers at risk of hypothermia or cold-related injuries. Consider factors such as the following:

- Areas with an equivalent chill temperature below 19.4°F (see below)
- Fine dexterity tasks that require work with bare hands
- Contact with metal surfaces or use of evaporative liquids (gasoline, alcohol, or cleaning liquids)
- Working on or near bodies of water
- Areas or occupations that have been identified through accident investigation reports, first aid treatment record books, and records of injury and disease
- Areas or occupations about which employees have expressed concern

Once the areas, occupations, or tasks that will be monitored are determined, the risk of developing hypothermia or a cold-related injury will then be evaluated.

A cold stress risk assessment will include determining the air temperature and wind speed (to determine the "equivalent wind chill temperature"). This information is available by:

- Obtaining weather, temperature, and wind information from the local weather office if there is a monitoring station close to the area in which the work is to be conducted
- Taking a direct measurement of the ambient air temperature using a dry bulb thermometer (or electronic equivalent) and a direct reading of the wind velocity in mph (or feet/sec) using a velometer, hot-wire thermometer, heated thermocouple, thermistor, or a thermocouple anemometer. Most air velocity instruments also provide a direct readout of air temperature

Wind chill is a concern when the equivalent chill temperature is less than 19.4°F. The conditions when this occurs are:

- The air is calm, and the temperature falls below 19.4°F
- The wind speed is 5 mph or greater and the air temperature is 23°F
- The wind speed is 10 mph or greater and the air temperature is 32°F
- The wind speed is 20 mph or greater and the air temperature is 41°F

As part of the risk assessment, the potential for worker exposure to artificially generated air velocities will also be considered, for example when working in walk-in refrigerators and freezers, when riding all-terrain vehicles or snowmobiles, or when exposed to helicopter rotor downwash.

A general assessment of contact cooling for exposed skin, particularly the hands, will consider the following when workers are in contact with metal:

- Below 59°F-Prolonged contact may impair dexterity
- Below 44°F-Prolonged contact may induce numbness
- Below 32°F-Prolonged contact may induce frostnip or frostbite
- Below 19.4°F-Brief contact with may induce frostnip or frostbite

For materials other than metal, such as plastics and wood, the temperatures will be lower than those noted above since they are less conductive than metal. Any contact with liquids at subzero temperature is also of concern, particularly with cryogenic "fluids" (super-cooled liquefied gases).

Workers will be provided with gloves or other method of warming the hands when the air temperature is below:

- 61°F for sedentary work
- 39°F for light work
- 19.4°F for moderate work

COLD EXPOSURE CONTROL PLAN

If a worker is or may be exposed to cold stress conditions, the employer will develop and implement a cold exposure control plan.

Some specific components of the exposure control plan, as they relate to education and training of workers are described below.

Education and Training

This element will contain initial and ongoing training and education that will be provided to all workers who work in areas where there is a reasonable likelihood of exposure to conditions that could cause cold stress. The training and education material provided to workers who have not previously worked in a cold stress environment will include the following information:

- Recognition of the signs and symptoms of impending hypothermia or excessive cooling of the body even when shivering does not occur
- Recognition of impending frostbite
- Proper re-warming procedures and appropriate first aid treatment
- Proper use of clothing
- Proper eating and drinking practices
- Safe work practices appropriate to the work that is to be performed

For those workers exposed to cold-stress environments, provide refresher training and education to ensure that workers remain knowledgeable about the above-mentioned items. It is recommended that continuing education be provided at least annually.

Engineering Controls

An employer can reduce the exposure hazard of workers to thermal conditions that could cause cold stress or injury using a hierarchy of control methods: engineering controls, followed by administrative controls and, as a last resort, personal protective equipment.

Here are some examples of engineering controls to reduce cold exposure:

- Isolate the worker from the environment, where possible
- Use local heating for the body and especially bare hands (when fine work is required). This may include the use of warm air jets, radiant heaters, or contact warming plates
- Provide barricades or other structures to block air or reduce air velocities at the work location
- Provide heated metal tools and equipment handles or cover them with thermal insulating materials
- Use machine controls and tools designed so that workers do not have to remove mittens or gloves to use them

Administrative Controls

If the above action is not practicable, the employer must reduce the exposure hazard by providing effective administrative controls to reduce the exposure hazard of workers to thermal conditions that could cause cold stress or injury.

Several administrative controls that are commonly used to reduce worker exposure to cold stress are described below:

Fluid replacement and diet: An ample supply of warm drinks or soup will be available, and workers will be encouraged to drink them in order to replace fluids lost through breathing and perspiration.

- Workers will restrict their intake of coffee because of diuretic and circulatory effects
- A diet high in fats and carbohydrates may help to maintain body temperature

Scheduling and organization of work: There are several ways to organize and to schedule tasks so as to minimize the length of time of exposure and to maximize the temperatures to which workers may be exposed.

For example:

- When possible, schedule tasks for the warmest part of the day or when the wind is the most calm
- Schedule routine maintenance and repair work for warmer seasons of the year
- Postpone non-urgent tasks when equivalent chill temperatures are in the "great danger" portion of the "Cooling Power of Wind" ACGIH table
- Take the equivalent chill temperature into account when planning or scheduling work activities

Work/Warm-Up Schedule for a 4-Hour Shift

A work/warm-up schedule is an example of an administrative control. The ACGIH Standard contains a work/warm-up schedule for a 4-hour shift for workers who are properly clothed. See table 3.

Table 3 TLVs Work/Warm-up Schedule for Outside Workers based on a Four-Hour Shift*											
Air Temperature - Sunny Sky		No Noticeable Wind		5 mph Wind		10 mph Wind		15 mph Wind		20 mph Wind	
°F (approx.)	°C (approx.)	Max. work Period	No. of Breaks**	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks	Max. Work Period	No. of Breaks
-15° to -19°	-26° to -28°	(Norm breaks) 1		(Norm breaks) 1		75 min.	2	55 min.	3	40 min.	4
-20° to -24°	-29° to -31°	(Norm breaks) 1		75 min.	2	55 min.	3	40 min.	4	30 min.	5
-25° to -29°	-32° to -34°	75 min.	2	55 min.	3	40 min.	4	30 min.	5	Non-emergency work will cease	
-30° to -34°	-35° to -37°	55 min.	3	40 min.	4	30 min.	5	Non-emergency work will cease			
-35° to -39°	-38° to -39°	40 min.	4	30 min.	5	Non-emergency work will cease					
-40° to -44°	-40° to -42°	30 min.	5	Non-emergency work will cease							
-45° & below	-43° & below	Non-emergency work will cease									

Personal Protective Equipment

Personal protective equipment can be used to reduce exposure if the equipment provides protection equally effective as administrative controls.

- Workers who are at risk of exposure to thermal conditions that could cause cold stress or injury due to unplanned or accidental events will be provided with clothing and equipment sufficient to permit survival from the natural elements until the worker can be removed from the exposure

As a minimum, a worker will be provided with the following:

- Additional clothing selected in accordance with the anticipated overnight low temperatures for the region in which work, or travel is conducted
- A sleeping bag rated for the anticipated overnight low temperatures for the region in which work, or travel is conducted
- Survival equipment that will allow a worker to survive the natural elements until rescued

Typical items that will be included in a survival kit:

GENERAL:	SIGNAL:
1-backpack with pockets	1-mini-flashlight and batteries
1-10 ft. x 12 ft. plastic tarp	1-compass
1-5 ft. x 6 ft. polar fleece blanket	1-survival whistle
2-tarp straps	1-set of flares
COOKING:	1-handheld flare launcher
2-large stainless-steel cups	OTHER:
2-sets of cutleries	2-toilet tissue packets
1-survival stove	1-50-foot parachute cord
1-500 ml water bottle	1-sheathed knife
FOOD:	1-tube of lip balm and/or sunscreen
4-instant soup mix	1-container of insect repellent
10-tea bags	1-small folding saw
1-food ration	4-garbage bags
10-instant hot chocolate	FIRST AID:
12-food bars	1-basic first aid kit
1-water treatment kit	
FIRE:	
1-fire starting kit	

Heated Shelters

If a worker is exposed to a thermal environment with an equivalent chill temperature less than 19°F (-7°C), as determined using the criteria for the cooling power of wind on exposed flesh in the cold stress section of the ACGIH Standard, a nearby heated shelter must be available to the worker.

- The intent of a heated shelter is to allow workers the opportunity to come out of the cold and warm themselves
- The outer layer of clothing will be removed, and remaining clothing will be loosened to permit sweat to evaporate
- Workers will be encouraged to use the shelter at regular intervals

Signs and symptoms indicating that the shelter will be used are:

- Onset of heavy shivering
- Minor frostbite (frostnip)
- Feeling of excessive fatigue
- Drowsiness, irritability or euphoria

A heated vehicle may be used as a heated shelter. In cases where workers are in remote or isolated areas without provision of vehicles capable of being heated (such as all-terrain vehicles or snowmobiles) or in cases where workers are on foot, workers will carry adequate equipment and supplies to permit the timely assembly of a heated shelter, if necessary.

Clothing (Whole Body)

A worker who is or may be exposed to cold stress conditions must wear adequate insulating clothing and personal protective equipment.

- The most widely used approach to dressing for work in cold environments is to use multiple layers of clothing

Generally, three layers of clothing are used:

- An inner moisture wicking layer that absorbs moisture and keeps it away from the skin
- A second insulating layer that helps keep a layer of air trapped around the body
- An outer layer that keeps dust, dirt, wind, and moisture away from the previous layer and that can be easily removed to prevent the build-up of body heat. In wet environments, the outer layer will be waterproof

The insulative value of clothing selected will be based upon the equivalent chill temperature of the work environment and the anticipated metabolic rate of the work activity.

- Wearing too much clothing can lead to sweating, and wet clothing causes greater heat loss and increases the risk of developing hypothermia
- Many manufacturers of insulated garments provide guidance for recommended temperature and metabolic rate ranges for their clothing
- There are also several standards that recommend the insulative value of clothing for use with a given temperature and metabolic rate
- An example of a standard for selecting clothing is the required insulation value or IREQ

For more information on IREQ see the following:

Holmér, Ingvar. "Cold Stress: Part I-Guidelines for the Practitioner." International Journal of Industrial Ergonomics 14:139-149 (1994).

Clothing (Extremities)

Mittens rather than gloves will be worn when the air temperature is less than -1.4°F (17°C). Gloves and mittens will have removable liners so they can be effectively dried.

Footwear for use in cold environments will be insulated and will also have removable insoles for effective drying.

Exposed areas of the head and neck will be protected against heat loss and the danger of frostbite by use of adequate head covering and/or facemasks.

Walkways & Travel ways

It is the policy of GTG Automation, Inc. that regularly used walkways and travel ways must be salted, sanded, or cleared of snow or ice on a regular basis to ensure the safety of all employees.

Buddy System

To ensure that employees are under constant observation a buddy system will be implemented to ensure that no employee is working alone in cold environments.

Cold Weather Supplies

Cold weather supplies will be regularly inspected to ensure that the supplies are always in stock.

Snow & Ice Buildup

Unstable snow and ice buildup are known to be a great threat to the safety on the job, therefore GTG Automation, Inc. will ensure that employees are made aware of the dangers and destructive potential caused by them and how to prevent the accidents caused by them.

TRAINING RECORD

Trainer:

Signature:

Date:

Content of Training:

Attendees

Print Name:

Signature:

POLICY

This confined spaces policy is designed to ensure the safety and health of GTG Automation, Inc.'s employees by limiting exposure to the hazards present while working in construction, in and around confined spaces. There are new components in the Confined Spaces in Construction regulations that reflect different challenges present at a construction worksite to include: higher employee turnover, changing worksites and multiple contractors (controlling and subcontractors). Affected employees from all levels will be allowed input on development, implementation and review of all aspects of the confined spaces entry program.

Except where another policy states otherwise, this written confined space policy will be followed whenever and wherever the company's employees could enter or be exposed to confined space hazards for all construction work including modifications and upgrades. This program will be available to any employee and their representative at any time.

RESPONSIBILITIES

Confined space safety is a responsibility shared between GTG Automation, Inc. and its employees.

Employer Responsibilities

- Develop and implement a written permit space program — available onsite for inspection by employees or their representatives — if employees are directed to enter permit spaces.
- Involve affected employees on this policy, ensuring they are educated on the elements of confined space safety and trained in worksite specific procedures.
- Seek employee input during an annual review of this policy.
- Provide all necessary information to ensure employees work safely in and around confined spaces.
- Determine that employees can proficiently perform their assigned duties.
- Document training and keep training records for all current employees.
- Keep cancelled permits until an annual review can be conducted.
- Provide all documents to the Secretary of Labor upon request.
- Reevaluate confined spaces whenever an employee requests it.

Each employer who identifies or receives notice of a permit space and has not authorized employees it directs to work in that space, must take effective measures to prevent those employees from entering that permit space.

Employee Responsibilities

- Follow all OSHA rules and regulations.
- Follow established safe work policy and procedures.
- Participate in the development and implementation of the permit required confined space entry program.
- Participate in all required training.
- Be aware of potential hazards and request a reevaluation when a new hazard is suspected.

STANDARDS AND REGULATIONS

- Subpart AA — Confined Spaces in Construction 29 CFR 1926.1201 - 1213
- Federal OSHA General Duty Clause, Section 5(a)(1)

DEFINITIONS

Attendant means an individual stationed outside one or more permit spaces who assesses the status of authorized entrants and who must perform the duties specified in § 1926.1209.

Authorized entrant means an employee who is authorized by the entry supervisor to enter a permit space.

Competent person means one who can identify existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous or dangerous to employees and who has the authorization to take prompt corrective measures to eliminate them.

Confined space means a space that is large enough and so configured that an employee can bodily enter it, has limited or restricted means for entry and exit and is not designed for continuous employee occupancy.

Controlling Contractor is the employer that has overall responsibility for construction at the worksite.

Entry means the action where any part of a person passes through an opening into a permit-required confined space. Entry includes any work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space, whether or not such action is intentional or any work activities are actually performed in the space.

Entry Employer means any employer who decides that an employee will enter a permit space.

Entry supervisor means the qualified person (such as the employer, foreman or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations and for terminating entry as required.

Host employer means the employer that owns or manages the property where the construction work is taking place.

Inerting: is the displacement of the atmosphere in a permit space by a noncombustible gas (such as nitrogen) to such an extent that the resulting atmosphere is non-combustible.

Isolation: is the process by which a permit space is removed from service and completely protected against the release of energy and material into the space by such means as: blanking or blinding; misaligning or removing sections of lines, pipes or ducts; a double block and bleed system; lockout or tagout of all sources of energy; or blocking or disconnecting all mechanical linkages.

Permit-required confined space (permit space) means a confined space that has one or more of the following characteristics:

1. Contains or has the potential to contain a hazardous atmosphere.
2. Contains material that has the potential for engulfing an entrant.
3. Has an internal configuration such that an entrant could be trapped or asphyxiated by inwardly converging walls or by a floor which slopes downward and tapers to a smaller cross section.
4. Contains any other recognized serious safety or health hazard.

Rescue service means the personnel designated to rescue employees from permit spaces.

Test or testing means the process by which the hazards that may confront entrants of a permit space are identified and evaluated. Testing includes specifying the tests that are to be performed in the permit space.

Ventilate or ventilation means controlling a hazardous atmosphere using continuous forced-air mechanical systems that meet the requirements of § 1926.57 (Ventilation).

General Safety Considerations

The company must:

- Implement the measures necessary to prevent unauthorized entry.
- Identify and evaluate the hazards of permit spaces before employees enter them.
- Develop and implement the means, procedures and practices necessary for safe permit space entry operations.
- Provide entry equipment at no cost to each employee, maintain that equipment properly and ensure that each employee uses that equipment properly.

For permit required pre-entry testing and periodic monitoring, the company will provide an early-warning system that continuously monitors for non-isolated engulfment hazards and continuously monitor atmospheric hazards.

In an emergency or failed non-entry rescue, the attendant will summon rescue and emergency services. No unauthorized personnel may attempt a rescue.

GTG Automation, Inc. will be consulted for all permit required matters, including preparation, issuance, use and cancellation of entry permits under both planned and emergency conditions.

When the measures taken under the permit space program may not protect employees, the program will be revised to correct deficiencies found to exist before subsequent entries are authorized. Examples of circumstances requiring the review of the permit space program include but are not limited to: any unauthorized entry of a permit space, the detection of a permit space hazard not covered by the permit, the detection of a condition prohibited by the permit, the occurrence of an injury or near miss during entry, a change in the use or configuration of a permit space and employee complaints about the effectiveness of the program. The company will review the permit space program, using the canceled permits within one (1) year after each entry. It is permitted to perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

Before permitting required entry is authorized, each entry employer must document the completion of measures for safe entry. The documentation must be made available at the time of entry to all authorized entrants by posting it at the entry portal or by any other equally effective means. The permit may not exceed the time required. The permit will be cancelled when the entry operations is completed, suspended or cancelled when conditions dictate. The permit must be fully reassessed before allowing re-entry. The entry employer must retain each canceled entry permit for at least one (1) year to facilitate the review of the permit-required confined space program. It is permitted to perform a single annual review covering all entries performed during a 12-month period. If no entry is performed during a 12-month period, no review is necessary.

Training will be at no cost to the employee and the company will ensure that the employee possesses the understanding, knowledge and skills necessary for the safe performance of the duties assigned. Training must be in both a language and vocabulary that the employee can understand.

Training must be conducted in the following scenarios:

- Before the employee is assigned confined space entry work
- Before there is a change in assigned duties
- Whenever there is a change in permit space entry operations that presents a hazard, an employee has not previously been trained
- Whenever there is any evidence of a deviation from the permit space entry procedures or there are inadequacies in the employee's knowledge or use of these procedures.

The training must establish employee proficiency in their assigned duties and must introduce new or revised procedures. The company must maintain training records: contain each employee's name, the name of the trainers and the dates of training. The documentation must be available for inspection by employees and their authorized representatives, for the period of time the employee is employed by that employer.

IDENTIFYING CONFINED SPACES AND HAZARDS

A confined space is an area an employee can enter but is not designed for continuous occupancy and does not have an unrestricted entry or exit. A permit required confined space (PRCS) has a serious health or safety hazard, such as the possibility for a hazardous atmosphere, material that can engulf a person or is in a shape that can trap or asphyxiate a person (e.g., converging or sloping walls or floor).

To help provide an understanding for determinations OSHA has provided a limited list of work sites that could have a confined space: bins, boilers, pits, elevators, escalators, pumps, manholes and tanks (containers).

The company will ensure that a competent person will identify all the confined spaces an employee might work in, before the work begins and determine which requires permits. Employees and the controlling contractor will be informed directly of the location and danger in each permit space. Signs that effectively warn of the danger and prohibit entry will be placed at permit space entrances.

Each entry employer will have a competent person evaluate non-permit spaces initially and when there are changes to the use or configuration that might increase entrant hazards to decide whether to reclassify it.

Work will be scheduled as much as reasonably possible to avoid confined spaces by finishing tasks in areas before they become confined spaces.

GTG Automation, Inc. will identify permit-required confined spaces in GTG Automation, Inc. workplaces. If the workplace contains one or more permit spaces, GTG Automation, Inc. will inform exposed employees by posting danger signs or by any other equally effective means of the existence and location of and the danger posed by the permit spaces.

NOTE: A sign reading DANGER -- PERMIT-REQUIRED CONFINED SPACE, DO NOT ENTER or using other similar language would satisfy the requirement for a sign.

COMMUNICATING BETWEEN EMPLOYERS

As the host employer, all details (e.g., entry employer's entry program, known hazards, new hazards and hazard elimination/isolation procedures) about confined spaces at the worksite will be communicated with the controlling contractor before and after entry. Where the company has contracted with the property owner to manage it and transmit all confined space details, it will be considered the host employer.

As the controlling contractor, all details (e.g. employer's entry program, location of confined spaces and PRCS, known hazards, new hazards and hazard elimination/isolation procedures) will be communicated with the host employer and all entry employers (i.e. subcontractors) before and after entry, ensuring that information is transferred to the different entry employers (e.g. posting signs) before and during entry so they don't create additional hazards for other entry employers' employees. Details will be communicated with other non-entry employers so that their employees do not create hazards or go into the confined space.

As the entry employer, all details (e.g., entry program, known hazards, new hazards and hazard elimination/isolation procedures) about confined spaces at the worksite will be communicated with the controlling contractor before and after entry.

As a non-entry employer, essential details about confined spaces will be communicated with the controlling contractor to determine where the confined spaces are and the necessary steps to prevent employees from accessing them or creating hazards for other employees. Employees will be instructed not to enter the identified confined spaces.

NON-PERMIT SPACES

Alternate Entry

The employer will use alternate procedures to enter a non-permit required space if the employer can demonstrate each of the following conditions are addressed:

- All physical hazards in the space are eliminated or isolated through engineering controls so that the only hazard posed by the permit space is an actual or potential hazardous atmosphere.
- Continuous forced air ventilation is utilized to maintain safe for entry.
- The space should have continuous monitoring unless the employer has supporting data that demonstrates continuous monitoring is unnecessary)

Non-Permit Space Re-Evaluation

When there are changes in the use or configuration of a non-permit required confined space that might increase the hazards to entrants (or some indication that the initial evaluation of the space may not have been adequate), each entry employer must have a competent person reevaluate that space and, if necessary, reclassify it as a 'permit-required' confined space.

CONFINED SPACES WITH ONLY ATMOSPHERIC HAZARDS

The following procedures and conditions are for entering a confined space with only atmospheric hazards that can be made safe to enter through forced air ventilation during entry.

To be more specific, all physical hazards must be eliminated or isolated through engineering controls and the forced air ventilation has to keep the space safe for entry and entrants must be able to exit safely if ventilation stops working.

If the above can be proven and documented with monitoring and inspection where the data is available to each entrant, the space can be entered without a permit, attendant or rescue and emergency equipment once the company certifies that:

- Entrance covers can be safely removed.
- Entrance openings are immediately guarded by a railing, temporary cover or barrier that prevents accidental falls into the opening and protects entrants from foreign objects falling into the space.
- The internal atmosphere shall be tested with a calibrated direct-reading instrument prior to allowing entrants into the space, testing shall be conducted in the following order: oxygen content, flammable gases and vapors and potential toxic air contaminants. The testing procedure is evaluated to ensure it is appropriate for the possible atmospheric hazards. This may mean identifying the possible toxic air contaminants and ensuring the gas detector can detect it and testing at the top, middle and bottom of the space to account for different gases' density. Any employee who enters the space or that employee's authorized representative, shall be provided an opportunity to observe the pre-entry testing required by this paragraph.
- Testing and continuous monitoring ensures there is no hazardous atmosphere.
- Continuous forced air ventilation from a clean source directed — to the lowest spot or furthest corner — so that it eliminates any hazardous atmosphere from the space while anyone is in there.
- Continuously monitoring the atmosphere in the space with monitoring equipment, unless necessary monitoring equipment is not commercially available, that will sound an alarm notifying all entrants if a hazard exceeds the atmospheric thresholds.
- Where the preferred continuous monitoring is not used because of equipment limitations or that periodic monitoring is demonstrably sufficient, periodic monitoring will be often enough to detect a hazardous atmosphere is building up and that entrants have time to exit.
- Once a hazard is observed everyone will immediately leave the space. The hazard source is then found — and the company will take steps to protect employees before they enter that space again.
- There is a safe way to enter and exit the space, including a personnel hoist made for that purpose or a job hoist approved ahead of time in writing by a registered professional engineer.

The written certificate must contain the date, location of the space and the signature of the person certifying the above conditions have been met. Certification must be made before anybody enters and be available to every employee entering the space. The employer will reevaluate the space if there is a change to the space that may increase hazards or there is indication the current evaluation is incorrect.

RECLASSIFYING PRCS FOR ENTRY

Permit required confined spaces without any potential atmospheric hazard can be reclassified as non-permit required once a competent person with the entry employer certifies that:

- The space poses no actual or potential atmospheric hazards and if the hazards can be eliminated or isolated without entering the space.
- If the entry employer can show they have to enter the space to remove the hazard, then they can do that following the permit process.
- Testing and inspection during that entry demonstrate that the hazards within the permit space have been eliminated or isolated.
- Forced air ventilation does not constitute elimination or isolation of the hazards.
- Document the basis for determining that all hazards in a permit space have been eliminated or isolated.
- Through a certification that contains the date, the location of the space and the signature of the person making the determination
- If hazards arise within a permit space that has been reclassified as a non-permit space, each employee in the space must exit the space. The entry employer must then reevaluate the space and reclassify it as a permit space.

The written certificate must contain how all the hazards have been eliminated or isolated, the date, location of the space and the signature of the person certifying the above conditions have been met. Certification must be made before anybody enters and be available for every employee entering the space. If new hazards are identified everyone must leave the space and the entry employer will reevaluate.

ENTRY EMPLOYER RESPONSIBILITIES

As an entry employer, the company will create and put into action the following measures to protect its and other employees both inside and outside confined spaces.

- Prevent unauthorized entry. Using covers, signs or an attendant at the entrance etc.
- Ensure safe permit space entry operations.
- Provide the necessary equipment.
- Evaluate permit spaces during entry.
- Provide attendants outside permit spaces during entry.
- Describe how the attendant monitoring multiple spaces will respond to emergencies.
- Assign a role to every person in an entry, identify their duties and provide required training.
- Rescue and emergency services for PRCS.
- Entry permits.
- Coordinate entry operations when more than one entity performs permit space entry at the same time and/or entry is performed at the same time that any activities that could foreseeably result in a hazard in the permit space are performed.
- The controlling coordinator must debrief each entity that entered a permit space regarding the permit space program followed any hazards confronted or created in the permit space(s) during entry operations.
- Review this policy annually and following any incidents or near misses.

SAFE PERMIT SPACE ENTRY OPERATIONS

A competent person will identify and evaluate permit space hazards before any employees enter it and establish all the elements to ensure safe work in the area, especially:

- Citing the acceptable entry conditions.
- Authorized entrants can observe space testing and monitoring.
- Isolating the space and its hazards.
- Controlling atmospheric hazards through purging, inerting, flushing or ventilating.
- Reducing the atmosphere to below 10 percent of its lower flammable limit (LFL) or inerting the atmosphere so that it is entirely non-combustible and addressing the other atmospheric hazards like oxygen deficiency through personal protective equipment (PPE).
- Ensuring monitoring procedures will detect atmospheric hazard level increases quickly enough for entrants to exit in case ventilation stops working.
- Having necessary barricades or barriers to prevent unauthorized entry and to protect entrants from external hazards.
- Conditions continue to allow safe entry the entire time.
- The necessary PPE effectively protects every employee and that they have the PPE before entering a hazardous atmosphere.
- Conditions, like high pressure, that can make removing an entrance cover unsafe are eliminated.

EVALUATING PERMIT SPACE CONDITIONS

Prior to allowing entrants into a confined space, the internal atmosphere shall be tested with a calibrated direct-reading instrument, testing shall be conducted in the following order: oxygen content, flammable gases and vapors and potential toxic air contaminants. Any employee who enters the space or that employee's authorized representative, shall be provided an opportunity to observe the pre-entry testing required by this paragraph.

The testing procedure is evaluated to ensure it is appropriate for the possible atmospheric hazards. This may mean identifying the possible toxic air contaminants and ensuring the gas detector can detect it and testing at the top, middle and bottom of the space to account for different gases' density.

Atmospheric test results shall be posted with the permit at the entry to the confined space and any affected employee shall be informed of the results.

If it is part of a larger continuous system and cannot be isolated, pre-entry testing will be done and conditions will be continuously monitored unless necessary monitoring equipment is not commercially available. Work in large or continuous systems also requires a sufficient early-warning system continuously monitoring for engulfment hazards.

Continuously monitoring the atmosphere in space with monitoring equipment, unless necessary monitoring equipment is not commercially available, that will sound an alarm notifying all entrants if a hazard exceeds the atmospheric thresholds.

ENTRY PERMITS

GTG Automation, Inc. ensures that a permit will be completed prior to entry into a permit required confined space. The entry permit shall be utilized to document control measures and shall include the safe procedures necessary for concluding the entry operation.

The entry permit be utilized to document control measures that protect company employees involved in permit required confined space operations. The program must also include the procedures necessary for concluding entries into permit required confined spaces.

Each entry employer will ensure conditions are safe for entry in permit spaces through establishing, suspending and cancelling entry permits. If there are multiple entry employers in a confined space during the same entry, then one permit will be completed by coordinating with the controlling contractor and all entry employers. The permit will be made available (e.g., posted at the entry) for all entry employers to document the completion of necessary safety measures.

Through completing an entry permit all measures needed to make the PRCS safe for entry will be documented. The entry supervisor on the permit will sign the entry permit authorizing that these necessary measures have been taken. The permit's duration will be the amount of time needed to complete the task as identified on the permit. Every entry permit will be kept for at least one year and addressed in the annual review. The entry supervisor will terminate the permit when the task identified is completed, suspended or will cancel the permit when necessary.

A permit will be suspended when a temporary condition not allowed in the permit occurs in or near the PRCS and does not change its configuration or creates any new hazard. The entry supervisor needs to reevaluate the PRCS before lifting any suspension or cancelling the permit. A permit will be canceled when a condition not allowed in the permit occurs in or near the PRCS and is not temporary or changes its configuration or creates any new hazard.

Items on an Entry Permit

In order to identify everything needed to make a permit safe for entry the following items will be addressed:

- The permit space's location.
- The reason for entry.
- Date and duration of the entry.
- Authorized entrants identified so the attendant can easily track who is inside the PRCS.
- How any hazardous atmospheric levels will be tracked should ventilation stop.
- The name of every attendant.
- The name of every entry supervisor and the signature of the one that authorized entry.
- Hazards in the PRCS.
- How the hazards will be isolated, eliminated or controlled before entry (e.g., lockout tagout, purging, inerting, ventilating and flushing).
- Acceptable entry conditions.
- Results and times of appropriate testing and monitoring, including the names or initials of who did the test.
- Rescue and emergency services and how they will be called.
- How entrants and attendants will communicate during entry.
- The necessary equipment.
- Additional permits needed to complete the task in the confined space.

EQUIPMENT

As an entry employer, the company will provide suitable equipment needed to safely enter, exit from and conduct rescues in confined spaces. The equipment will also be properly maintained and all employees will know how to and be expected to use it correctly. Any equipment must also meet the regulations specific to it. For example, respiratory equipment must meet the respiratory regulation 1926.103 and barriers are governed by the rules for guardrails, 1926.502(b). The following equipment is specifically mentioned by OSHA:

- Adequate testing and monitoring equipment.
- Ventilating equipment that makes entering possible.
- Communication equipment that allows attendant to talk to entrants, assess status and tell them to evacuate.
- PPE that meets any other applicable regulations where engineering and administrative controls do not give enough protection.
- Lighting that meets construction's minimum illumination in foot-candles (1926.56), that will not ignite the specific gas, vapor, dust or fiber present and that enables employees to work safely and exit during emergencies.
- Barriers and shields that effectively isolate the confined space.
- Ladders needed to enter and exit the confined space.
- Rescue and emergency equipment that is called for in the company's emergency rescue policy.

AUTHORIZED ENTRANTS

Authorized entrants will know and understand which potential hazards are in each confined space such as: how they could be exposed, signs, symptoms and consequences.

Entrants are expected to properly use all equipment, communicate with attendant and be ready to exit any permit space quickly.

Communication includes working with the attendant to instill awareness of personal health in light of the potential hazards. This awareness includes sharing information with the attendant about any symptoms, warning signs or prohibited conditions.

The entrant must exit permit spaces when:

- Told to by the attendant or entry supervisor.
- There is an exposure warning sign or symptom.
- They detect a prohibited condition
- An evacuation alarm is activated.

ATTENDANT RESPONSIBILITIES

An attendant's primary responsibility is to evaluate and protect authorized entrants inside permit required confined spaces. These responsibilities include:

- Be familiar with and understands the hazards that may be faced during entry, signs or symptoms and consequences of the exposure.
- Be aware of possible behavioral effects of hazard exposure in authorized entrants.
- Continuously maintain an accurate count of authorized entrants in the permit space
- Know the means used to identify authorized entrants.
- Remain outside the permit space during entry operations until relieved by another attendant.
- Communicate with authorized entrants as necessary to assess entrant status and to alert entrants of the need to evacuate the space.
- Assessed activities and conditions inside and outside the space to determine if it is safe for entrants to remain in the space.
- Order the authorized entrants to evacuate the permit space immediately if conditions warrant from inside or outside the entry space.
- If the attendant cannot effectively and safely perform all the duties required under this section
 - Summon rescue and other emergency services as soon as the attendant determines that authorized entrants may need assistance to escape from permit space hazards.
 - Takes appropriate actions when unauthorized persons approach or attempt to enter a permit space.
- Inform the authorized entrants and the entry supervisor if unauthorized persons have entered the permit space.
- Perform non-entry rescues as specified by the employer's rescue procedure.
- Perform no duties that might interfere with the attendant's primary duty to assess and protect the authorized entrants.)

Attendants will know and understand which potential hazards are in each confined space such as: how entrants could be exposed, signs, symptoms and consequences. This includes knowing how the hazard could affect entrants' behavior.

Attendants will also continuously track authorized entrants in the permit space and accurately document it on the permit.

Attendants will know and understand which potential hazards are in each confined space such as: how entrants could be exposed, signs, symptoms and consequences. This includes knowing how the hazard could affect entrants' behavior. Attendants will also continuously track authorized entrants in the permit space and accurately document it on the permit.

In the event of an emergency, if more than one confined space is monitored by a single attendant, the attendant must:

- Immediately call for help over the radio.
- Request backup.
- Order the evacuation of all entrants.
- Keep in contact with affected entrants.
- Remain on scene until help arrives.

Attendants shall be stationed outside a permit required confined space while entrants are inside and shall remain outside for the duration of the operation. Attendants monitoring multiple permit spaces shall have the ability to respond to emergencies while maintaining safe oversight of all assigned confined space or is relieved by another trained attendant.

During an emergency, regardless of whether an entrant can escape, the attendant shall remain until properly relieved. Once another attendant is on the scene, the attendant still can only try an entry rescue if they have the necessary equipment, are trained to do so and the entry permit allows for it.

Communication includes working with the entrant to instill awareness of personal health in light of the potential hazards, the confined space conditions and when to evacuate.

The attendant is responsible for determining when a confined space is no longer safe and ordering entrants to evacuate whenever:

- There is a prohibited condition.
- The entrant is showing behavioral effects of exposure.
- Something outside the confined space could be dangerous to entrants or
- If the attendant can't focus on all required responsibilities.

As soon as the attendant assesses that entrants need help to evacuate the permit space, he/she will immediately call rescue and emergency services as described in the permit and start non-entry rescue established in the permit.

When an unauthorized person approaches a confined space, the attendant will tell him/her to exit immediately. The attendant will tell the entrants and supervisor there is an unauthorized person in the permit space.

Attendants will not be assigned or allowed to do any work that takes their attention away from their focus on the confined space and the safety of people inside and outside it. This means attendants can do tasks that add to their knowledge of permit space conditions, like monitoring atmospheric conditions or passing tools to entrants from outside the space. Although this knowledge can be part of the job description, tasks that do not require continued attention away from or leaving the permit-required confined space are not included. An attendant will not monitor more than one confined space at a time.

GTG Automation, Inc.'s program includes the means and procedures that are used if more than one confined space is monitored by a single attendant in order to enable the attendant to respond to emergencies in one or more permit spaces that he/she is monitoring without distraction from all responsibilities.

ENTRY SUPERVISOR RESPONSIBILITIES

For every permit-required confined space entry, the entry employer will assign an entry supervisor who can complete the following responsibilities:

- Knowing the hazards of the confined space.
- Verifying the permit is completed correctly.
- Ordering evacuation and cancelling or suspending the permit.
- Communicating with and verifying the availability of emergency and rescue services.
- Removing anyone unauthorized who tries to go into a permit space.
- Assessing the permit-confined space when taking over responsibility and periodically as needed.

Entry supervisors will know and understand which potential hazards are in each confined space such as: how entrants could be exposed, signs, symptoms and consequences. The entry supervisor will be someone who knows at least as much as the authorized entrants and attendants and should be someone who knows even more about the space and hazards.

Before signing it, the supervisor will check the completed permit to be sure everything identified in the permit is correct: tests completed, procedures followed and equipment in place.

The entry supervisor is responsible for deciding when there are unsafe conditions for an ongoing permit entry, terminating the entry and then cancelling or suspending a permit. A permit can be cancelled when the entry permit is completed or there is a new condition not addressed on the permit. The supervisor can also suspend a permit if a condition requires temporary evacuation and the space soon returns to acceptable conditions in the permit. After reevaluating the permit space, the entry supervisor can remove the suspension but will record it on the permit.

The entry supervisor will check that needed emergency and rescue services are available, can be reached and can themselves respond in a timely manner during the permit-required confined space entry and ensuring the employer is notified in the event that rescue services become unavailable.

The entry supervisor is responsible for preventing unauthorized entry into a permit space and immediately removing from the worksite any unauthorized person who has entered a permit space.

When taking over responsibility of a permit space entry, the new entry supervisor will check the confined space conditions to make sure they are within safe levels and consistent with the permit. The entry supervisor is also responsible for periodically assessing the hazards and work within a confined space as often determined necessary according to the nature of the possible hazards and expected change of conditions.

TRAINING

GTG Automation, Inc. shall provide affected employees with adequate training that establishes proficiency in their assigned duties. Training shall be conducted in a vocabulary and language they understand so that they are proficient in their expected responsibilities. This training will occur:

- Before they are assigned duties covered in this policy.
- Before a change in assigned duties.
- When a change in permit space operations (e.g., new equipment, techniques, promotions, reassignments) introduces a new hazard the employee has not trained for.
- When a departure from or a lack of knowledge in the established procedures is noticed.

Assigned duties include authorized entrant, attendant, entry supervisor and emergency rescue. Employees not authorized to enter confined spaces will also be trained on the hazards of the confined spaces at the worksite and what they need to know to avoid them.

The company will determine that training has effectively taught the employee to proficiently perform their assigned duties.

The training and determination of proficiency will be documented and kept for all current employees. This documentation will be available to all employees who ask for it and the Secretary of Labor upon request.

RESCUE AND EMERGENCY SERVICES FOR PRCS

Rescue and emergency service procedures are a necessary component of the permit and include the preferred non-entry and entry rescues. The non-entry can be initiated immediately by the attendant and entry supervisor who remains outside the PRCS. Entry rescues need to be either from a designated outside source or a team of selected employees and each has their own requirements. Unauthorized personnel shall not attempt a rescue.

Prior to entry into a permit required space, GTG Automation, Inc. will identify personal, equipment and services necessary to perform an effective rescue.

GTG Automation, Inc. shall develop and implement a means of communication to summon rescue in case of an emergency, this may include the entrant tugging on the rope on a regular interval of time.

Any injured entrant that is exposed to a hazardous substance at the worksite will bring the associated Safety Data Sheet (SDS) and provide it to the facility where the medical treatment takes place.

Non-entry Rescue

The company will establish non-entry rescue procedures for all permit-required confined spaces, unless it can demonstrate that the necessary retrieval equipment (e.g., body harness, retrieval lines, block and tackle, winch system) increases the risk or does not help rescue.

Non-entry retrieval systems will include a chest or full body harness with the retrieval line at the center of the back where it creates a small profile to successfully remove the entrant. This can be at the shoulder level or above the entrant's head. When the chest or body harness will not work or creates a greater hazard, wristlets or anklets may be used.

The line will be attached outside the permit space so that it can be used to pull entrants out as soon as they need to be rescued. This can either be a mechanical device like a block and tackle or winch system or a fixed point. Vertical entrances more than five feet deep call for a mechanical device to assist rescue.

Circumstances described by OSHA that increase risk of or hamper rescue include anything that can catch onto or entangle the retrieval line like physical obstructions, airlines, electric cords and additional retrieval lines from multiple entrants. The distance entrants have to go into the space and how much they will have to move around can also affect the decision that a retrieval system is too dangerous.

Outside Rescue and Emergency Services

Outside rescue and emergency services will be evaluated to ensure they can respond quickly and have both the equipment and ability to provide rescue when considering each PRCS and the identified hazards.

The company will provide hazard information about its confined spaces and allow the service to go to the PRCS and develop rescue plans. The service selected must have the training, equipment, ability and willingness to perform rescues. The service also has to agree to tell the company when it will be unable to perform rescues.

The time it takes the service to reach the permit space, enter and retrieve entrants will also be considered, along with the rescue requirements of other regulations. If the PRCS could have an atmosphere that is immediately dangerous to life or health (IDLH), the respiratory protection standard requires standby rescue personnel equipped with respiratory protection. A response time of 15 minutes may be determined adequate for mechanical hazards that could cause broken bones or abrasions.

Employee Rescue and Emergency Services

When selecting a team of employees to provide rescue and emergency services, GTG Automation, Inc. will

- Evaluate a prospective Rescue and Emergency Service's ability to respond to a rescue summons in a timely manner, considering the hazard(s) identified. What will be considered timely will vary according to the specific hazards involved in each entry.
- Evaluate a prospective rescue service's ability, in terms of proficiency with rescue-related tasks and equipment, to function appropriately while rescuing entrants from the particular permit space or types of permit spaces identified.
- Select a rescue team or service from those evaluated that: has the capability to reach victims within an appropriate time frame for that hazard; is equipped for and can proficiently perform necessary rescue.
- Inform each rescue team or service of the hazards they may confront when called on to perform rescue at the site.
- Provide the rescue team or service selected with access to all permit spaces from which rescue may be necessary so that the rescue service can develop appropriate rescue plans and practice rescue operations.

GTG Automation, Inc. employees who have been designated to provide permit space rescue and emergency services will be instructed in and adhere to the following measures:

- Provide affected employees with the PPE needed to conduct permit space rescues safely and train affected employees, so they are proficient in the use of that PPE, at no cost to those employees.
- Train affected employees to perform assigned rescue duties and ensure that such employees successfully complete the training required to establish proficiency as an authorized entrant.
- Train affected employees in basic first aid and cardiopulmonary resuscitation (CPR) and will ensure that at least one member of the rescue team or service holding a current certification in first aid and CPR is available.
- Ensure affected employees practice making permit space rescues at least once every 12 months, by means of simulated rescue operations in which they remove dummies, manikins or actual persons from the actual permit spaces or from representative permit spaces. Representative permit spaces will, with respect to opening size, configuration and accessibility, simulate the types of permit spaces where rescues may be performed.

REVIEW

This policy will be reviewed annually and when measures may not protect employees, such as after any incidents or near misses. Any deficiencies will be corrected before entering any additional PRCS.

Some examples of situations that may require a review are:

- An unauthorized person enters a PRCS.
- A new hazard not covered by the permit is detected in a PRCS.
- A new condition prohibited by the permit is detected in a PRCS.
- An injury takes place during entry.
- A change in the PRCS configuration or use.
- An employee issues a complaint.

The annual review will ensure that all cancelled permits are included in the review within one (1) year after entry. This review will evaluate the policy's effectiveness of providing protection to all affected employees.

FORMS AND ATTACHMENTS

Evaluate the documents on the following pages along with their source material from the General Industry Regulation's appendixes and consider using them to implement and maintain your safety program.

- Confined-Space Entry Permit
- Confined Space Entry Training Record Sheet
- Initial Evaluation of Confined Space Rescue Plans
- Evaluation of Confined Space Rescue Program
- Planning Confined Space Rescue Drills

CONFINED SPACES ENTRY PERMIT (1 OF 3)

General Information					Controls and Equipment		
Permit Space Location:					☐ Isolation		
Purpose of Entry:					☐ Lockout/Tagout		
Permit Valid:	Date		Time		☐ Blanking/Blinding ☐ Double Block and Bleed ☐ Line Breaking/Misalignment		
	From:	To:	From:	To:			
Permit Space Hazards			Yes	No	☐ Other:		
ATMOSPHERIC	Oxygen Deficient		☐	☐	☐ Inerting		
	Oxygen Enriched		☐	☐	☐ Purge/Clean		
	Explosive (Gas/Vapor)		☐	☐	☐ Method for safe cover removal and securing area		
	Explosive Dust		☐	☐	☐ Atmospheric Testing		
	Carbon Monoxide		☐	☐	☐ Periodic (give interval):		
	Hydrogen Sulfide		☐	☐	☐ Continuous		
	Other Toxic Vapors		☐	☐			
Engulfment			☐	☐	☐ Ventilation		
Configuration (entrapment)			☐	☐	☐ Natural		
Mechanical			☐	☐	☐ Continuous Forced Air		
Electrical			☐	☐	☐ Local Exhaust		
Substance Hazard to Skin/Eyes			☐	☐	☐ Entry Equipment		
Heat Stress			☐	☐	☐ Ladders		
Other Potential Hazards (radiation, noise, etc.)			☐	☐	☐ Other:		
							☐ Personal Protective Equipment
							☐ Respiratory (SCBA SAR, air purifying)
							☐ Clothing
							☐ Eye and Face Protection
							☐ Hearing Protection
							☐ Rescue and Retrieval Equipment
							☐ Full Body Harness
							☐ Lifeline
							☐ Tripod with Mechanical Wrench
							☐ Explosion Proof Lighting
							☐ Non-Sparking Tools
							☐ Safe Electrical Equipment and GFCI
☐ Communication Equipment							

GTG AUTOMATION, INC. HSE

		☐ Radio
		☐ Phone
		☐ Other:
		☐ Hot Work Permit
		☐ Fire Extinguishers

Confined Spaces Entry Permit (2 of 3)

Personnel	Name	Time In	Time Out
Entrants(s)			
Attendant(s)			
Entry Supervisor(s)			
Communication Procedures			
☐ Visual	☐ Voice	☐ Rope	☐ Radio ☐ Other
Rescue and Emergency Services			
Name		Phone	
Name		Phone	
Rescue Procedure:			
Summoming Procedure:			

Confined Spaces Entry Permit (3 of 3)

Atmospheric Testing Record									
Condition	Acceptable Level	Record continuous monitoring results every 2 hours							
Oxygen	19.5% - 23%								
Explosive (Gas/Vapor)	<10% LFL								
Explosive Dust	<LFL (5ft visibility)								
Carbon Monoxide	50ppm								
Hydrogen Sulfide	10ppm								
Other (Specify):									
Other (Specify):									
Name(s) of Tester(s)									
Testing Equipment	Type	Serial #							
Entry Authorized by:							Date:	Time:	
Signature:									
Entry Suspended by:							Date:	Time:	
Signature:									
Resumed after Reevaluation:									
Description:									
Entry Cancelled by:							Date:	Time:	
Name:									
Signature:									
Reason for Cancellation:		☐ Entry Operations Completed				☐ Prohibited Condition Arose			
Problems Encountered:									

RESCUE AND EMERGENCY SERVICES

Name:	Trainer:	Date:	Certified ☐ Y ☐ N
Rescue Duties:		Rescue Practice Date	
Training	First Aid:		
	CPR:		
Rescue Equipment and PPE Authorized for Use:			
Rescue Practice Session Description:			

Name:	Trainer:	Date:	Certified ☐ Y ☐ N
Rescue Duties:		Rescue Practice Date	
Training	First Aid:		
	CPR:		
Rescue Equipment and PPE Authorized for Use:			
Rescue Practice Session Description:			

Name:	Trainer:	Date:	Certified ☐ Y ☐ N
Rescue Duties:		Rescue Practice Date	
Training	First Aid:		
	CPR:		
Rescue Equipment and PPE Authorized for Use:			
Rescue Practice Session Description:			

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

This chapter defines the requirements for ensuring cranes and crane operators are fully competent to protect the safety of all employees. The information included here is general in nature and applies to all cranes, hoists and mobile lifting devices. Always refer to the manufacturers' information for specific requirements of the equipment being used. This policy applies to crane operators, cranes, and other material handling equipment for the movement of material by hoisting.

REFERENCES

- §1910.21-1910.32-Walking/Working Surfaces and Fall Protection
- §1910.147- Controlling of Hazardous Energy
- §1910.147- App "A"- Typical minimal lockout procedures
- §1910.179 - Overhead and Gantry Cranes-Frequent Inspections
- §1910.180 - Crawler, Locomotive and Truck Cranes
- §1910.184-Slings
- §1910.333 - Selection and use of work practices
- §1926.106-Working over Water
- §1926.251- Rigging Equipment for Material Handling
- §1926 Subpart CC - Cranes and Derricks in Construction
- §1926 500-503-Fall Protection
- §1926.1400-1442- Cranes and Derricks- Site Specific Crane Operation Plan
- §1926.1401 - Definitions & General Requirements- Assembly/Disassembly Operations
- §1926.1412 -Competent Person Daily Inspection
- §1926.1419 - Signals: General Requirements
- §1926.1420 - Signals: radio, telephone or other electronic transmission of signals
- §1926.1428 - Signal Person Qualifications
- §1926.1430 - Cranes & Training
- § 1926.1434-Equipment Modifications
- §1926.1435 - Tower Cranes
- API RP 2D-Operation & Maintenance of Offshore Cranes
- ASME B30.5-3.12 (a)-Mobile and Locomotive Cranes
- ANSI/ASME B 30.2.0 & by incorporation reference §1910.6

EMPLOYER RESPONSIBILITIES

GTG Automation, Inc. is responsible for:

- Maintaining cranes and their accessories in a condition that will not endanger an operator or other employees
- Complying with the manufacturer's specifications and limitations applicable to the operation of any and all cranes, hoists and derricks

- Obtaining all necessary permits and operator certifications for using fixed and mobile cranes. These will depend on the size and rated capacity of the crane, as well as the regulatory agency with jurisdiction (state or federal OSHA)
- Developing, implementing and managing an Overhead Material Handling (OMH) Program
- Providing training in Overhead Material Handling-Operator and Crane Crew, Rigging and Signaling
- Being knowledgeable of current overhead material handling regulations, standards, equipment, and systems
- Advising and providing guidance to managers, employees, and other departments on all managed overhead material handling program matters
- Establishing and assigning all duties and responsibilities outlined in this policy to trained competent and qualified individuals
- Establishing and implementing a preventive maintenance program based on the crane manufacturer's recommendations. Considerations include:
 - Crane Type
 - Frequency of Usage
 - Maintenance history
 - Manufacturers recommendations
- Providing or verifying that the personnel have the necessary resources to accomplish their duties and responsibilities safely
- Measuring and evaluating the effectiveness of the OMH Program by conducting periodic program evaluations (OMH Program audits at a minimum annually) and making improvements
- Ensuring appropriate management participates in the investigation of all incidents (including near misses) related to OMH. These will seek a root cause to prevent reoccurrence.
- Ensuring that a candidate employee has adequate knowledge of, and is capable of operating cranes or derricks before designating as a crane operator
- Implementing and enforcing work practices and procedures to assure that no employee will be exposed to hazards during crane hoisting operations
- Ensuring a thorough, annual inspection of the crane/hoisting machinery is done by a government or private agency recognized by the U.S. Department of Labor (preferred)
- Ensuring that any and all rig equipment (including hooks) that fails inspection and cannot be repaired shall be destroyed and replaced

Creating a site-specific operation prior to any on-site mobile crane work. This plan will be developed by Greg Griffin and reviewed by all involved parties. Employers-refer to the OSHA standard for site/crane requirements.

EMPLOYEE RESPONSIBILITIES

All Company employees are expected to:

- Report to a supervisor all unsafe conditions encountered during work
- Assist in job hazard analyses and follow safe job procedures.
- Inspect equipment prior to use and ensure all safety controls are in place prior to work
- Understand the purpose of necessary PPE (personal protective equipment) for a given job, ensure it is in safe, serviceable condition and use it according to safe work practices
- Follow all safety and health policies and offer suggestions to improve safety and health in the workplace where such opportunities exist
- Follow all procedures and training
- Not undertake a job until trained and authorized to perform the job
- Undertake a job that appears to be unsafe

HAZARDS

- Struck by- loss of load (fall) due to poor rigging practices; failed slings; failure of hook safety latch; failure of other “below the hook” rigging devices
- Untrained personnel
- Miscommunication between signal person and operator
- Lack of component inspection prior to use
- Lack of system (OMH) inspection prior to use
- Component/system failure (such as brakes)
- Lift weight in excess of Rated Load Capacity
- Swing Lifts
- Shock Loading
- Unintended load contact with fixed structures
- People working below suspended loads

SAFE PRACTICES

Operational Safety

Before operations begin, the proper safety devices shall be installed on the crane and in proper working order. If any of the safety devices such as, but not limited to: operational aids are required on all equipment, operations must not begin unless the operational aids are in proper working order; crane level indicator; boom stops; jib stops; foot pedal brake locks; horn; hydraulic stabilizer jacks (if required) must have an integral holding device/check valve; equipment on rails must have rail clamps and rail stops and are not in proper working order, the crane must be taken out of service and operation shall not continue until it's deemed in proper working order by Greg Griffin.

GTG Automation, Inc. will comply with:

- All manufacturer procedures applicable to the operational functions of equipment, including its use with attachments
- The manufacturer's procedures, specifications and limitations applicable to the operation of all cranes and derricks.

Where manufacturer's specifications are not available, the limitations assigned to the equipment will be based on the determinations of an engineer competent in this field and those determinations will be documented and recorded. Support equipment used with cranes will not exceed their capacity, rating or scope recommended by the manufacturer.

Additionally:

- A thorough, annual inspection of the hoisting machinery will be made by a government or private agency recognized by the U.S. Department of Labor (preferred)
- Any unsafe condition found during an inspection must be corrected by a trained and competent employee or crane Servicer before the crane is put into operation. Designated repair personnel must have a permit to operate the type of crane being serviced. Maintenance records will be kept of all repairs and replacements
- Load charts (lists of rated load capacities); recommended operating speeds; special hazard warnings; and/ or instruction; will be conspicuously posted near or on all equipment, such as the operators cab. This includes instructions or warnings visible to the operator while he is at his control station. This will include, but not be limited to:
 - A substantial and durable load-rating chart with clearly legible letters and figures will be provided with each crane and securely fixed to the crane cab in a location easily visible to the operator.
 - A list of ratings based on structural, hydraulic or other factors rather than stability
 - A list of no-load work areas
 - A work area chart for which capacities are listed in the load rating chart, i.e. over side, over rear, over front
 - Weights of auxiliary equipment, i.e. load block, jibs, boom extensions
 - A description of hoist-line reeving requirements on the chart or in operator's manual
 - Load capacity relating to corresponding boom angles and operating radii for all boom lengths, jib lengths and angles. Where optional equipment, such as outriggers or extra counterweights are provided by the manufacturer, alternate ratings are provided
 - Where structural competence limits the ratings, such information will be shown on the chart
 - The required parts of line for hoist reeving, including the size and construction of rope will be on the rating chart or in the operating manual
 - The equipment's operating manual be readily available in the cab at all times
- An operator will test all controls before beginning a new shift. Any controls that do not operate properly will be adjusted or repaired before operations are begun.
- A portable dry powder fire extinguisher with at least a 5 BC rating, or higher, will be available in the cab, in the operating enclosure, or on the unit. The operator and maintenance employees will be trained in its use and care.

- The operator, or someone especially designated, will properly lubricate all working parts of the crane
- The rated load of the crane shall be plainly marked on each side of the crane, and if the crane has more than one hoisting unit, each hoist shall have its rated load marked on it or its load block and this marking shall be clearly legible from the ground or floor.
- Cranes will be kept clean
- Hand signals to crane and derrick operators will be those prescribed by the applicable ANSI (American National Standards Institute) standard for the type of crane in use. An illustration of the signals will be posted at the job site
- Whenever internal combustion engine powered equipment exhausts in enclosed spaces, air monitoring shall be performed with results recorded to see that employees are not exposed to unsafe levels of carbon monoxide and other toxic gases or oxygen deficient atmospheres.
- If so, engineering controls will be sought to reduce/eliminate any exposures.
- Operating signals will follow an established standard. Whistle signals can be used where only one crane is in operation. A crane will be equipped with an audible signaling device that will be actuated before traveling without a signalperson and intermittently during travel. When moving a crane, the following signals will be used:
 - Stop, 1 audible signal
 - Go ahead, 2 audible signals
 - Back up, 3 audible signals

Cranes that have not been used during a shutdown or stored for 3 or more months will be thoroughly inspected before the crane is put back in service. Greg Griffin shall perform daily/frequent/monthly/periodic inspections prior to crane being put back in service.

- Operators will not engage in any practice that will divert their attention while operating equipment-The operator will not eat, smoke or read while operating of the crane.
- All employees will be kept clear of loads about to be lifted and of suspended loads. Suspended loads will be kept clear of all obstructions. Additionally, to prevent employees from entering hazard areas training is required for each employee assigned to work on or near the equipment and erect and maintain control lines, warning lines, railings or similar barriers to mark the boundaries of the hazard areas, unless it is not feasible. Only employees essential to the operation are permitted in the fall zone.
- If power fails during operation, an equipment operator will do all of the following:
 - Set all brakes and locking devices
 - Move all clutch or other power controls to the off or neutral position
 - Communicate with the responsible supervisor in charge of equipment operations
 - If practical, and applicable, land the load under brake control

Before closing the main switch, the operator will make sure that all controllers are in the "OFF" position until the power is again available

- Hands or fingers will not be placed between the sling and its load while the sling is being tightened around the load. A sling will not be pulled from under a load when the load is resting on it

- Shock loading is prohibited
- Before lifting loads with locomotive cranes without using outriggers, controls must be put in place to ensure that the load is prevented from being carried by the truck springs
- When using locomotive cranes, do not swing the crane into a position where a railway car on an adjacent track may come into contact with the crane
- Never use rail clamps as a tipping restraint for a locomotive crane
- Fall protection training is required under the Fall Protection Program.
- Fall Protection training, equipment and PPE (personal protective equipment) is provided for all employees who must work on a walking/working surface with an unprotected side or edge more than 6 feet above a lower level
- A crane will not be operated with more than the designed amount of ballast or counterweight. The amount of ballast or counterweight will not be changed without authorization of the manufacturer in writing and making corresponding changes in the rating chart
- When assembling or disassembling a boom on the ground, it will be blocked to prevent dropping the boom and boom sections
- When a boom section is manually telescoped it will be positioned so through and through pinning of the cylinder eye may be accomplished and will be checked in a horizontal position
- When 2 or more cranes are used to lift a single load, one designated employee will direct the rigging, lift, and movement. Arrangements will be made prior to work start on communicating to both operators individually.
- A locomotive crane will not be rotated into a position where other rail cars on an adjacent track might strike it, except when it has been verified that cars are not moving on the adjacent track and flag protection has been provided
- Specified tire pressures will be maintained

Crane Operator Safety

Each equipment operator (designated by GTG Automation, Inc.) will be responsible for those operations that are under the operator's direct control. When there is any doubt as to safety, an operator will stop operations and consult with the supervisor and a Qualified Person before continuing work.

An equipment operator will be familiar with the equipment and its proper care. If adjustments or repairs are necessary or if any defects are known, the operator will report the needed adjustments or repairs or the defects to the responsible supervisor and, upon changing shifts, notify the next operator of the defects

An operator will respond to signals only from the designated signal person using appropriate signals, except where voice communications equipment is used. Operator must comply with a STOP signal from anyone.

No loads are to be lifted over the front area (cab) of a truck mounted crane.

The operator must not leave the controls while the load is suspended, except when: the operator remains adjacent to the equipment and is not engaged in any other duties. Or if the load is to be held suspended for a period of time exceeding normal lifting operations, Greg Griffin determines that it is safe to do so, and barricades or caution lines and notices are erected to prevent all employees from entering the fall zone.

Before leaving, the operator shall:

- Land any attached load
- Disengage clutches
- Put the controls in the off or neutral position
- Open the main switch or stop the engine
- Engage manual locking devices, in the absence of automatic holding equipment, and secure the crane against accidental travel

Operators have the authority to stop or refuse to handle loads if they feel that the operation has safety concerns. The operations must not proceed until Greg Griffin deems that the safety is assured.

- Before closing the switch or starting the equipment, an operator will put all controls in the off or neutral position and will make sure that all personnel are in the clear
- Whenever the operator finds the main or emergency switch open, it will not be closed, even when starting on regular duty, until it is determined that no one is on or about the crane. The crane will not be oiled or repaired unless the main switch is open (off) and LOTO (locked out-tagged out).
- A crane will not be operated with more than the designed amount of ballast or counterweight. The amount of ballast or counterweight shall not be changed without authorization of the manufacturer in writing and making changes in the rating chart.
- All necessary operator clothing and personal belongings will be stored so that they do not interfere with access or operation. Tools, oil cans, waste, extra fuses and other necessary articles will be stored in the toolbox, and will not be permitted to lie loose in or about the cab
- The operator, or maintenance personnel, will properly lubricate all working parts of the crane
- Whenever the operator finds the main or emergency switch open, it will not be closed; even when starting on regular duty, until it is determined that, no one is on or near the crane. The crane will not be oiled or repaired unless the main switch is open
- When lowering a load, the operator will proceed carefully and make sure the load is under safe control
- When leaving the cage, the operator will place all controllers to the "OFF" position and open the main switch

The crane operator will be familiar with the equipment and its proper care. If adjustments or repairs are necessary or if any defects are known, the operator will report the needed adjustments or repairs or the defects to Greg Griffin or the responsible supervisor and, upon changing shifts, notify the next operator of the defects.

- Operator avoids carrying loads over people,
- No hoisting / lowering / swinging / traveling while an employee is on the load or hook
- Cranes shall not be used for side pulls except when specifically authorized by a responsible person
- Operator does not leave his position at the controls while the load is suspended.

USE OF A COMPETENT PERSON

The Competent Person (Greg Griffin designated by GTG Automation, Inc.) will have the authority over all crane and hoisting operations. The competent person will ensure that all safety measures and systems are in place; all safety procedures are adhered to, and make sure pre-shift, monthly and additional inspections of the crane and the operational site are conducted. Greg Griffin must begin a visual inspection prior to each shift the equipment is used, which must be completed before or during that shift.

The inspection must consist of observation of wire ropes (running and standing) that are likely to be in use during the shift for any apparent deficiencies.

All Brakes, Hooks, Slings, and Ropes will all be inspected to certification monthly with record keeping.

Greg Griffin will perform a daily, pre-shift, pre-use inspection of the crane as well as monthly or Periodic Inspection.

The documentation of monthly inspections must include the parts of the crane checked, the serial number (or other identifier) the results of the inspection and the name and signature of the inspector with the date of the inspection. This focus is on the brakes, crane hooks and ropes.

Inspection Records

Certification records which include the date of inspection, the signature of the person who performed the inspection and the serial number, or other identifier, of the crane which was inspected shall be made monthly on critical items in use such as brakes, crane hooks, and ropes. Records shall be kept for a minimum of 3 months per ANSI/ ASME. However, as a best practice, maintain inspection records for a year and annual inspections as well as load test data for three years as this will give a better picture for diagnosis of any issues that may come to light later and provides trend analysis.

- Greg Griffin will inspect the crane system before each use, and during use, to make sure it is in safe operating condition. All rigging equipment and the Crane itself will be on an inspection schedule for the competent person. Any deficiencies/defective parts will be repaired or replaced (if replaced, failed equipment must be destroyed) prior to use

A thorough, annual inspection of the hoisting machinery will be made by a government or a third party, private agency recognized by the U.S. Dept. Of Labor (preferred). GTG Automation, Inc. will keep all dates and results of inspections for each hoisting machine and piece of equipment.

Use of a Signal Person

An operator will respond to signals only from the employee directing a lift. However, they must obey at all times an emergency stop signal from any employee. When two or more cranes are used to lift a load, the designated signal employee will give all signals. A signal person is required when:

- The point of operation is not in full view of the operator
- The operator's view is obstructed in the direction the equipment is traveling
- Either the operator or the person handling the load determines that a signal person is needed because of site-specific safety concerns
- Where a signal person(s) is in communication with more than one crane/derrick, a system must be used for identifying the crane/derrick each signal is for.

Use of a Qualified Rigger

A trained, qualified rigger is able to rig efficiently and safely based on all the variables of the lift.

A qualified rigger shall work with the Operator, Greg Griffin and the signal person on every lift and move. The Rigger will be part of lift planning including identify load weight, center of gravity identify the best "below the hook" rigging equipment to use for each lift such as hitches, shackles, spreaders, strong backs, hooks and latches as well as slings and rope.

A qualified rigger can also determine the safety of the lift based on load weight and center of gravity.

The rigger understands load control and the effects and impact of equipment use of tag lines, sling configuration, rope/ sling angles and rated load capacities.

Riggers will partner with and assist Greg Griffin on equipment inspections. Riggers also work with the Signaller(s) on each move.

INSPECTIONS

OSHA requires an operational/visual crane inspection before each shift by the Competent Person. Required crane inspections may include initial, pre-use, daily, frequent, periodic, monthly, quarterly and annual. Supporting inspection logs will be kept satisfying the inspection requirement.

Prior to initial use, all new and altered cranes shall be tested for compliance.

Daily or Frequent Crane Inspections

- All control mechanisms for maladjustment interfering with proper operation and for excessive wear of components and contamination by lubricants or other foreign matter
- Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems.
- All safety devices for functionality

- Lifting hooks for deformation or cracks. Hooks shall be inspected daily and monthly by the Competent Person. A hook having a crack, a throat opening of more than 15% of normal or more than 10-degree twist from the plane of an unbent hook will be replaced. Hooks must have a visual inspection daily and a monthly inspection with a certification record which includes the date of inspection, the signature of the person who performed the inspection and the serial number, or other identifier, of the hook inspected.
- Rope reeving for noncompliance with manufacturer's recommendations
- Electrical apparatuses for malfunctioning, signs of excessive deterioration, dirt, and moisture accumulation

The following will be checked:

- Control mechanisms for wear and malfunction, each daily use
- Deterioration or leakage of air or hydraulic systems, each daily use
- Hydraulic system for oil level, each daily use
- Hydraulic hoses and fittings for leaks and deterioration
- All running ropes, each daily use
- Rope reeving in conformance with the original installation
- Electrical apparatus for malfunction, wear, dirt, and moisture accumulations
- Tires for specified pressure
- The ground conditions- It is a requirement that ground conditions must be stable, drained, and graded by a qualified grade checker prior to any crane being assembled. The same rule applies for supporting materials for the crane.
- When using supporting materials for the crane the manufacture's specifications must be followed to ensure the adequate support and degree of level are met.
- A crane will be given a visual inspection not less than monthly for functionality of safety devices

Periodic Crane Inspections

Crane inspection certification records that include the date of inspection, the signature of the person who performed the inspection, and the serial number or other identifier of the crane which was inspected, will be made monthly by the Competent Person on critical items in use such as brakes, crane hooks, ropes, structural members, and welds. This record will be kept readily available with the equipment.

- Deformed, cracked, or corroded members in the crane structure and boom, loose bolts or rivets, cracked or worn sheaves and drums, worn parts and excessive wear items
- Structural members and boom for cracks, deformation, and corrosion
- Bolts and rivets for tightness
- Sheaves, drums, pins, bearings, shafts, gears, rollers, locking and clamping devices for wear, distortion, and cracks
- Power sources for performance
- Brake & clutch system parts, linings, pawls, & ratchets for excessive wear
- Load, boom angle, and other indicators for inaccuracies over their full range
- Travel, steering, braking, and locking devices for malfunction

- Tires for wear or damage
- Radiators and oil coolers for leakage, blockage of air passages, and improper performance
- Rust on piston rods and control valves
- Oil strainers and filters for blockage

Annual Crane Inspection

Annual inspection and certification of crane shall be performed by a qualified third party as a best practice although some manufacturers require this. Inspection Records shall be maintained for 3 months. Periodic/Annual retain for 1 year. A Best Practice is to maintain all inspection records for a year, Annual Inspections for 3 years.

This inspection must include functional testing to determine that the equipment as configured in the inspection is functioning properly. If any deficiency is identified, an immediate determination must be made by a qualified person as to whether the deficiency constitutes a safety hazard or, though not yet a safety hazard, needs to be monitored in the monthly inspections.

If a qualified person determines that a deficiency is a safety hazard, the equipment must be taken out of service until it has been corrected, except when temporary alternative measures are implemented. If a qualified person determines that, though not presently a safety hazard, the deficiency needs to be monitored, the employer must ensure that the deficiency is checked in the monthly inspections.

Documentation of annual/comprehensive inspection records. The following information must be documented, maintained, and retained for a minimum of 12 months by the employer that conducts the inspection: the items checked and the results of the inspection; the name and signature of the person who conducted the inspection and the date.

Occasional and Out of Service Inspections

Cranes that have been idle for a period of more than one month, but less than six months will be given a frequent & daily inspection prior to being placed in service. Cranes which have been out of service for more than six months will be given a daily, frequent, periodic inspection before being used. Standby cranes will be inspected at least semi-annually, or more frequently if they are exposed to adverse environments.

Slings, Hooks & Shackles, Hoist Chains and Rope Inspection

All crane “below the hook” or rigging gear will be on the Competent Person’s monthly schedule for inspection. Whenever any sling is used, the following safety practices will be observed:

- Slings that are damaged or defective will not be used
- Slings shall not be shortened with knots or bolts or other makeshift devices. Sling legs will not be kinked
- Slings shall not be loaded in excess of their rated capacities
- Slings will be securely attached to their loads and will be padded or protected from the sharp edges of their loads. Slings used in a basket hitch will have the loads balanced to prevent slippage
- Lifting hooks or shackles will be visually inspected before each use.

A monthly inspection with a certification record which includes the date of inspection, the signature of the person who performed the inspection, and the serial number or other identifier of the hook inspected will be made by Greg Griffin

- Hooks or shackles with cracks, or having more than 15 percent in excess of normal throat opening, or more than 10° twist from the plane of the unbent hook will be taken out of service and replaced
- Hoist chains, including end connections, will be inspected before each use for excessive wear, twist, distorted links interfering with proper function, or stretch beyond manufacturer's recommendations.

A thorough inspection of all wire ropes in use, running and standing, will be made at least once a month. The Competent Person will keep and maintain certification records on file at GTG Automation, Inc. office.

- Running ropes in continuous service will have an inspection at least once a month. The inspection will include: measurement of diameter of rope; count of broken wires in 1 lay when concentrated; end connections for broken wires; corrosion, kinking, crushing, cutting, or other conditions affecting the capability of the rope; also cracked, bent, worn, corroded, or improperly applied end connectors.
- For rope in contact with equalizer sheaves or saddles, or on sheaves where rope travel is limited, the inspection will include moving the rope from its normal position on the sheave and examining the rope at the rope contact point.
- Inspection of a non-rotating type rope will include verifying that the wires are not broken or worn within the rope.
- A rope that has been idle more than 1 month will be given a complete monthly inspection before being placed in service.

All monthly wire rope inspections will be performed by Greg Griffin, the individual who is certified as the Competent Person for operation and inspection of overhead and gantry cranes, truck cranes, hoisting equipment, and derricks. Any deterioration, resulting in appreciable loss of original strength will be kept under observation to determine whether further use of the rope would constitute a safety hazard:

- Particular care will be taken to inspect ropes at equalizer sheaves or other sheaves where rope travel is limited, or with saddles

The inspection will be for all types of deterioration and will be performed by Greg Griffin whose approval will be required for further use of the rope. A certification record which includes the date of inspection, the signature of the person who performed the inspection, and an identifier for the rope which was inspected will be made and kept readily available from records for one year.

Hazard Identification and Risk Assessment

Where the assessment identifies that the crane has the potential to hit and injure or pin/crush a worker against an object, the hazardous areas of the crane swing radius will be marked with warning lines or railings.

GTG Automation, Inc. will ensure that Greg Griffin conducts hazard identification and a designated risk assessment before work begins. Boundaries of the work zone must be identified by marking with flags and range limiting devices. The work zone must be defined using a 360-degree radius around the crane or the max radius of the crane.

If a mobile crane, assessment will look at the ground conditions. It is a requirement that ground conditions must be stable, drained, and graded by a qualified grade checker prior to any crane being assembled. The same rule applies for supporting materials for the crane. When using supporting materials for the crane the manufacture's specifications must be followed to ensure the adequate support and degree of level are met.

The employer must determine if any part of the equipment, load line, or load could get closer than 20 feet to a power line. Any overhead wire will be considered an energized line until a representative of the owner or utility has checked and indicated otherwise. GTG Automation, Inc. must determine if any part of the equipment, load line, or load could get closer than 20 feet to a power line. If so, the employer must meet one of the following requirements:

- De-energize the ground. Confirm from the utility owner/operator that the power line has been de-energized and visibly grounded at the worksite
- Maintain a 20-foot clearance. Ensure that no part of the equipment, load line, or load gets closer than 20 feet to the power line
- Utilize the table below- determine the line's voltage and the minimum approach distance permitted.

Except where electrical power lines and equipment have been de-energized and visibly grounded at the point of work or where an insulating barrier, not a part of the crane has been erected, or the employee is insulated or isolated from the crane, a crane will maintain the following clearances:

Voltage (KV)	Minimum Clearance Distance (Feet)
Up to 50	10
50 to 200	15
200 to 350	20
350 to 500	25
500 to 750	35
750 to 1000	45
Over 1000	As established by the line owner

CRANE PREVENTATIVE MAINTENANCE (PM)

GTG Automation, Inc. will establish and maintain a preventative maintenance program, based upon the crane manufacturer's recommendations, under the supervision of the Competent Person, an authorized and trained employee or outside service.

- Modifications or additions as part of the PM that affect the safe operation of the equipment may not be made without the manufacturer's written approval. The original safety factor of the equipment must not be reduced if modifications or changes are made to the equipment
- Modifications or changes will be certified by a competent registered engineer. The capacity, operation and maintenance instruction plates, tags or decals will be changed accordingly to reflect any modifications or changes
- GTG Automation, Inc. will comply with the manufacturer's specifications and limitations. If specifications are not available, a competent engineer will determine the equipment's limitations, which must be documented and recorded. Attachments used with cranes must not exceed the capacity, rating, or scope recommended by the manufacturer
- Certified written operational and rated load tests will be obtained from the manufacturer and kept available with the equipment. Equipment will be re-tested after any structural repairs or modifications which may only be made by the manufacturer or a technician certified by the manufacturer
- Any unsafe condition found during an inspection must be corrected by a trained and competent employee or crane Service Company before the crane is put into operation. Designated repair personnel must have a permit to operate the type of crane being serviced. Maintenance records will be kept of all repairs and replacements

Equipment that has had modifications, additions, repairs or adjustments which affect the safe operation of the equipment must be inspected by a qualified person prior to initial use. Prior to adjustments and repairs are started, the following steps will be taken:

- The crane will be placed where it does not interfere with other operations
- Before any servicing or maintenance of equipment is done, personnel will perform proper applicable LOTO (lockout/block out/tag out) procedures and placement of "Danger" and "Out of Order" signs on the crane. Additionally, on the floor beneath or on the hook to ensure the safety of personnel performing these tasks. A "warning" or "out of order" sign will be placed at the controls, and the controls will be in the "off" position.
- The boom will be lowered to the ground or otherwise secured against dropping
- All hydraulic cylinders used for boom hoist and boom telescope on a mobile hydraulic crane will be retracted
- Hydraulic oil pressure from all hydraulic circuits will be relieved before loosening or removing hydraulic components of a mobile hydraulic crane
- The load block will be lowered to the ground or otherwise secured against dropping, except when operation is necessary for the adjustment
- After adjustments and repairs have been completed, the crane will not be returned to operations until all guards have been installed, safety devices activated, trapped air removed from the hydraulic system of a mobile hydraulic crane and maintenance equipment and warning signs or locks are removed

- Hazardous conditions identified by the inspection requirements will be corrected before operation of the crane is resumed
- Adjustments will be maintained to assure correct functioning of operating mechanisms, safety devices, control systems, power plants and brakes and clutches
- A crane or its wire rope will not be used as a ground or to carry current. The ground will be attached to the workpiece during any welding

SERVICING AND MAINTENANCE

We will keep and maintain written reports on rated load tests showing the test procedures and confirming the adequacy of any repairs or alterations. Certified production written operational and rated load tests will be obtained from the equipment manufacturer and kept available with the equipment.

Wire Rope Inspection and Maintenance

Running wire ropes will be replaced when they show:

- 6 random broken wires in 1 rope lay or 3 broken wires in 1 strand of a rope lay
- Wear of 1/3 of the original diameter of outside individual wires
- Kinking, crushing, or bird caging
- Heat damage
- Reduction in nominal diameter of 3/64 inch for ropes to 3/4-inch, 1/16 inch for ropes 7/8 inch to 1 1/8-inch, 3/32 inch for ropes 1 1/4 inch to 1 1/2

A standing wire rope will be replaced if it has:

- More than 2 broken wires in 1 lay section beyond an end connection
- 1 broken wire at an end connection

A wire rope having more than one broken wire at a socketed fitting will be re-socketed.

Wire rope will be stored in a way that prevents damage or deterioration and handled in a manner to prevent kinking or twisting.

Before cutting preformed rope, a seizing will be placed on each side of the cut to prevent unlaying of the strands. On non-preformed rope 7/8 inch in diameter or smaller, 2 seizing will be placed on each side of the cut, and for non-preformed rope more than 7/8 inch in diameter, 3 seizing on each side will be used.

During installation, do not drag wire rope in dirt or around sharp objects.

Lifting Devices

Chain Falls & Hoist Pullers

A chain fall or hoist puller must not be used at more than its rated capacity, which must be permanently labeled or marked on it. An accessory, such as a chain or cable used to secure or support a chain fall or hoist puller, will have a capacity of not less than the chain fall or hoist puller. An object subject to a lift or pull by a chain fall will have the capacity to absorb the lift or pull without creating a hazard to an employee in the area.

A chain fall or hoist puller must be secured to an anchorage, and the load must be attached to the chain fall or hoist puller in a manner that will prevent inadvertent disengagement. When a chain fall or hoist puller are under the tension of a load, a positive action must be required to release the tension. In addition, the chain fall or hoist puller must be visually inspected for observable defects before each shift by the employee using the tools.

A hoist puller lever handle must not be operated with an extension handle except as furnished by the manufacturer.

Cranes-Attaching and Holding a Load

A load will be attached to the hook by means of a sling or other lifting device. The hoist rope will not be wrapped around a load except when setting or removing a pole.

An operator will not load a crane beyond the rated load capacity (except for test purposes). A load that is limited by structural competence rather than by stability will be checked by the operator to determine that the weight does not exceed the rated load. Before starting to hoist, the operator will make sure:

- The hoist rope is not kinked
- The multiple part lines are not twisted around each other
- The hook is not swinging when brought over the load

No employees are permitted to pass or stand under a suspended load.

Cranes-Moving a Load

- Before moving with a load, a designated employee will determine the position to carry the load, boom location, ground conditions, travel route, speed of movement and location of overhead wires
- An operator will test the hoisting brakes before moving a near rated load by raising the load a few inches and applying the hoisting brakes. This requirement applies to both single and multiple line reeving
- A load will be secured and balanced before it is lifted more than 6 inches
- A tag line will be used when rotation of the load would be hazardous
- No sudden acceleration or deceleration of the moving load, load does not contact any obstructions, no hoisting / lowering / swinging / traveling while an employee is on the load or hook, operator avoids carrying loads over people, load and the boom shall not be lowered where there is less than two full wraps of rope on their respective drums, operator does not leave his position at the controls while the load is suspended. Load cannot contact any obstructions
- Load shall not be lowered where there are less than two full wraps of rope on the hoisting drum
- The rotational speed of a crane must not allow the center of the load to swing out beyond the radius of the point sheave in use
- Loads will not be lifted over the front area of a truck crane, unless it is within the capacity of the rating chart for the front area of the truck crane

Mobile Crane moving from one location to another:

- The boom carried in line with the direction of movement
- The superstructure secured against rotation, except when negotiating a turn with an operator in the cab or the boom on a dolly
- An empty hook restrained against movement
- A crane with or without a load will not travel with the boom at a height that would allow it to bounce back over the cab
- A crane operating at a fixed radius will have the boom-hoist pawl or other positive locking device engaged

USING OUTRIGGERS, STABILIZERS/SLINGS, HOOKS & SHACKLES

Outriggers and Stabilizers

- Outrigger number, locations, types, and type of control are in accordance with manufacturer's specifications. Outriggers are designed and operated to relieve all weight from wheels or tracks within the boundaries of the outriggers. If not, the manufacturer's specifications and operating procedures must be clearly defined.
- Outriggers and stabilizers must be fully extended or, if permitted by manufacturer procedures, deployed as specified in the load chart
- Set outriggers to remove equipment weight from the wheels, except for locomotive cranes. Outrigger floats, if used, must be attached to the outriggers, stabilizer floats, if used, must be attached to the stabilizers
- Each outrigger or stabilizer must be visible to the operator or to a signal person during extension and setting
- Place outrigger and stabilizer blocking under the float/pad of the jack or, if there is no jack, under the outer bearing surface of the outrigger or stabilizer beam. Blocking must be sufficient to sustain the loads and maintain stability and must be properly placed
- Floats or pads secured to outriggers will be used when the load to be moved at a particular radius exceeds the rated load without outriggers. A wood block used to support an outrigger will be:
 - Large enough to prevent shifting and toppling of the load
 - Strong enough to resist crushing
 - Free of knots and cracks that could affect its ability to support the load

Slings, Lifting Hooks and Shackles

Whenever any sling is used, the following safety practices will be observed:

- Slings that are damaged or defective will not be used
- Slings will not be shortened with knots or bolts or other makeshift devices. Sling legs will not be kinked
- Slings will not be loaded in excess of their rated capacities
- Slings will be securely attached to their loads and will be padded or protected from the sharp edges of their loads. Slings used in a basket hitch will have the loads balanced to prevent slippage

Refueling

- A crane fuel tank will not be refueled while the engine is running.
- When refueling is done with portable containers, the containers shall be safety cans with automatic closing caps and be labeled as approved by underwriters' laboratories, Inc., factory mutual laboratory or other nationally recognized laboratory.
- Smoking or other sources of sparks and flame will be kept at least 25 feet from a refueling operation.

Crane or derrick suspended personnel platforms

The use of a crane or derrick to hoist employees on a personnel platform is prohibited, EXCEPT when the erection, use, and dismantling of conventional means of reaching the worksite, such as a personnel hoist, ladder, stairway, aerial lift, elevating work platform or scaffold, would be more hazardous or is not possible because of structural design or worksite conditions.

In this situation, the following will be performed.

Operational Criteria

- Hoisting of the personnel platform will be performed in a slow, controlled, cautious manner with no sudden movements of the crane or derrick, or the platform.
- Load lines will be capable of supporting, without failure, at least seven times the maximum intended load, except that where rotation resistant rope is used, the lines will be capable of supporting at least ten times the maximum intended load- without failure.
- The required design factor is achieved by taking the current safety factor of 3.5 and applying the 50 % derating of the crane capacity.
- Load and boom hoist drum brakes, swing brakes, and locking devices such as pawls or dogs will be engaged when the occupied personnel platform is in a stationary working position.
- The crane will be uniformly level within 1 % of level grade and located on firm footing. Cranes equipped with outriggers will have them all fully deployed following manufacturer's specifications, insofar as applicable, when hoisting employees.
- The total weight of the loaded personnel platform and related rigging will not exceed 50 % of the rated capacity for the radius and configuration of the crane or derrick.
- Ground conditions must be stable, drained, and graded by a qualified grade checker prior to any crane being assembled. The same rule applies for supporting materials for the crane. When using supporting materials for the crane the manufacture's specifications must be followed to ensure the adequate support and degree of level are met.
- The use of machines having live booms (booms in which lowering is controlled by a brake without aid from other devices which slow the lowering speeds) is prohibited.

Instruments and Components

- Cranes and derricks with variable angle booms will be equipped with a boom angle indicator, readily visible to the operator.
- Cranes with telescoping booms will be equipped with a device to indicate clearly to the operator, at all times, the boom's extended length or an accurate determination of the load radius to be used during the lift will be made prior to hoisting personnel.

- A positive acting device will be used which prevents contact between the load block or overhaul ball and the boom tip (anti-two-blocking device), or a system will be used which deactivates the hoisting action before damage occurs in the event of a two-blocking situation (two-block damage prevention feature).
- The load line hoist drum will have a system or device on the power train, other than the load hoist brake, which regulates the lowering rate of speed of the hoist mechanism (controlled load lowering.) Free fall is prohibited.

Personnel Platforms

- The personnel platform and suspension system will be designed by a qualified engineer or a qualified person competent in structural design.
- The suspension system will be designed to minimize tipping of the platform due to movement of employees occupying the platform.
- The personnel platform itself, except the guardrail system and personnel fall arrest system anchorages, will be capable of supporting, without failure, its own weight and at least 5x the maximum intended load. Criteria for guardrail systems and personal fall arrest system anchorages are contained the Fall Protection chapter.

Pre-lift Meeting

- A meeting attended by the crane or derrick operator, riggers, signal person(s) (if necessary for the lift), employee(s) to be lifted, and the person responsible for the task to be performed will be held to review the appropriate requirements and the procedures to be followed.
- This meeting will be held prior to the test lift at each new work location and will be repeated for any employees newly assigned to the operation.

Platform Specifications

- Each personnel platform will be equipped with a guardrail system that meets the requirements of the Fall Protection chapter, and will be enclosed at least from the toe-board to mid-rail with either solid construction or expanded metal having openings no greater than ½ " (1.27 cm)
- A grab rail will be installed inside the entire perimeter of the personnel platform. Access gates, if installed, cannot swing outward during hoisting
- Access gates, including sliding or folding gates, will be equipped with a restraining device to prevent accidental opening
- Headroom will be provided which allows employees to stand upright in the platform
- In addition to the use of hard hats, employees will be protected from falls of objects (overhead protection) on the personnel platform when employees are exposed to falling objects
- All rough edges exposed to contact by employees will be surfaced or smoothed in order to prevent injury to employees from punctures or lacerations
- All welding of the personnel platform and its components will be performed by a qualified welder familiar with weld class (typically Class "A" welds), types and material specified in the platform design
- The personnel platform will be conspicuously posted with a sign, plate or other permanent marking which indicates the weight of the platform, and its rated load capacity or maximum intended load

Rigging

- When a wire rope bridle is used to connect the personnel platform to the load line, each bridle leg will be connected to a master link or shackle in such a manner to ensure that the load is evenly divided among the bridle legs.
- Hooks on overhaul ball assemblies, lower load blocks, or other attachment assemblies will be of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy anchor type shackle with a bolt, nut and retaining pin may be used.
- Wire rope, shackles, rings, master links, and other rigging hardware must be capable of supporting, without failure, at least five times (5x) the maximum intended load applied or transmitted to that component.
- Where rotation resistant rope is used, the slings will be capable of supporting without failure at least ten times (10x) the maximum intended load.
- All eyes in wire rope slings will be fabricated with thimbles.

Bridles and associated rigging for attaching the personnel platform to the hoist line will be used only for the platform and the necessary employees, their tools and the materials necessary to do their work and will not be used for any other purpose when not hoisting personnel.

Test Lifts, Inspection, and Proof Test

A test lift with the unoccupied personnel platform loaded at least to the anticipated lift weight will be made from ground level, or any other location where employees will enter the platform to each location at which the personnel platform is to be hoisted and positioned.

This test lift will be performed immediately prior to placing personnel on the platform. The operator (and spotters) will determine that all systems, controls and safety devices are activated and functioning properly; that no interferences exist; and that all configurations necessary to reach those work locations will allow the operator to remain under the 50 % limit of the hoist's rated capacity.

Materials and tools to be used during the actual lift can be loaded in the platform for the test lift. A single test lift may be performed at one time for all locations that are to be reached from a single set up position.

The test lift will be repeated prior to hoisting employees whenever the crane or derrick is moved and set up in a new location or returned to a previously used location.

Additionally, the test lift will be repeated when the lift route is changed unless the operator determines that the route change is not significant (i.e. the route change would not affect the safety of hoisted employees.)

After the test lift, and just prior to hoisting personnel, the platform will be hoisted a few inches and inspected to ensure that it is secure and properly balanced.

Employees will not be hoisted unless the following conditions are determined to exist:

- Hoist ropes must be free of kinks
- Multiple part lines must not be twisted around each other
- The primary attachment must be centered over the platform
- The hoisting system will be inspected if the load rope is slack to ensure all ropes are properly stated on drums and in sheaves

A visual inspection of the crane or derrick, rigging, personnel platform, and the crane or derrick base support or ground will be conducted by Greg Griffin immediately after the test lift to determine whether the testing has exposed any defect or produced any adverse effect upon any component or structure. Any defects found during inspections which create a safety hazard will be corrected before hoisting personnel.

At each job site, prior to hoisting employees on the personnel platform, and after any repair or modification, the platform and rigging will be proof tested to 125 % of the platform's rated capacity by holding it in a suspended position for five minutes with the test load evenly distributed on the platform (this may be done concurrently with the test lift).

After proof testing, Greg Griffin will inspect the platform and rigging. Any deficiencies found will be corrected and another proof test will be conducted. Personnel hoisting will not be conducted until the proof testing requirements are satisfied.

Personnel Platform Loading

- The personnel platform will not be loaded in excess of its rated load capacity. When a personnel platform does not have a rated load capacity then the personnel platform will not be loaded in excess of its maximum intended load.
- The number of employees occupying the personnel platform will not exceed the number required for the work being performed.
- Personnel platforms will be used only for employees, their tools and the materials necessary to do their work and will not be used to hoist only materials or tools when not hoisting personnel.
- Materials and tools for use during a personnel lift will be secured to prevent displacement. Materials and tools for use during a personnel lift will be evenly distributed within the confines of the platform while the platform is suspended.

Traveling

Hoisting of employees while the crane is traveling is prohibited, except for portal, tower and locomotive cranes, or where GTG Automation, Inc. demonstrates that there is no less hazardous way to perform the work.

Under any circumstances where a crane would travel while hoisting personnel, GTG Automation, Inc. will implement the following procedures to safeguard employees:

- Crane travel will be restricted to a fixed track or runway
- Travel will be limited to the load radius of the boom used during the lift
- The boom must be parallel to the direction of travel

A complete test run will be performed to test the route of travel before employees are allowed to occupy the platform. This test run can be performed at the same time as the test lift which tests the route of the lift.

If travel is done with a rubber-tired carrier, the condition and air pressure of the tires will be checked. The chart capacity for lifts on rubber will be used for application of the 50 % reduction of rated capacity.

Outriggers may be partially retracted as necessary for travel.

SAFE PRACTICES

- Employees will keep all parts of the body inside the platform during raising, lowering, and positioning. This provision does not apply to an occupant of the platform performing the duties of a signal person
- Before employees exit or enter a hoisted personnel platform that is not landed, the platform will be secured to the structure where the work is to be performed, unless securing to the structure creates an unsafe situation
- Tag lines will be used unless their use creates an unsafe condition
- The crane or derrick operator will remain at the controls at all times when the crane engine is running, and the platform is occupied
- Hoisting of the personnel platform must be performed in a slow, controlled, cautious manner with no sudden movements of the equipment or the platform. Hoisting of employees will be immediately stopped upon indication of any dangerous weather conditions or other impending danger
- Employees being hoisted will remain in continuous sight of and in direct communication with the operator or signal person. In those situations where direct visual contact with the operator is not possible, and the use of a signal person would create a greater hazard for the person, direct communication alone such as by radio may be used.
- Except over water, employees occupying the personnel platform will use a body belt/harness system with lanyard appropriately attached to the lower load block or overhaul ball, or to a structural member within the personnel platform capable of supporting a fall impact for employees using the anchorage.
- No lifts will be made on another of the crane's or derrick's load-lines while personnel are suspended on a platform

PROCEDURES FOR ASSEMBLY/DISASSEMBLY OF CRANE

Employer procedures must be developed by the Greg Griffin and satisfy specific requirements: providing adequate support and stability for all parts of the equipment, and positioning employees involved to minimize exposure to any unintended movement or collapse.

Follow all manufacturer established procedures when assembling and disassembling cranes. When assembling and disassembling a crane the manufacture's procedures and prohibitions must be followed and not deviated from in anyway.

You must follow manufacturer procedures when using synthetic slings during assembly or disassembly rigging. Synthetic slings must be protected from abrasive, sharp or acute edges and configurations that might reduce the sling's rated capacity.

All assembly/disassembly work will be supervised by an A/D (Assembly/Disassembly) Director. The A/D director must meet the criteria for both a competent person and a qualified person or be a competent person assisted by a qualified person.

Before commencing assembly/disassembly operations, the A/D director must ensure that the crew members understand all of the following: Their tasks, the hazards associated with their tasks, and the hazardous positions/locations that they need to avoid.

The A/D director must:

- Understand the applicable procedures
- Review procedures immediately prior to beginning work unless they understand the procedures and has used them before for that equipment type and configuration
- Verify all capacities of any equipment used, including rigging
- Address hazards associated with the operation, including specified areas of concern: site and ground conditions, blocking material, proper location of blocking, verifying assist crane loads, boom & jib pick points, center of gravity, stability upon pin removal, snagging, struck by counterweights, boom hoist brake failure, loss of backward stability, wind speed and weather

A Site-specific Crane Plan must be developed for the site that the mobile crane will be assembled for use. It is the responsibility of the A/D director that is supervising the assembly and disassembly operation to address the hazards associated with the operation that must be addressed in the Site-Specific Plan, which include:

- Site and ground bearing conditions. Site and ground conditions must be adequate for safe assembly and disassembly operations and to support the equipment during assembly and disassembly
- Blocking material. The size, amount, condition and method of stacking the blocking must be sufficient to sustain the loads and maintain stability
- Proper location of blocking. When used to support lattice booms or components, blocking must be appropriately placed to:
 - Protect the structural integrity of the equipment
 - Prevent dangerous movement and collapse

Operational Safety

- Verifying assist crane loads. When using an assist crane, the loads that will be imposed on the assist crane at each phase of assembly/disassembly must be verified before assembly/disassembly begins
- Boom and jib pick points. The point(s) of attachment of rigging to a boom (or boom sections or jib or jib sections) must be suitable for preventing structural damage and facilitating safe handling of these components
- Center of gravity. The center of gravity of the load must be identified if that is necessary for the method used for maintaining stability. Where there is insufficient information to accurately identify the center of gravity, measures designed to prevent unintended dangerous movement resulting from an inaccurate identification of the center of gravity must be used
- Stability upon pin removal. The boom sections, boom suspension systems (such as gantry A-frames and jib struts), and components must be rigged or supported to maintain stability upon the removal of the pins
- Snagging. Suspension ropes and pendants must not be allowed to catch on the boom or jib connection pins or cotter pins (including keepers and locking pins)
- Struck by counterweights. The potential for unintended movement from inadequately supported counterweights and from hoisting counterweights
- Boom hoist brake failure. Each time reliance is to be placed on the boom hoist brake to prevent boom movement during assembly/disassembly, the brake must be tested prior to such reliance to determine if it is sufficient to prevent boom movement. If it is not sufficient, a boom hoist pawl, other locking device/back-up braking device, or another method of preventing dangerous movement of the boom (such as blocking or using an assist crane) from a boom hoist brake failure must be used
- Loss of backward stability. Backward stability must be verified before swinging the upper works, travel, and when attaching or removing equipment components
- Weight of components. The weight of each of the components must be readily available

Capacity Limits

It is the policy of GTG Automation, Inc. that during all phases of assembly and disassembly, the rated capacity limits for loads imposed on the equipment, equipment components (including rigging), pins, lifting lugs and equipment accessories, must not be exceeded for the equipment being assembled and disassembled.

Components and Configuration

GTG Automation, Inc. will ensure the selection of components and the configuration of equipment that affects the capacity or safe operation of the equipment are according to the manufacturer instructions, prohibitions, limitations, and specifications. Where these are unavailable, a registered professional engineer familiar with the type of equipment involved must approve, in writing, the selection and configuration of components.

Crane Inspection post assembly

Before using the completed assembly, Greg Griffin will inspect the assembly to ensure it is configured in accordance with the manufacturer equipment criteria. If the criterion is unavailable, Greg Griffin with the assistance of a registered professional engineer, must develop the appropriate configuration criteria and ensure they are met.

Tests for Cranes post assembly

- A crane, prior to initial use and after modification, will be given an operational test to insure compliance, including the following: load hoisting and lowering mechanisms; boom hoisting and lowering mechanisms; travel mechanism; safety devices; boom extension mechanisms for a mobile hydraulic crane
- A test load will not exceed 110% of the rated load at any working radius
- Results of operational tests and load tests will be maintained at the job site
- Where rerating is necessary, it will be as prescribed in ASME B30.5, "Crawler, Locomotive and Truck Crane Standard". Rerating will not be in excess of the original load rating unless a letter of approval is obtained from the manufacturer and maintained at the job site

PPE (PERSONAL PROTECTIVE EQUIPMENT)

- High Visibility Wear
- Hardhat
- Safety Glasses
- Steel Toed Safety footwear
- Gloves
- Hearing Protection

REQUIREMENTS

CRANE LOAD RATINGS

Type of Crane Mounting	Maximum Load Ratings (percent of tipping loads)
Locomotive, without outriggers:	
Booms 60 feet or less	¹ 85
Booms over 60 feet	¹ 85
Locomotive, using outriggers fully extended	80
Crawler, without outriggers	75
Crawler, using outriggers fully extended	85
Truck and wheel mounted without outriggers or using outriggers fully extended	85
¹ Unless this results in less than 30,000 pound-feet net stabilizing moment about the rail, which will be minimum with such booms.	

TRAINING

All employees must be trained on overhead material handling processes and execution. Awareness training for those who have little or no input to a rig or a move, should be made aware of crane operations. For those who have specialized jobs in support of crane operations, see below for certifications and qualifications that must be kept up to date.

Designated Crane Operator Training, Requirements and Certification

Crane operators will be determined by qualification before they are designated. Based on who have appropriate offshore experience and training which must comprise of minimum amounts of classroom sessions and hands-on training which will cover lubricating points, adjustments, and principles of crane operators, load charts, hand signals and inspections. Only the designated Company operator may operate a crane. However, before assignment as an operator of a crane, training is required in all of the following areas:

- Capabilities of the equipment and attachments
- Purpose, use, and limitations of the controls
- How to make daily inspections of the equipment
- Operating assigned equipment through the functions necessary to perform the job

A review of crane operation OSHA standards and GTG Automation, Inc. rules

Employees, except trainees, will pass qualification test before operating a crane.

Operators must pass a written examination, understand and be able to use a load chart, as well as calculate loads for the crane type.

While the OSHA operator qualification regulation does not include physical requirements for operators, ASME B30-5 and API RP 2D have established physical requirements for operators. These requirements have endorsed by several professional organizations and may be included in some state regulations. Always check with the governing authority to determine the requirements for your worksite.

The designated operator must also pass a physical prior to operation of a crane as a Company designated operator. ASME B30-5 identifies minimum physical requirements for crane operators and trainees. An employee designated to operate a crane must possess all of the following minimum physical qualifications and be examined for the qualifications at least once every 3 years:

- Have effective use of all four limbs
- Be of a height sufficient to operate the controls and to have an unobstructed view over the controls into the work area
- Have coordination between eyes, hands, and feet
- Be free of known convulsive disorders and episodes of unconsciousness
- Possession of a driver's license
- Be able to read and understand signs, labels, and instruction manuals
- They will be able to distinguish colors, regardless of position of colors, if color differential is required for operation
- Have depth perception be able to distinguish between red, yellow, and green
- Their hearing, with or without hearing aid, must be adequate
- Have vision of at least 20/30 Snellen in one eye and 20/50 in the other eye with or without glasses
- No history of disabling medical condition which may be sufficient reason for disqualification
- Qualifications for crane operators will be maintained every three years and will include medical and vision evaluations.
- GTG Automation, Inc. will verify that only certified employees are allowed to operate cranes. Certification is available through one of the following:
- An accredited crane operator testing organization
- An audited program provided by GTG Automation, Inc.
- Have U.S. military licensing by a government authority

Crane operators will be designated based on their experience and training, which must include the minimum amounts of classroom sessions and hands-on training including lubricating points, adjustments, principles of crane operators, load charts, hand signals and inspections. Training will include use of fire extinguishers.

Crane operator qualifications must be maintained and refreshed every three years and may include vision and medical condition evaluations.

Rigging Qualifications:

The following are topics that will be covered in training with workers prior to beginning rigging operations:

- Hazards associated with rigging operations
- Role and responsibility of each rigger's assigned task
- Weight of material and equipment being hoisted
- Identifying the various shapes on the surface of equipment being hoisted
- Qualified rigger training combines classroom and exams with hands-on training. The training program will include familiarization with rigging hardware, slings and the rigging basics, along with the procedures and precautions of lifting loads and lift planning safety.
- Employees need to demonstrate proper inspection, use, selection and maintenance of loose gear such as slings, shackles and hooks. Rigging hardware can include sheaves and blocks; hooks and latches; rings, links and swivels; shackles; turnbuckles; spreader and equalizer beams; cable drops; pad eyes, eyebolts, and other points of attachment.
- Sling training includes the sling configuration, angle, and rated load. Types of slings can include chain, wire rope, metal mesh, natural fiber rope, synthetic fiber rope, or synthetic web.
- Employees need to know the procedures and precautions of load control and taglines; lift planning including load weight and center of gravity; sling inspection and criteria for rejecting damaged slings; unbinding loads; proper personnel transfer and sling handling and storage.
- Basic rigging aspects like pinch points and body position, PPE, signals and communication and load stability are also part of the training.
- We shall verify that all employees are trained in and familiar with required overhead material handling safe work practices and procedures in the use of any equipment required, proper Personal Protective Equipment (PPE), and safety procedures which must be followed to safeguard personnel involved in hoisting and rigging operations or who work in the vicinity of such operations.

Signaler Qualifications:

We shall ensure that each signal person is qualified. Each signal person must:

- Know and understand the type of signals used. If hand signals are used, the signal person must know and understand the Standard Method for hand signals
- Be competent in the application of the type of signals used
- Have a basic understanding of equipment operation and limitations, including the crane dynamics involved in swinging and stopping loads and boom deflection from hoisting loads
- Demonstrate that he/she meets the requirements through an oral or written test, and through a practical test that is given by a qualified third-party evaluator:
 - Third party qualified evaluator. The signal person has documentation from a third party qualified
 - Employer's qualified evaluator (not a third party). The employer's qualified evaluator assesses the individual, determines the individual meets the qualification requirements, and provides documentation of that determination.

Additional Training

Additional training is available and required for support operations to the Crane. This includes fall protection for anyone who must work on a surface 6 feet above the next lower surface. Specifically, for employees whose work requires them to be on a walking/working surface with an unprotected side or edge more than 6 feet above a lower level

ATTACHMENTS

Please see below for the following documents:

- Crane Definitions/Inspection Items
- Site-Specific Crane Operation Plan Checklist
- Crane/Boom Inspection Report
- Recommended Hand Signals for Controlling Crane Operations

DEFINITIONS/ INSPECTION:

Boom Angle Indicator – A boom angle indicator readable for the operator station is installed accurately to indicate boom angle.

Boom Hoist Disconnect, Automatic Boom Hoist Shutoff – A boom hoist disconnect safety shutoff or hydraulic relief to automatically stop the boom hoist when the boom reaches a predetermined high angle.

Boom Stops – Shock absorbing or hydraulic type boom stops are installed in a manner to resist boom overturning.

Braking Systems – Truck cranes and self-propelled cranes mounted on rubber-tired chassis or frames must be equipped with a service brake system, secondary stopping emergency brake system and a parking brake system. Unless the owner/operator can show written evidence that such systems were not required by the standards or regulations in force at the date of manufacture and are not available from the manufacturer. The braking systems must have been inspected and tested and found to comply with applicable requirements.

Cab – Contains all crane function controls in addition to mechanical boom angle indicators, electric wipers, dash lights, warning lights and buzzers, fire extinguishers, seat belts, horn, and clear unbroken glass.

Counterweight – The counterweight must be approved and installed according to manufacturer's specifications with attachment points secured.

Crawler cranes are provided with brakes or other locking devices that effectively hold the machine stationary on level grade during the working cycle. The braking system must be capable of stopping and holding the machine on the maximum grade recommended for travel. The brakes or locks are arranged to engage or remain engaged in the event of loss of operating pressure or power.

Guarding – All exposed moving parts such as gears, chains, reciprocating or rotating parts are guarded or isolated.

High-Voltage Warning Sign – High-voltage warning signs displaying restrictions and requirements will be installed at the operator's station and at strategic locations on the crane.

Hydraulic Hoses Fittings and Tubing – Flexible hoses must be sound and show no signs of leaking at the surface or its junction with the metal and couplings.

Hoses must not show blistering or abnormal deformation to the outer covering and no leaks at threaded or clamped joints that cannot be eliminated by normal tightening or recommended procedures. There will be no evidence of excessive abrasion or scrubbing on the outer surfaces of hoses, rigid tubing, or hydraulic fittings.

Jib Boom Stops – Jib stops are restraints to resist overturning.

Leveling Indicating Device – A device or procedure for leveling the crane must be provided.

Load Hooks and Hook Blocks – Hooks and blocks must be permanently labeled with rated capacity. Hooks and blocks are counterweighted to the weight of the overhaul line from highest hook position. Hooks must not have cracks or throat openings more than 15% of normal or twisted off center more than 10° from the longitudinal axis. All hooks used to hoist personnel must be equipped with effective positive safety catches, especially on hydraulic cranes.

Main Boom, Jib Boom, Boom Extension – Boom jibs, or extensions, must not be cracked or corroded. Bolts and rivets must be tight. Certification that repaired boom members meet manufacturers original design standard will be documented. Non-certified repaired members will not be used until recertified.

Main Hoist and Auxiliary Drums System – Drum crushing is a rope condition sometimes observed which indicates deterioration of the rope. Spooling is that characteristic of a rope which affects how it wraps onto and off a drum. Spooling is affected by the care and skill with which the first larger of wraps is applied on the drum. Manufacturer's criteria during inspection usually specify:

- Minimum number of wraps to remain on the drum
- Condition of drum grooves
- Condition of flanges at the end of drum
- Rope end attachment
- Spooling characteristics of rope
- Rope condition

Manufacturer's Operating and Maintenance Manuals – Manufacturer's operating and maintenance manuals will accompany all mobile hoisting equipment. These manuals set forth specific inspection, operation and maintenance criteria for each mobile crane and lifting capacity.

Outriggers – Outrigger number, locations, types, and type of control are in accordance with manufacturer's specifications. Outriggers are designed and operated to relieve all weight from wheels or tracks within the boundaries of the outriggers. If not, the manufacturer's specifications and operating procedures must be clearly defined. Outriggers must be visible to the operator or a signal person during extension or setting.

Power Controlled Lowering – Cranes for use to hoist personnel must be equipped for power controlled lowering operation on all hoist lines. Check clutch, chains, and sprockets for wear.

Sheaves – Sheave grooves will be smooth and free from surface defects, cracks, or worn places that could cause rope damage. Flanges must not be broken, cracked, or chipped. The bottom of the sheave groove must form a close-fitting saddle for the rope being used. Lower load blocks must be equipped with close fitting guards.

Almost every wire rope installation has one or more sheaves – ranging from traveling blocks with complicated reeving patterns to equalizing sheaves where only minimum rope movement is noticed.

Swing Clearance Protection – Materials for guarding rear swing area.

Turntable/Crane Body – Make sure that the rotation point of a crane gears and rollers are free of damage, wear and properly adjusted and the components are securely locked and free of cracks or damage. The swing locking mechanism must be functional (pawl, pin) and operated in the cab.

Two-Blocking Device – Cranes with telescoping booms will be equipped with a two-blocking damage prevention feature that has been tested on-site in accordance with manufacturer's requirements. All cranes hydraulic and fixed boom used to hoist personnel must be equipped with two-blocking devices on all hoist lines intended to be used in the operation. The anti-two blocking device has automatic capabilities for controlling functions that may cause a two-blocking condition.

Wire Rope – Main hoist and auxiliary wire rope inspection will include examining for:

- Broken wires
- Excess wear
- External damage from crushing, kinking, cutting, or corrosion

SITE-SPECIFIC CRANE OPERATION PLAN & CHECKLIST

Company:		Job Name & Location:	
Job Supervisor:		Date(s) on Site:	
Project Engineer:		Competent Person:	
Crane Operator:		Competent Rigger:	
Scope of Work			
Roofing ☐	Sq. Ft.:	Tons:	
Siding ☐	Sq. Ft.:	Tons:	
Decking ☐	Sq. Ft.:	Tons:	
General Miscellaneous ☐	Sq. Ft.:	Tons:	
General Description of Work:			
Site Layout			
1. Has controlling contractor provided adequate access to site? ☐ Yes ☐ No			
2. Is laydown area firm, properly graded, well drained, and accessible? ☐ Yes ☐ No			
Pre-Construction Site Conference			
Has a Pre-Construction Site Conference been held? ☐ Yes ☐ No			
Please list those attending:			
Sequence of Crane Activity			
1. Give a general sequence of Crane activities:			
2. Material delivery date:			
3. How will activities be coordinated with other trades:			
Cranes			
1. Crane Type:			
2. Crane Brand:			
3. Crane Capacity:			
4. How is the site prepared for the crane?			
5. How many different locations will the crane have and where are they?			
6. What is the path for overhead loads?			
7. How will employees be notified of overhead loads?			
8. Are there any critical lifts? (75% of capacity or dual crane) ☐ Yes ☐ No			
a. How many?			
9. Describe critical lifts:			
10. Are lift permits attached for critical lifts? ☐ Yes ☐ No			
11. Are lift permits attached for all lifts over 5,000 lbs. ☐ Yes ☐ No			

CRANE INSPECTION REPORT (PAGE 1 OF 2)

Use only equipment which is in safe working condition. DO NOT operate equipment if any inspected items need repair.										
Jobsite Location					Time		Date			
Operator's Name				Supervisor's Name						
Inspector(s) Name					Hour Meter Reading					
Subcontractors On-Site										
Name				Trade						
Equipment Type			Equipment ID Number			Manufacturer				
Ok	Repair	N/A	General Site Information				Ok	Repair	N/A	
☐	☐	☐	Safety Program Manual on site?		Hazard assessment of work area?			☐	☐	☐
☐	☐	☐	Are required OSHA Posters posted?		Controls in place for identified hazards?			☐	☐	☐
☐	☐	☐	Emergency Phone numbers posted?		Crane swing areas signed and barricaded?			☐	☐	☐
☐	☐	☐	Tailgate! Toolbox talks up to date?		Operator's manual on lift?			☐	☐	☐
☐	☐	☐	Site Lift Plan completed?		Pre-lift meeting comp listed?			☐	☐	☐
Ok	Repair	N/A	Carrier Vehicle				Ok	Repair	N/A	
☐	☐	☐	Motor		Cab			☐	☐	☐
☐	☐	☐	Crank case oil is clean and full		Steering			☐	☐	☐
☐	☐	☐	Clutch /Converter		Lights			☐	☐	☐
☐	☐	☐	Drive Line		Fire Extinguisher			☐	☐	☐
☐	☐	☐	Transmission fluid at proper level		Glass			☐	☐	☐
☐	☐	☐	Frame		Warning Lights			☐	☐	☐
☐	☐	☐	Brakes		Access			☐	☐	☐
☐	☐	☐	Differentials		Rims & Bolts			☐	☐	☐
☐	☐	☐	Outriggers		Cuts or bulges in the tires			☐	☐	☐
☐	☐	☐	Engine coolant is about 2" below cap		Tires properly inflated			☐	☐	☐
Ok	Repair	N/A	Hydraulics				Ok	Repair	N/A	
☐	☐	☐	Relief Valve(s)		Hoist Motor			☐	☐	☐
☐	☐	☐	Restrictor Valves		Pumps			☐	☐	☐
☐	☐	☐	Pipelines		Bearings			☐	☐	☐
☐	☐	☐	Hose Lines		Check hydraulic oil level			☐	☐	☐
☐	☐	☐	Outrigger Cylinders		Mounting Bolts			☐	☐	☐
☐	☐	☐	Boom Hoist Cylinder		Swing Gear			☐	☐	☐
☐	☐	☐	Boom Crowd Cylinder		Swing Pinion			☐	☐	☐
☐	☐	☐	Control Valves		Seals - Hydraulic			☐	☐	☐
☐	☐	☐	Swing Motor							
Ok	Repair	N/A	Boom				Ok	Repair	N/A	
☐	☐	☐	Shipper Welds		Bearing Sheave			☐	☐	☐
☐	☐	☐	Boom Welds		Load Block Sheave			☐	☐	☐
☐	☐	☐	Pins - Boom Pivot		Load Block Hook			☐	☐	☐
☐	☐	☐	Support Roller		Boom Main Section			☐	☐	☐
☐	☐	☐	Boom Pins							
Wedge Sockets							Ok	Repair	N/A	
Wire rope size and wedge socket is a proper match?							☐	☐	☐	
Dead end of wire rope extends at least 9 inches beyond wedge socket?							☐	☐	☐	
Dead end of the wire rope is secured properly?							☐	☐	☐	

CRANE INSPECTION REPORT (PAGE 2 OF 2)

Sheaves	Ok	Repair	N/A
The wire rope is seated properly in the sheaves?	☐	☐	☐
The wire rope keepers (keeps cable from coming out of the sheaves) are in good shape?	☐	☐	☐
Check the bolts on the sheave plates for tightness?	☐	☐	☐
Check for any weld cracks?	☐	☐	☐
Operational Checks	Ok	Repair	N/A
Crane operators' logs up-to-date and on-site?	☐	☐	☐
Operators familiar with load charts?	☐	☐	☐
Load chart is in cab?	☐	☐	☐
Hand signal charts on crane?	☐	☐	☐
Handrails leading into crane cab are good condition?	☐	☐	☐
Out riggers are extended out; working properly?	☐	☐	☐
Out rigger pads not cracked?	☐	☐	☐
Outriggers extended & swing radius barricades in place?	☐	☐	☐
Hydraulic hoses in good condition?	☐	☐	☐
The drum cable is properly spooled?	☐	☐	☐
Boom angle indicator is available and working?	☐	☐	☐
Swing through 360 degrees, does boom angle indicator stay the same throughout rotation?	☐	☐	☐
Does boom swing brake work properly?	☐	☐	☐
Back-up alarm is working?	☐	☐	☐
Does the horn work?	☐	☐	☐
Engine started; gauges are checked & working properly?	☐	☐	☐
Crane is leveled, working properly?	☐	☐	☐
Boom up, unlock the swing break, does it swing when level?	☐	☐	☐
Extend out the boom, are all sections extending evenly?	☐	☐	☐
Brakes & brake systems check out?	☐	☐	☐
Safety pressure relief valves check out?	☐	☐	☐
Is equipment a safe distance from edge of trench or excavation?	☐	☐	☐
Material Handling	Ok	Repair	N/A
Chains and slings inspected and tagged as required?	☐	☐	☐
Employees kept from under suspended loads?	☐	☐	☐
Materials properly stored or stacked?	☐	☐	☐
Employees using proper lifting methods?	☐	☐	☐
Tag lines used to guide loads?	☐	☐	☐
Hooks (replace if)	Ok	Repair	N/A
If hook throat opening has increased by 15%	☐	☐	☐
If load-bearing point (throat) has been worn by 10%, the hook must be replaced.	☐	☐	☐
If hook tip is twisted by 10° or more, the hook must be replaced.	☐	☐	☐
Check for excessive damage from chemicals and for deformation and cracks.	☐	☐	☐
Check for and replace damaged, inoperative, or missing hook latches.	☐	☐	☐
If hook throat opening has increased by 15%	☐	☐	☐

Unsafe Conditions, Situations, Acts, or Practices Observed _____

Comments _____

Inspector's Signature _____

Date _____

Operator's Signature _____

Date _____

HAND SIGNALS FOR CRANE OPERATIONS



HOIST: Forearm vertical, forefinger pointing up, move hand in small horizontal circles.



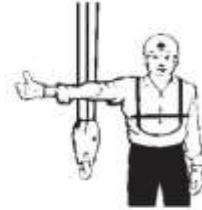
LOWER: Arm extended downward, forefinger pointing down, move hand in small horizontal circles.



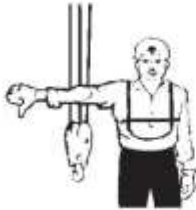
USE MAIN HOIST: Tap fist on head, then use regular signals.



USE WHIPLINE: Tap elbow with one hand; then use regular signals.



RAISE BOOM: Arm extended, fingers closed, thumb pointing upward.



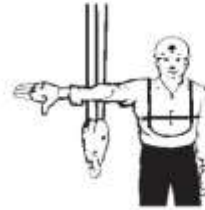
LOWER BOOM: Arm extended, fingers closed, thumb pointing downward.



MOVE SLOWLY: One hand gives motion signal, other hand motionless in front of hand giving the motion signal.



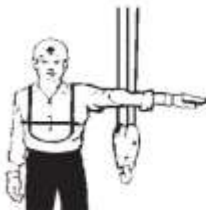
RAISE BOOM & LOWER LOAD: Arm extended, thumb pointing up, flex fingers in and out.



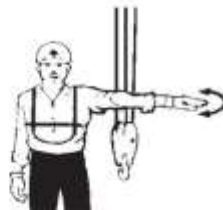
LOWER BOOM & RAISE LOAD: Arm extended, thumb pointing down, flex fingers in and out.



SWING: Arm extended, point with finger in direction of swing.



STOP: Arm extended, palm down, hold.



EMERGENCY STOP: Arm extended, palm down, move hand rapidly right and left.



TRAVEL: Arm extended forward, hand open and slightly raised, pushing motion in direction of travel.



EXTEND BOOM: Both fists in front of body with thumbs pointing outward.



RETRACT BOOM: Both fists in front of body with thumbs pointing toward each other.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

This policy applies to overhead material handling support to the crane operator. Rigging and signaling combine roles to make all crane moves safely. Without these support roles, crane moves are vulnerable to many unsafe conditions and practices. These apply to cranes, hoists and mobile equipment.

This policy applies to rigging, slings and other “below the hook” equipment used for the movement of material by hoisting by either indoor gantry or crane as well as outdoor mobile lifts.

The Company, GTG Automation, Inc. has adopted this program to ensure the signaler is fully qualified and suitably prepared to ensure the safety of employees. Hand signals to crane operators will be those prescribed by the applicable American National Standards Institute (ANSI) standard for the type of crane in use.

REFERENCES

- §1910.179 – Overhead and Gantry Cranes- Frequent Inspection
- §1910.184 – Slings
- §1926.251 – Rigging Equipment for Material Handling
- §1926.753 – Hoisting and Rigging
- §1926.1400 – Cranes and Derricks
- §1926.1401 – Cranes & Derricks in Construction, Definitions
- §1926.1412(d)(1) – Competent Person Daily Inspection
- §1926.1419 – Cranes & Derricks in Construction Signals, General Requirements
- §1926.1420 – Cranes & Derricks in Construction, Signals--radio, telephone or other electronic transmission of signals
- §1926.1428 – Cranes & Derricks in Construction, Signal Person Qualifications
- §1926.1430 – Cranes & Training
- §1926.1431 – Hoisting Personnel
- API RP 2D – Operation & Maintenance of Offshore Cranes
- ASME B30.5-3.12 (a) – Mobile and Locomotive Cranes
- 30 CFR Part 250 Subpart “O” – Well Control and Production Safety Training

EMPLOYER RESPONSIBILITIES

- Develop, implement and manage an (OMH) Overhead Material Handling Program.
- Provide training in Overhead Material Handling-Operator and Crane Crew, Rigging and Signaling
- Be knowledgeable of current overhead material handling regulations, standards, equipment, and systems
- Advise and provide guidance to managers, employees, and other departments on all managed overhead material handling program matters
- Establish and assign all duties and responsibilities outlined in this policy to trained, Competent and Qualified individuals
- Provide or verify that the personnel have the necessary resources to accomplish their duties and responsibilities safely

- Measure and evaluate the effectiveness of the OMH Program by: conducting periodic program evaluations (OMH Program audits at a minimum annually) and making improvements
- Appropriate management will participate in the investigation of all incidents (including near misses) related to OMH. These will seek a root cause to prevent reoccurrence.
- GTG Automation, Inc. will enforce, the work practices and procedures to assure that no employee will be exposed to hazards during rigging, hoisting and move operations.
- The competent person has authority over all crane moves, inspections, rigging and hoisting operations and will ensure all safety measures and systems are in place, all safety procedures are adhered to, and ensure regular inspections of the site and rigging equipment are made.
- GTG Automation, Inc. will ensure that a qualified signal person will be provided for each of the following situations:
 - The point of operation (meaning the load travel or the area near or at load placement) is not in full view of the operator
 - When the equipment is traveling, the view in the direction of travel is obstructed
 - Due to site specific safety concerns, either: the crane operator; the rigger; or the signaler determines that it is necessary
- The competent person will verify that all employees are trained in and familiar with required safe work practices and procedures in the use of any equipment required as well as proper Personal Protective Equipment (PPE). As well as safety procedures which must be followed to safeguard personnel involved in hoisting and rigging operations or who work in the vicinity of such operations.
- The competent person will ensure that all safety measures and systems are in place and ensure regular inspections are made.

EMPLOYEE RESPONSIBILITIES

- Employees are to report to a supervisor all unsafe conditions encountered during work
- All employees are expected to assist in job hazard analyses and follow safe job procedures.
- Understand the purpose of necessary PPE for a given job, ensure it is in safe, serviceable condition and use it according to safe work practices
- Follow all safety and health policies and offer suggestions to improve safety and health in the workplace where such opportunities exist
- Follow all training
- No employee is expected to undertake a job until trained and is authorized to perform the job
- No employee should undertake a job that appears to be unsafe
- Employees are responsible for visual inspection of all rigging gear prior to use. This includes, but is not limited to: Hooks; Ropes; Slings; Hoisting devices; Removing damaged goods for repair or replacement

HAZARDS

- Struck by- loss of load (fall) due to: poor rigging practices; failed slings; failure of hook safety latch; failure of other “below the hook” rigging devices
- Untrained personnel
- Crane operators’ lack of visibility in crane move
- Miscommunication between signal person and operator
- Unintended load contact with fixed structures
- Lack of component inspection prior to use
- Subsequent component failure (such as brakes)
- Lift weight in excess of Rated Load Capacity
- Swing Lifts
- People working below suspended loads

RIGGING PROCEDURES (SAFE PRACTICES)

Avoid Suspended Loads

All employees are trained to avoid overhead lift areas. These areas will be kept clear of loads about to be lifted and of suspended loads. Routes for suspended loads will be pre-planned to ensure that no employee is required to work directly below a suspended load. Exception is those necessary for the hooking or unhooking of the load, however they also need to use caution and stay out from under the load as much as possible. When others are working near suspended loads, the following criteria must be met:

- Materials being hoisted will be rigged to prevent unintentional displacement
- Hooks with self-closing safety latches or their equivalent will be used to prevent components from slipping out of the hook
- All loads will be rigged by a qualified rigger
- Loads will be monitored during move by signaler or tag line employee.

Use of a Qualified Rigger

A trained, qualified rigger is able to rig efficiently and safely based on all the variables of the lift.

A qualified rigger shall work with the crane operator, the competent person and the Signal person on every lift and move. The Rigger will be part of lift planning including identify load weight, center of gravity identify the best “below the hook” rigging equipment to use for each lift such as hitches, shackles, spreaders, strong backs, hooks and latches as well as slings and rope. A qualified rigger can also determine the safety of the lift based on load weight and center of gravity. The rigger understands load control and the effects and impact of equipment use of tag lines, sling configuration, rope/ sling angles and rated load capacities.

Riggers partner with and assist the competent person on equipment inspections. Riggers also work with the Signaller(s) on each move.

Use of a Competent Person

Greg Griffin (designated by GTG Automation, Inc.) will have the authority over all crane and hoisting operations. Greg Griffin will ensure that all safety measures and systems are in place; all safety procedures are adhered to, and make sure pre-shift, monthly and additional inspections of the crane and the operational site are conducted.

Greg Griffin will begin a visual inspection prior to each shift the equipment is used, which must be completed before or during that shift. The inspection must consist of observation of wire ropes (running and standing) that are likely to be in use during the shift for any apparent deficiencies.

All Brakes, Hooks, Slings, and Ropes will all be inspected to certification monthly with record keeping.

Greg Griffin will perform a daily, pre-shift, pre-use inspection of the crane as well as monthly or Periodic Inspection.

The documentation of monthly inspections must include the parts of the crane checked, the serial number (or other identifier) the results of the inspection and the name and signature of the inspector with the date of the inspection. This focus is on the brakes, crane hooks and ropes.

Inspection Records

Certification records which include the date of inspection, the signature of the person who performed the inspection and the serial number, or other identifier, of the crane which was inspected shall be made monthly on critical items in use such as brakes, crane hooks, and ropes. Records shall be kept for a minimum of 3 months per ANSI/ ASME. However, as a best practice, maintain inspection records for a year and annual inspections as well as load test data for three years as this will give a better picture for diagnosis of any issues that may come to light later and provides trend analysis.

The designated competent person will inspect the crane system before each use, and during use, to make sure it's in safe operating condition. All rigging equipment and the Crane itself will be on an inspection schedule for Greg Griffin. Any deficiencies/defective parts will be repaired or replaced (if replaced, failed equipment must be destroyed) prior to use

A thorough, annual inspection of the hoisting machinery will be made by a government or a third party, private agency recognized by the U.S. Dept. Of Labor (preferred). GTG Automation, Inc. will keep all dates and results of inspections for each hoisting machine and piece of equipment.

Use of a Signal Person

- If the point of operation is not in full view to the operator, a signal person must be provided for the operation to continue. The signal person must be qualified. The same rule applies if: the view is obstructed where the crane is traveling; the operator deems it necessary due to the site specific safety concerns.
- A qualified signal person will be provided in each of the following situations:
 - The point of operation, meaning the load travel or the area near or at load placement, is not in full view of the operator
 - When the equipment is traveling, the view in the direction of travel is obstructed
 - Due to site specific safety concerns, either the operator, the rigger or the signal person determines that it is necessary

OPERATIONAL SAFETY

- Lifting equipment with missing or illegible labels will be removed from service until corrected or replaced
- Wire rope U-bolt clips used are the correct size and spaced properly
- Slings and other detachable rigging hardware will be stored in an area where they will not be subjected to mechanical damage, corrosive action, moisture, extreme temperatures, sunlight (specifically synthetic materials), or kinking
- Alloy steel chain slings will have permanently affixed, durable identification stating the size, grade, rated capacity, and reach
- The use of makeshift links or other fasteners formed from bolts or rods is prohibited
- Slings must be of original length without the use of knots, bolts, or other devices to shorten them
- Repair will be made, if applicable, to any rigging equipment, however the repair of fiber rope slings is prohibited
- Wire rope must be lubricated in the field to increase the sling's useful service life. Frequency depends on the conditions under which the sling is used.

The heavier the loads, the greater the number of bends, or the more adverse the conditions under which the sling operates, the more frequently lubrication is required.

- Wire rope slings will be stored in a well-ventilated, dry building. To avoid corrosion and rust, never store wire rope slings on the ground or allow them to be continuously exposed to the elements. If it is necessary to store wire rope slings outside, make sure that they are kept off the ground and protected.
- Lift rules:
 - Tag lines will be used unless their use creates an unsafe condition
 - All employees will be kept clear of loads about to be lifted and of suspended loads. Suspended loads will be kept clear of all obstructions
 - Hands or fingers will not be placed between the sling and its load while the sling is being tightened. A sling will not be pulled from under a load when the load is resting on it
 - Shock loading is prohibited
 - Rigging equipment, when not in use, will be removed from the immediate work area
 - Employees will be kept clear of loads about to be lifted and of suspended loads

- Hooks on overhaul ball assemblies, lower load blocks, or other attachment assemblies will be of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy anchor type shackle with a bolt, nut, and retaining pin may be used under the competent person guidance.

Each sling will be visually inspected before being used. Each sling, fastenings, and all attachments will be inspected by the competent person designated by GTG Automation, Inc. on a scheduled basis. Additional inspections will be scheduled monthly and performed. Damaged or defective slings will be tagged and immediately removed from service for repair or destroyed.

- Whenever any sling is used, the following safety practices will be observed:
 - Slings that are damaged or defective will not be used
 - Sling legs may not be kinked
 - Slings will be securely attached to their loads and will be padded or protected from the sharp edges of their loads. Slings used in a basket hitch will have the loads balanced to prevent slippage
 - All employees will be kept clear of loads about to be lifted and of suspended loads.
- Employees will be kept clear of loads about to be lifted and of suspended loads
- Suspended loads will be kept clear of all obstructions
- Wire rope slings, like chain slings, must be cleaned before inspections because they are subject to damage hidden by dirt or oil. In addition, they must be lubricated according to manufacturer's instructions. Lubrication prevents or reduces corrosion and wear due to friction and abrasion. Before applying any lubricant, however, make sure the sling is dry. Applying lubricant to a wet or damp sling traps moisture against the metal and hastens corrosion.
- Corrosion may be indicated by pitting, but it is sometimes hard to detect. If a wire rope sling shows any sign of significant deterioration, that sling must be removed until it can be examined by a person who is qualified to determine the extent of the damage.
- Many operating conditions affect wire rope life. They are bending, stresses, loading conditions, speed of load application (jerking), abrasion, corrosion, sling design, materials handled, environmental conditions and history of previous usage.
- Additionally, operating conditions, the weight, size and shape of the loads to be handled also affect the service life of a wire rope sling. Flexibility also is a factor, use ropes when smaller radius bending is required. Less flexible ropes will be used when the rope must move through or over abrasive materials. Wire rope requires regular lubrication.
- Load Rating Chart: must be readily available, posted properly in locations where crane operators, riggers, signal teams will have access. A durable rating chart(s) with legible letters and figures must be attached to the crane in a location accessible to the operator while at the controls. The rating charts will contain the following:
 - A full and complete range of manufacturer's crane loading ratings at all stated operating radii
 - Optional equipment on the crane such as outriggers and extra counterweight which effect ratings
 - A work area chart for which capacities are listed in the load rating chart, i.e. over side, over rear, over front

- Weights of auxiliary equipment, i.e. load block, jibs, boom extensions
- A clearly distinguishable list of ratings based on structural, hydraulic or other factors rather than stability
- A list of no-load work areas including but not limited to, no loads lifted over the front area (cab) of a truck mounted crane
- A description of hoist line reeving requirements on the chart or in operator's manual

Sling Safety and Rigging

Types of Slings:

Alloy Steel Chain Slings
Metal Mesh Slings
Synthetic Web Slings

Wire Rope Slings
Natural and Synthetic Fiber Rope Slings
Synthetic Round Slings

- Defective sling and rigging equipment will be immediately removed from service.
- Rigging equipment will not be loaded in excess of its recommended safe working load, as prescribed for the specific equipment and load rating identification will be attached to the rigging apparatus or equipment.
- Special custom design grabs, hooks, clamps, or other lifting accessories will be marked to indicate the safe working loads and will be proof-tested prior to use to 125 percent of their rated load.
- Wire rope slings can provide a margin of safety by showing early signs of failure. The following factors indicate when a wire sling needs to be discarded:
 - Severe corrosion
 - Localized wear (shiny worn spots) on the outside
 - A one-third reduction in outer wire diameter
 - Damage or displacement of end-fittings by overload or misapplication
 - Distortion, kinking, bird caging or other evidence of damage to the wire rope structure
 - Excessive broken wires

Number of Legs and Angle with the Horizontal

As the angle formed by the sling leg and the horizontal line decreases, the rated capacity of the sling also decreases. In other words, the smaller the angle between the sling leg and the horizontal, the greater the stress on the sling leg and the smaller (lighter) the load the sling can safely support. Larger (heavier) loads can be safely moved if the weight of the load is distributed among more sling legs.

Rated Capacity of the Sling

The rated capacity of a sling varies depending upon the type of sling, the size of the sling and the type of hitch. Operators must know the capacity of the sling. Charts or tables that contain this information generally are available from sling manufacturers. The values given are for new slings. Older slings must be used with additional caution. Under no circumstances will a sling's rated capacity be exceeded.

Sling Care and Usage

- The mishandling and misuse of slings are the leading cause of sling-related incidents. The majority of injuries and accidents, however, can be avoided by becoming familiar with the essentials of proper sling care and use.
- Proper care and use are essential for maximum service and safety. Slings must be protected with cover saddles, burlap padding or wood blocking as well as from unsafe lifting procedures such as overloading. Also to prevent cuts in the sling from sharp bends and edges in the load.
- Before making a lift, check that the sling is properly secured around the load and that the weight and balance of the load have been accurately determined. If the load is on the ground, do not allow the load to drag along the ground. This could damage the sling. If the load is already resting on the sling, make sure there's no sling damage before making the lift.
- Make sure the hook is positioned directly over the load, and seat the sling squarely within the hook bowl. This will prevent bending of the hook or overstressing the sling.
- Wire rope slings are subject to damage from contact with sharp edges of the loads being lifted. These edges can be blocked or padded to minimize damage to the sling.
- After the sling is properly attached to the load, use these lifting techniques:
 - Make sure that the load is not lagged, clamped or bolted to the floor
 - Guard against shock loading by taking up the slack in the sling slowly. Apply power cautiously to prevent jerking at the beginning of the lift, and slowly accelerate or decelerate
 - Check the tension on the sling. Raise the load a few inches, stop and check for proper balance and that all items are clear of the path of travel
 - Keep all personnel clear while the load is being raised, moved or lowered. Crane or hoist operators must watch the load at all times when it is in motion
 - Never allow more than one person to control a lift or give signals to a crane or hoist operator except to STOP due to a hazardous situation
 - Never raise the load higher than necessary
 - Never leave the load suspended in the air
 - Never work under a suspended load or allow anyone else to

Once the lift has been completed, clean the sling, check it for damage and store it in a clean, dry, airy place. It is best to hang it on a rack or wall.

Remember, damaged slings cannot lift as much weight as new or older well cared for slings. Proper and safe use and storage of slings will increase their service life.

If using load blocks, they must be enclosed and guarded against rope jamming during normal operations.

Never allow anyone to ride on the hook or load. A hook must be equipped with a safety latch, unless the application makes the use of a latch impractical as determined by Greg Griffin. When required, a latch must be provided to bridge the throat opening of the hook for the purpose of retaining slings, chains, or other equipment, under slack conditions.

Inspections and Usage of Rigging Equipment

Hooks, Blocks, Shackles, Slings and other Rigging Equipment Inspection and Use

- Load Hooks and Hook Blocks – Hooks and blocks must be permanently labeled with rated capacity. Hooks and blocks are counterweighted to the weight of the overhaul line from highest hook position. Hooks must not have cracks or throat openings more than 15% of normal or twisted off center more than 10° from the longitudinal axis. All hooks used to hoist personnel must be equipped with effective positive safety catches, especially on hydraulic cranes.
- Defective sling and rigging equipment that cannot be repaired, will be immediately removed from service, destroyed and replaced
- Special custom design grabs, hooks, clamps, or other lifting accessories will be marked to indicate the safe working loads and will be proof-tested prior to use to 125 % of their rated load

Each sling, fastenings, and all attachments will be inspected by Greg Griffin on a monthly scheduled basis, apart from daily, pre-use visual inspections. Additional inspections will be performed during sling use, where service conditions warrant. Damaged or defective slings will be tagged and immediately removed from service for repair or to be destroyed and replaced.

Lifting hooks or shackles will be visually inspected before each use. A scheduled monthly inspection with a certification record which includes: the date of inspection: the signature of the person who performed the inspection; serial number or other identifier of the hook inspected will be made by Greg Griffin.

- Hooks or shackles with cracks, or having more than 15 percent in excess of normal throat opening, or more than 10° twist from the plane of the unbent hook will be taken out of service, destroyed and replaced
- Hoist chains, including end connections, will be inspected before each use for excessive wear, twist, distorted links interfering with proper function, or stretch beyond manufacturer's recommendations.

Monthly inspection with a certification record which includes the date of inspection, the signature of the person who performed the inspection, and an identifier of the chain which was inspected will be made by Greg Griffin.

Alloy Steel Chain Sling Inspection

- Chain slings must be inspected before each use for stretching, binding, wear, or nicks and gouges. If a sling has stretched more than three percent of its original length, it is unsafe and must be destroyed, discarded and replaced.
- In addition to the pre-use visual inspection and the scheduled inspection, a thorough periodic inspection of alloy steel chain slings in use will be made on a regular basis, to be determined on the basis of: frequency of sling use, severity of service conditions, nature of lifts being made, experience gained on the service life of slings used in similar circumstances. This scheduled inspection of alloy steel chain slings will include a thorough inspection for wear, defective welds, deformation and increase in length. Where such defects or deterioration are present, the sling will be immediately removed from service for repair or destruction and replacement. GTG Automation, Inc. will make and maintain a record of the most recent month in which each alloy steel chain sling was thoroughly inspected, and will make such records available for examination.
- Effects of Wear – If the chain size at any point of any link is less than minimum requirements, the sling must be removed from service.

Deformed Attachments

- Alloy steel chain slings with cracked or deformed master links, coupling links or other components will be removed from service
- Slings will be removed from service if hooks are cracked, have been opened more than 15 percent of the normal throat opening measured at the narrowest point or twisted more than 10 degrees from the plane of the unbent hook
- Alloy steel chain slings will be permanently removed from service if they are heated above 1000° F. When exposed to service temperatures in excess of 600° F, the maximum working load limits will be reduced according to manufacturer's recommendations.

Proof Testing

The employer will verify that each new, repaired or reconditioned alloy steel chain sling, including all welded components in the sling assembly, will be proof tested by the sling manufacturer or equivalent entity according to the ASTM Specification A391 and/or ANSI G61.1 before use. The employer will retain a certificate of the proof test and will make it available for examination.

Safe Operating Temperatures

Alloy steel chain slings will be permanently removed from service if they are heated above 1000° F. When exposed to service temperatures in excess of 600° F, maximum working load limits will be reduced in accordance with the chain or sling manufacturer's recommendations.

Sling Identification

Alloy steel chain slings will have permanently affixed durable identification stating size, grade, rated capacity, and reach.

Wire Rope Sling Inspection

Wire rope slings must be visually inspected before each use. The operator and/or rigger will check the twists or lay of the sling. If ten randomly distributed wires in one lay are broken, or five wires in one strand of a rope lay are damaged, the sling must not be used. End fittings and other components will also be inspected for any damage that could make the sling unsafe.

Rope Requirements:

- Wire rope for a crane bent to form an eye will be equipped with a metal thimble
- An eye in a wire rope sling must not be formed by using a knot. Michigan prohibits the use of wire rope clips to form an eye in a wire rope sling. Check state and local standards for specific provisions
- A wire rope end fitting must be a clamp, swage or a zinc or equivalent poured socket
- Before cutting wire rope, seizing must be placed as follows:
 - 1 seizing on each side of the cut on preformed wire rope
 - 2 seizings on each side of $\frac{7}{8}$ inch size or smaller non-preformed wire rope
 - 3 seizings on each side of 1 inch or larger size non-preformed wire rope
- Wire rope that has an independent wire rope core must not be used on all molten metal applications and in areas where the environmental atmosphere will cause deterioration of a hemp center
- The unreeling or uncoiling of wire rope must be done as recommended by the rope manufacturer and with care to avoid kinking or inducing a twist
- Rope clips attached with U-bolts must have the U-bolts on the dead or short end of the rope. The spacing and number of all types of clips must adhere to manufacturer recommendations. Clips must be dropforged steel in all sizes manufactured commercially. When a newly installed rope has been in operation for an hour, all nuts on the clip bolts must be retightened
- If a load is supported by more than one part of rope, then tension in all parts must be equal

Safe Operating Temperatures – Fiber core wire rope slings of all grades will be permanently removed from service if they are exposed to temperatures in excess of 200° F. When non-fiber core wire rope slings of any grade are used at temperatures above 400° F or below minus 60° F, recommendations of the sling manufacturer regarding use at that temperature will be followed.

Removal from Service

Wire rope slings will be immediately removed from service (and not used again for load-carrying service) if any of the following conditions are present:

- In running ropes, there are 6 randomly distributed broken wires in 1 lay, or 3 broken wires on 1 strand in 1 lay
- In rotation-resistant ropes, 2 randomly distributed broken wires in 6 rope diameters or 4 randomly distributed broken wires in 30 rope diameters
- In standing ropes, there are more than 2 broken wires in 1 lay in sections beyond end connections or more than 1 broken wire at an end connection
 - One sixty-fourth of an inch for a diameter to and including 5/16"
 - One thirty-second of an inch for a diameter $\frac{3}{8}$ of an inch to and including $\frac{1}{2}$ "
 - Three sixty-fourths of an inch for a diameter $\frac{9}{16}$ of an inch to and including $\frac{3}{4}$ "
 - One sixteenth of an inch for a diameter $\frac{7}{8}$ of an inch to and including $1\frac{1}{8}$ "
 - Three thirty-seconds of an inch for a diameter $1\frac{1}{4}$ inches to and including $1\frac{1}{2}$ "

Additionally:

- Wear or scraping of one-third the original diameter of outside individual wires
- Kinking, crushing, bird caging or any other damage resulting in distortion of the running portion of the wire rope structure
- Evidence of heat damage
- Corrosion of the rope or end attachments
- End attachments that are cracked, deformed, or worn
- Hooks that have been opened more than 15 percent of the normal throat opening measured at the narrowest point or twisted more than 10 degrees from the plane of the unbent hook
- Main hoist and auxiliary wire rope inspection will include examining for: broken wires, excessive wear, and external damage from crushing, kinking, cutting, or corrosion.

A thorough scheduled inspection of all wire ropes in use, including running ropes, will be made at least once a month. GTG Automation, Inc. will keep and maintain certification records which will include the date of inspection, the signature of the person who performed the inspection, and an identifier for the ropes will be made and kept on file at the Company office. The same records will be kept on inspections of all other ropes.

All wire rope inspections will be performed by the competent person. Greg Griffin is responsible for operation and inspection of overhead and gantry cranes, truck cranes, hoisting equipment, and derricks. Any deterioration, resulting in appreciable loss of original strength will be kept under observation to determine whether further use of the rope would constitute a safety hazard. Particular care will be taken to inspect ropes at equalizer sheaves or other sheaves where rope travel is limited.

- Running ropes in continuous service will have an inspection not less than once a month. The inspection will include:
 - Diameter measurement of rope
 - Count of broken wires in 1 lay when concentrated
 - End connections for broken wires
 - Corrosion, kinking, crushing, cutting, or other conditions affecting the capability of the rope
 - Cracked, bent, worn, corroded, or improperly applied end connectors
 - Bird caging
 - For rope in contact with equalizer sheaves or with saddles, or on sheaves where rope travel is limited, the inspection will include moving the rope from its normal position on the sheave and examining the rope at the rope contact point
 - Inspection of a non-rotating type rope will include the determination that the wires are not broken or worn within the rope.

All rope which has been idle for a period of a month or more due to shut down or storage of a crane on which it is installed, will be given a thorough inspection before being used. The inspection will be for all types of deterioration and will be performed by Greg Griffin, whose approval will be required for further use of the rope. A certification record which includes the date of inspection, the signature of the person who performed the inspection, and an identifier for the rope which was inspected, will be made and kept readily available.

Safe Operating Temperatures- Fiber core wire rope slings of all grades will be permanently removed from service if they are exposed to temperatures exceeding 200° F. When non-fiber core wire rope slings of any grade are used at temperatures above 400° F or below minus 60° F, recommendations of the sling manufacturer regarding use at that temperature will be followed.

Wire Rope Sling Inspection

Minimum Sling Lengths:

- Cable laid and 6 x 19 and 6 x 37 slings will have a minimum clear length of wire rope 10 times the component rope diameter between splices, sleeves, or end fittings
- Braided slings will have a minimum clear length of wire rope 40 times the component rope diameter between the loops or end fittings
- Cable laid grommets, strand laid grommets, and endless slings will have a minimum circumferential length of 96 times their body diameter

Removal from Service

Wire rope slings will be immediately removed from service if any of the following conditions are present:

- Ten randomly distributed broken wires in one rope lay, or five broken wires in one strand in one rope lay
- Wear or scraping of one-third the original diameter of outside individual wires
- Kinking, crushing, bird caging or any other damage resulting in distortion of the wire rope structure
- Evidence of heat damage
- End attachments that are cracked, deformed or worn
- Hooks that have been opened more than 15 percent of the normal throat opening measured at the narrowest point or twisted more than 10 degrees from the plane of the unbent hook
- Corrosion of the rope or end attachments

Wire Rope Sling End Attachments

- Welding of end attachments, except covers to thimbles, will be performed prior to the assembly of the sling
- All welded end attachments will not be used unless proof tested by the manufacturer or equivalent entity at twice their rated capacity prior to initial use. A certificate of the proof test will be maintained and made available for examination

Repairs to Wire Rope End Attachments

- Welding of end attachments, except covers to thimbles, will be performed prior to the assembly of the sling

All welded end attachments will not be used unless proof tested by the manufacturer or equivalent entity at twice (2X) their rated capacity prior to initial use. GTG Automation, Inc. will retain a certificate of the proof test, and make it available for examination

Attachments

- Hooks, rings, oblong links, pear shaped links, welded or mechanical coupling links or other attachments will have a rated capacity at least equal to that of the alloy steel chain with which they are used or the sling will not be used in excess of the rated capacity of the weakest component
- Makeshift links or fasteners formed from bolts or rods, or other such attachments, will not be used

Repairs to Alloy Steel Chain Slings

- Worn or damaged alloy steel chain slings or attachments will not be used until repaired. If repair is not reasonable, they must be destroyed and replaced. When welding or heat testing is performed, slings will not be used unless repaired, reconditioned, and proof tested by the sling manufacturer or an equivalent entity
- Mechanical coupling links or low carbon steel repair links will not be used to repair broken lengths of chain

Proof Testing

The Greg Griffin will ensure that before use, each new, repaired, or reconditioned alloy steel chain sling, including all welded components in the sling assembly, will be proof tested by the sling manufacturer or equivalent entity, in accordance with paragraph 5.2 of the ASTM (American Society of Testing and Materials) Specification A391, (ANSI G61.1). GTG Automation, Inc. will retain a certificate of the proof test and will make it available for examination.

Metal Mesh Sling Inspection

Metal Mesh Sling Marking – Each metal mesh sling will have permanently affixed to it a durable marking that states the rated capacity for vertical basket hitch and choker hitch loadings.

Metal Mesh Sling Coatings – Coatings which diminish the rated capacity of a sling will not be applied.

Metal Mesh Sling Testing – All new and repaired metal mesh slings, including handles, will not be used unless proof tested by the manufacturer or equivalent entity at a minimum of 1½ times their rated capacity. Elastomer impregnated slings will be proof tested before coating.

Metal Mesh – Removal from Service – Metal mesh slings will be immediately removed from service if any of the following conditions are present:

- A broken weld or broken brazed joint along the sling edge
- Reduction in wire diameter of 25 % due to abrasion or 15 % due to corrosion
- Lack of flexibility due to distortion of the fabric
- Distortion of the female handle so that the depth of the slot is increased more than 10 %
- Distortion of either handle so that the width of the eye is decreased more than 10 %
- Distortion of either handle out of its plane
- A 15 % reduction of the original cross sectional area of metal at any point around the handle eye

Metal Mesh Slings-Safe Operating Temperatures

Metal mesh slings that are not impregnated with elastomers may be used in a temperature range from minus 20° F to plus 550° F without decreasing the working load limit. Metal mesh slings impregnated with polyvinyl chloride or neoprene may be used only in a temperature range from zero degrees to plus 200° F. For operations outside these temperature ranges or for metal mesh slings impregnated with other materials, the sling manufacturer's recommendations will be followed.

Metal Mesh Sling Repair

- Metal mesh slings that have been repaired will not be used unless repaired by a metal mesh sling manufacturer or an equivalent entity
- Once repaired, each sling will be permanently marked or tagged, or a written record maintained, to indicate the date and nature of the repairs and the person or organization that performed the repairs
- Records of repairs will be made available for examination

Natural and Synthetic Fiber Rope and Web Slings

The most commonly used synthetic web slings are made of nylon, polypropylene and polyester. They have the following properties in common:

- Strength – can handle a load of up to 300,000 pounds
- Convenience – will adjust to the load contour
- Safety – hold with a tight, non-slip grip
- Load protection – will not mar, deface, or scratch highly polished or delicate surfaces
- Long life – are unaffected by mildew, rot, or bacteria; resist some chemical action; and have excellent abrasion resistance
- Economy – have a low initial cost plus a long service life
- Shock absorbency – can absorb heavy shocks without damage
- Temperature resistance – are unaffected by temperatures up to 180° Fahrenheit

Because each synthetic material has unique properties, it must be used according to the manufacturer's instructions, especially when dealing with chemically active environments.

- Fiber rope slings made from conventional three strand construction fiber rope will not be used with loads in excess of their rated capacities.
- Synthetic web slings will not be used with loads in excess of the rated capacities. Slings not included here will be used only in accordance with the manufacturer's recommendations.
- Fiber rope and synthetic web slings are used primarily for temporary work, such as construction and painting jobs, and in marine operations. They also are the best choice for use on expensive loads, highly finished parts, fragile parts and delicate equipment.
- Webbing – Synthetic webbing will be of uniform thickness and width and selvage edges will not be split from the webbing's width.
- When fiber rope or synthetic web slings are used, the following precautions will be taken based on the work environment:
- Fiber rope deteriorates on contact with acids and caustics. Fiber rope slings will not be used where fumes, vapors, sprays, mists or liquids of acids are present.
- Nylon web slings will not be used where fumes, vapors, sprays, mists or liquids of acids or phenolics are present
- Polyester and polypropylene web slings will not be used where fumes, vapors, sprays, mists or liquids of caustics are present
- Web slings with aluminum fittings will not be used where fumes, vapors, sprays, mists or liquids of caustics are present

Splicing:

Spliced fiber rope slings will not be used unless they have been spliced in accordance with the following minimum requirements and in accordance with any additional recommendations of the manufacturer:

- In manila rope, eye splices will consist of at least three full tucks, and short splices will consist of at least six full tucks, three on each side of the splice center line
- In synthetic fiber rope, eye splices will consist of at least four full tucks, and short splices will consist of at least eight full tucks, four on each side of the center line

- Strand end tails will not be trimmed flush with the surface of the rope immediately adjacent to the full tucks.
- This applies to all types of fiber rope and both eye and short splices. For fiber rope under one inch in diameter, the tail will project at least six rope diameters beyond the last full tuck.
- For fiber rope one inch in diameter and larger, the tail will project at least six inches beyond the last full tuck. Where a projecting tail interferes with the use of the sling, the tail will be tapered and spliced into the body of the rope using at least two additional tucks (which will require a tail length of approximately six rope diameters beyond the last full tuck)
- Fiber rope slings will have a minimum clear length of rope between eye splices equal to 10 times the rope diameter
- Knots may not be used in lieu of splices
- Clamps not designed specifically for fiber ropes will not be used for splicing
- For all eye splices, the eye will be of such size to provide an included angle of not greater than 60 degrees at the splice when the eye is placed over the load or support

End Attachments – Fiber rope slings will not be used if end attachments in contact with the rope have sharp edges or projections

Removal from Service – Natural and synthetic fiber rope slings will be immediately removed from service if any of the following conditions are present:

- Abnormal wear
- Powdered fiber between strands
- Broken or cut fibers
- Variations in the size or roundness of strands
- Discoloration or rotting
- Distortion of hardware in the sling

Synthetic Web Sling

Synthetic web slings will not be used with loads in excess of the rated capacities.

Safe Operating Temperatures

- Synthetic web slings of polyester and nylon will not be used at temperatures in excess of 180° F
- Polypropylene web slings will not be used at temperatures above 200° F. For operations outside this temperature range and for wet frozen slings, the sling manufacturer's recommendations will be followed.
- Natural and synthetic fiber rope slings, except for wet frozen slings, may be used in a temperature range from minus 20° F to plus 180° F without decreasing the working load limit. For operations outside this temperature range and for wet frozen slings, the sling manufacturer's recommendations will be followed.

Repair

- Synthetic web slings must be repaired by a sling manufacturer or an equivalent entity or may not be used
- Each repaired sling will be proof tested by the manufacturer or equivalent entity to twice the rated capacity (2X) prior to its return to service. The employer will retain a certificate of the proof test and make it available for examination
- Slings, including webbing and fittings, which have been temporarily repaired will not be used

Fiber Rope Sling Inspection:

When inspecting a fiber rope sling, look first at its surface. Look for cuts, gouges or worn surface areas; dry, brittle, scorched or discolored fibers; or melting or charring of any part of the sling. If any of these conditions are found, the supervisor must be notified and a determination made regarding the safety of the sling. If the sling is found to be unsafe, it must be destroyed, discarded and replaced.

Next, check the sling's interior. It should be as clean as when the rope was new. A buildup of powder-like sawdust on the inside of the fiber rope indicates excessive internal wear and that the sling is unsafe. Fiber rope slings will have a diameter of curvature meeting at least the minimums specified. Slings not included here will be used only in accordance with the manufacturer's recommendations

Fittings

Must be of a minimum breaking strength equal to that of the sling and free of all sharp edges that could damage the webbing

Attachment of End Fittings to Webbing and Formation of Eyes – Stitching will be the only method used to attach end fittings to webbing and to form eyes. The thread will be in an even pattern and contain a sufficient number of stitches to develop the full breaking strength of the sling.

Removal from Service – Synthetic web slings will be immediately removed from service if any of the following conditions are present:

- Acid or caustic burns
- Melting or charring of any part of the sling surface
- Snags, punctures, tears or cuts
- Broken or worn stitches
- Distortion of fittings
- Only fiber rope slings made from new rope will be used. Use of repaired or reconditioned fiber rope slings is prohibited

Hitches

Hitches are used to attach slings to the load to be lifted. There are three basic type of hitches vertical, choker and basket. The type of hitch used will affect the WLL (working load limit) of the sling. The WLL is the maximum weight that the sling can handle, and is determined by the angle of the sling in reference to the load line.

Vertical: A vertical hitch is a single sling that attaches directly from the load line to the load. This hitch provides a lifting capability that matches the WLL of the sling, and is used for loads that have secure attachment points.

Choker: A choker hitch wraps around the load and through itself. The choker must be tightened around the load before the lift is attempted. Due to the stress created at the choke point, slings rigged with a choker hitch can only handle about 75% of their WLL.

Basket hitches can be used as a single or double lifting device. The cradle configuration of this hitch allows the two extending ends (legs) of the sling to function as if they were two separate slings. The capacity of the sling in this hitch is twice that of the same sling in a vertical hitch, but only if the sling angle of each leg is 90°. Lifting with both legs at 90° would normally require two lifting devices or a spreader bar.

When slings or sling legs are used at an angle during a lift, the sling capacity is reduced. How much it is reduced depends on the sling angle (see table).

Note that the rated capacity of a 30° Basket is only one half that of a 90° Basket. Sling angles below 30° will not be used. A sling angle of 60° or more is preferred.

Reduction Factor (RF)	Angle From Horizontal	Tension Factor (TF)
1.000	90°	1.000
0.996	85°	1.004
0.985	80°	1.015
0.966	75°	1.035
0.940	70°	1.064
0.906	65°	1.104
0.866	60°	1.155
0.819	55°	1.221
0.766	50°	1.305
0.707	45°	1.414
0.643	40°	1.555
0.574	35°	1.742
0.500	30°	2.000

Recordkeeping

The Company will keep and maintain all records associated with inspection/certification/repairs/proof test of the crane, hooks and lift equipment. Records will include the date of inspection, the signature of the person who performed the inspection, and an identifier for the equipment will be made and kept on file at GTG Automation, Inc. office. The same records will be kept on inspections of all rigging equipment (below the hook).

Any and all repairs by the manufacturer that require a load test, GTG Automation, Inc. will keep and maintain the load test results and make available for examination.

Proof Testing Certificates – Greg Griffin will ensure that before use, each new, repaired, or reconditioned alloy steel chain sling, including all welded components in the sling assembly, will be proof tested by the sling manufacturer or equivalent entity, in accordance with American Society of Testing and Materials Specification A391, (ANSI G61.1). GTG Automation, Inc. will retain a certificate of the proof test and will make it available for examination.

Proof Test Records should be kept for 7 years. All inspection records shall be retained for 3 months (as a best practice, retain for 1 year). Annual Inspections for 1 year (as a best practice, retain for 5 years).

SAFE PRACTICES-SIGNALING

Hand signals to crane operators will be those prescribed by the applicable American National Standards Institute (ANSI) standard for the type of crane in use. An illustration of the signals will be posted at the job site.

During operations requiring signals, the ability to transmit signals between the operator and signal person must be maintained. If that ability is interrupted at any time, the operator must safely stop operations requiring signals until it is reestablished and a proper signal is given and understood.

If the operator becomes aware of a safety problem and needs to communicate with the signal person, he/she must safely stop operations. Operations must not resume until the operator and signal person agree that the problem has been resolved.

All device(s) used to transmit signals must be tested on site before beginning operations to ensure that the signal transmission is effective, clear, and reliable.

Signal transmission must be through a dedicated channel, except:

- Multiple cranes/derricks and one or more signal persons may share a dedicated channel for the purpose of coordinating operations
- Where a crane is being operated on or adjacent to railroad tracks, and the actions of the crane operator need to be coordinated with the movement of other equipment or trains on the same or adjacent tracks
- The operator's reception of signals must be by a hands-free system
- Stop Signals
- Only one person may give signals to a crane/derrick at a time. Anyone who becomes aware of a safety problem must alert the operator or signal person by giving the stop or emergency stop signal
- Operators are required to obey a stop or emergency stop signal from anyone

Types of Signals

It is the policy of GTG Automation, Inc. that signals to operators must be by hand, voice, audible, or new signals.

When using hand signals, the Standard Method must be used.

- Exception: Where use of the Standard Method for hand signals is infeasible, or where an operation or use of an attachment is not covered in the Standard Method, non-standard hand signals may be used
- Suitability: The signals used (hand, voice, audible, or new), and means of transmitting the signals to the operator (such as direct line of sight, video, radio, etc.), must be appropriate for the site conditions

Stop Signals

Only one person may give signals to a crane/derrick at a time. Anyone who becomes aware of a safety hazard must alert the operator or signal person by giving the stop or emergency stop signal.

PPE (PERSONAL PROTECTIVE EQUIPMENT)

- High Visibility Wear
- Hardhat
- Safety Glasses
- Steel Toed Safety footwear
- Gloves
- Hearing Protection

TRAINING

Crane Operator Requirements and Certification

Verify that a prospective operator, before assignment as an operator of a crane, has been trained in all of the following areas:

- Capabilities of the equipment and attachments
- Purpose, use, and limitations of the controls
- How to make daily inspections of the equipment
- Operating assigned equipment through the functions necessary to perform the job

A review of crane operation OSHA standards and GTG Automation, Inc. rules

Employees, except trainees, will pass qualification test before operating a crane.

Operators must pass a written examination, understand and be able to use a load chart, as well as calculate loads for the crane type.

- While the OSHA operator qualification regulation does not include physical requirements for operators, ASME B30.5-3.12 (a) and API RP 2D-Operation & Maintenance of Offshore Cranes has established physical requirements for operators.

These requirements have endorsed by several professional organizations and may be included in some state regulations. Always check with the governing authority to determine the requirements for your worksite.

Minimum physical requirements for crane operators and trainees

An employee selected to operate a crane must possess all of the following minimum physical qualifications and be examined for the qualifications at least once every 3 years:

- Have effective use of all four limbs
- Be of a height sufficient to operate the controls and to have an unobstructed view over the controls into the work area
- Have coordination between eyes, hands, and feet
- Be free of known convulsive disorders and episodes of unconsciousness
- Be able to understand signs, labels, and instructions
- Possession of a driver's license
- Be able to read and understand signs, labels, and instruction manuals
- Able to distinguish colors, regardless of position of colors, if color differential is required for operation
- Have depth perception be able to distinguish between red, yellow, and green
- Their hearing, with or without hearing aid, must be adequate for a specific operation
- Have vision of at least 20/30 Snellen in one eye and 20/50 in the other eye with or without glasses
- No history of disabling medical condition which may be sufficient reason for disqualification
- Qualifications for crane operators will be maintained every three years and will include medical and vision evaluations.

GTG Automation, Inc. will verify that only certified employees are allowed to operate cranes. Certification is available through one of the following:

- An accredited crane operator testing organization
- An audited program provided by GTG Automation, Inc.
- Have U.S. military licensing by a government authority

Crane operators will be designated based on their experience and training, which must include the minimum amounts of classroom sessions and hands-on training including lubricating points, adjustments, principles of crane operators, load charts, hand signals and inspections. Training will include use of fire extinguishers.

Crane operator qualifications must be maintained and refreshed every three years and may include vision and medical condition evaluations.

Rigging Qualifications:

The following are topics that will be covered in training with workers prior to beginning rigging operations:

- Hazards associated with rigging operations
- Role and responsibility of each rigger's assigned task
- Weight of material and equipment being hoisted
- Identifying the various shapes on the surface of equipment being hoisted
- Qualified rigger training combines classroom and exams with hands-on training.
- The training program will include familiarization with rigging hardware, slings and the rigging basics, along with the procedures and precautions of lifting loads and lift planning safety.
- Employees need to demonstrate proper inspection, use, selection and maintenance of loose gear such as slings, shackles and hooks. Rigging hardware can include: sheaves and blocks; hooks and latches; rings, links and swivels; shackles; turnbuckles; spreader and equalizer beams; cable drops; pad eyes, eyebolts, and other points of attachment.
- Sling training includes the sling configuration, angle, and rated load. Types of slings can include: chain, wire rope, metal mesh, natural fiber rope, synthetic fiber rope, or synthetic web.
- Employees need to know the procedures and precautions of: load control and taglines; lift planning including load weight and center of gravity; sling inspection and criteria for rejecting damaged slings; unbinding loads; proper personnel transfer and sling handling and storage.
- Basic rigging aspects like pinch points and body position, PPE, signals and communication and load stability are also part of the training.
- We shall verify that all employees are trained in and familiar with required overhead material handling safe work practices and procedures in the use of any equipment required, proper Personal Protective Equipment (PPE), and safety procedures which must be followed to safeguard personnel involved in hoisting and rigging operations or who work in the vicinity of such operations.

Signaler Qualifications:

We shall ensure that each signal person is qualified. Each signal person must:

- Know and understand the type of signals used. If hand signals are used, the signal person must know and understand the Standard Method for hand signals
- Be competent in the application of the type of signals used
- Have a basic understanding of equipment operation and limitations, including the crane dynamics involved in swinging and stopping loads and boom deflection from hoisting loads
- Demonstrate that he/she meets the requirements through an oral or written test, and through a practical test that is given by a qualified third party evaluator:
 - *Third party qualified evaluator.* The signal person has documentation from a third party qualified
 - *Employer's qualified evaluator* (not a third party). The *employer's qualified evaluator* assesses the individual, determines the individual meets the qualification requirements, and provides documentation of that determination.

ATTACHMENTS

- Definitions/ Inspections
- Hand Signals for Crane Operations
- Training Roster

DEFINITIONS/ INSPECTIONS

Angle of loading – is the inclination of a leg or branch of a sling measured from the horizontal or vertical plane, provided that an angle of loading of five degrees or less from the vertical may be considered a vertical angle of loading.

Basket hitch – is a sling configuration whereby the sling is passed under the load and has both ends, end attachments, eyes or handles on the hook or a single master link.

Braided wire rope – is a wire rope formed by plaiting component wire ropes.

Bridle wire rope sling – is a sling composed of multiple wire rope legs with the top ends gathered in a fitting that goes over the lifting hook.

Cable laid endless sling-mechanical joint – is a wire rope sling made endless by joining the ends of a single length of cable laid rope with one or more metallic fittings.

Cable laid grommet-hand tucked – is an endless wire rope sling made from one length of rope wrapped six times around a core formed by hand tucking the ends of the rope inside the six wraps.

Cable laid rope – wire rope with six wire ropes wrapped around a fiber or wire rope core.

Cable laid rope sling-mechanical joint – is a wire rope sling made from a cable laid rope with eyes fabricated by pressing or swaging one or more metal sleeves over the rope junction.

Choker hitch – is a sling configuration with one end of the sling passing under the load and through an end attachment, handle or eye on the other end of the sling.

Coating – is an elastomer or other suitable material applied to a sling or to a sling component to impart desirable properties.

Cross rod – is a wire used to join spirals of metal mesh to form a complete fabric.

Female handle (choker) – handle with a handle eye and a slot that permits passage of a male handle thereby allowing the use of a metal mesh sling in a choker hitch.

Handle – is a terminal fitting to which metal mesh fabric is attached.

Handle eye — is an opening in a handle of a metal mesh sling shaped to accept a hook, shackle or other lifting device.

Hitch –The sling is fastened to an object or load, either directly to it or around it.

Link — is a single ring of a chain.

Male handle (triangle) – is a handle with a handle eye.

Master coupling link – is an alloy steel welded coupling link used as an intermediate link to join alloy steel chain to master links.

Master link or gathering ring – is a forged or welded steel link used to support all members (legs) of an alloy steel chain sling or wire rope sling.

Mechanical coupling link – is a non-welded, mechanically closed steel link used to attach master links, hooks, etc., to alloy steel chain.

Proof load – is the load applied in performance of a proof test.

Proof test – is a nondestructive tension test performed by the sling manufacturer or an equivalent entity to verify construction and workmanship of a sling.

Rated capacity or working load limit – is the maximum working load permitted by the provisions of this section.

Reach – is the effective length of an alloy steel chain sling measured from the top bearing surface of the upper terminal component to the bottom bearing surface of the lower terminal component.

Spiral – a single transverse coil that is the basic element from which metal mesh is fabricated.

Strand laid endless sling-mechanical joint – is a wire rope sling made endless from one length of rope with the ends joined by one or more metallic fittings.

Strand laid grommet-hand tucked – is an endless wire rope sling made from one length of strand wrapped six times around a core formed by hand tucking the ends of the strand inside the six wraps.

Strand laid rope – is a wire rope made with strands (usually six or eight) wrapped around a fiber core, wire strand core, or independent wire rope core (IWRC).

Vertical hitch – is a method of supporting a load by a single, vertical part or leg of the sling.

HAND SIGNALS FOR CRANE OPERATIONS



HOIST: Forearm vertical, forefinger pointing up, move hand in small horizontal circles.



LOWER: Arm extended downward, forefinger pointing down, move hand in small horizontal circles.



USE MAIN HOIST: Tap fist on head; then use regular signals.



USE WHIPLINE: Tap elbow with one hand; then use regular signals.



RAISE BOOM: Arm extended, fingers closed, thumb pointing upward.



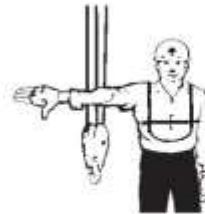
LOWER BOOM: Arm extended, fingers closed, thumb pointing downward.



MOVE SLOWLY: One hand gives motion signal, other hand motionless in front of hand giving the motion signal.



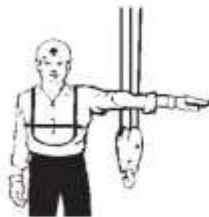
RAISE BOOM & LOWER LOAD: Arm extended, thumb pointing up, flex fingers in and out.



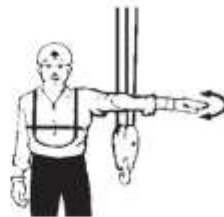
LOWER BOOM & RAISE LOAD: Arm extended, thumb pointing down, flex fingers in and out.



SWING: Arm extended, point with finger in direction of swing.



STOP: Arm extended, palm down, hold.



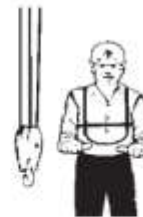
EMERGENCY STOP: Arm extended, palm down, move hand rapidly right and left.



TRAVEL: Arm extended forward, hand open and slightly raised, pushing motion in direction of travel.



EXTEND BOOM: Both fists in front of body with thumbs pointing outward.



RETRACT BOOM: Both fists in front of body with thumbs pointing toward each other.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

The compliance of all employees with GTG Automation, Inc. Safety and Health Program is mandatory and shall be considered a condition of employment. All safety rules, procedures, and plans in effect are to be followed as specified in the safety program. Employees found to be in violation of Company safety policy may be subject to penalty.

RESPONSIBILITIES

Greg Griffin is the supervisor for disciplinary actions and any employee in a position of management or supervisory capacity may initiate disciplinary action against any employee found to be in violation of Company policy. Not following verbal or written safety procedures, guidelines, rules, horse play, failure to wear selected Personal Protective Equipment (PPE), abuse of selected PPE, and etc. constitutes a safety violation.

TRAINING

The importance of safe work practices and the consequences of failing to abide by safety rules will be covered in the New Employee Safety Orientation and at Tailgate/Toolbox Safety Training. This will help ensure that all employees understand and abide by The Company's safety policies.

Employees that are observed performing unsafe acts or not following proper procedures or rules will be retrained by their foreman or supervisor. A Safety Contact Report may be completed by the supervisor to document the training. If multiple employees are involved, additional safety meetings will be held.

PROCEDURES

The following outlines the disciplinary measures which will be taken against employees found to be in violation:

Periodic safety inspections of the workplace and equipment will be undertaken to ensure that all personnel, including supervisory positions, are demonstrating the required commitment to safety. A general neglect of safe work procedures, practices, and requirements in the workplace, or neglect of equipment safety, will be viewed as a lack of supervisory enforcement of safety policy and the appropriate supervisor/management personnel will be subject to the same disciplinary procedures described below.

These programs will be used for employee compliance with the safety program and all safety rules: training programs; retraining; optional safety incentive programs; disciplinary action.

Safety Incentive Programs

Although strict adherence to safety policies and procedures is required of all employees, The Company may choose to periodically provide recognition of safety-conscious employees and jobsites without accidents through a safety incentive program.

Disciplinary Action

The failure of an employee to adhere to safety policies and procedures established by GTG Automation, Inc. can have a serious impact on everyone concerned. An unsafe act can threaten not only the health and well-being of the employee committing the unsafe act but can also affect the safety of his/her coworkers and/or customers. Accordingly, any employee who violates any of The Company's safety policies will be subject to disciplinary action.

When a "Safety Violation Notice" is issued, appropriate supervisory personnel will meet with employee(s) to discuss the infraction and inform individual(s) of the rule or procedure that was violated and the corrective action to be taken.

Note: Failure to promptly report any on-the-job accident or injury, on the same day as occurrence, is considered a serious violation of The Company's Code of Safe Practices. Any employee who fails to immediately report a work-related accident or injury, no matter how minor shall be subject to disciplinary action.

Employees will be disciplined for infractions of safety rules and unsafe work practices that are observed, not just those that result in an injury. Often, when an injury occurs, the accident investigation will reveal that the injury was caused because the employee violated an established safety rule and/or safe work practice(s).

In any disciplinary action, the foreman should be cautious that discipline is given to the employee for safety violations, and not simply because the employee was injured on the job or filed a Workers' Compensation claim.

Violations of safety rules and the Code of Safe Practices are to be considered equal to violations of other Company policy. Discipline for safety violations will be administered in a manner that is consistent with The Company's system of progressive discipline. If, after training, violations occur, disciplinary action will be taken as follows:

1. Oral warning. Documented, including date and facts on the "Safety Warning Report" form. Add any pertinent witness statements. Restate the policy and correct practice(s)
2. Written warning. Retrain as to correct procedure/practice
3. Written warning with suspension
4. Termination

As in all disciplinary actions, each situation is to be carefully evaluated and investigated. The particular step taken in the disciplinary process will depend on the severity of the violation, employee history, and regard to safety. Foremen and superintendents should consult with the office if there is any question about whether or not disciplinary action is justified. Employees may be terminated immediately for willful or extremely serious violations. Union employees are entitled to the grievance process specified by their contract.

Note: Consistency in the enforcement of safety rules shall be exercised at all times.

Employee Safety Warning Report

Employee's Name:		Position:	
Date of Warning:	Violation Time:	☐ am ☐ pm	Violation Date:
Supervisor:		Department:	
Type of Warning:	☐ Verbal	☐ Written	☐ Serious ☐ Other
Type of Violation:	☐ Unsafe Act	☐ Improper Safety Attire	☐ Unsafe condition ☐ Other
Supervisor's Statement:			
Employee's Statement: (Check Proper Box)			
☐ I agree with the Supervisor's statement. ☐ I disagree with the Supervisor's statement because:			
List all previous warnings and retraining below.			
When warned and by whom:		I have read and understand this warning decision.	
First Warning: (Describe reason)			
		Employee's Signature: Date:	
		Supervisor's Signature: Date:	
Date: Date retrained:			
Second Warning: (Describe reason)		Copy Distribution:	
		☐ Employee	
Date: Date retrained:			
Third Warning: (Describe reason)		☐ Employee's Supervisor	
		☐ Personnel Department	
Date: Date retrained:			
		☐ Safety Committee	
The Supervisor must complete this form immediately after the employee has been interviewed. A decision must be made on the following to ensure violators <u>will not</u> participate in the current safety incentive program.			
☐ No further action ☐ Suspension ☐ Other:			
☐ Suspension from current safety incentive program ☐ Dismissal			
Submit this form for review at the next Safety Committee meeting.			
Safety Committee Notes:			

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to inform workers of the written driving safety program in the workplace. This ensures the safety and health of the employees on the job site.

RESPONSIBILITIES

Driving safety is a responsibility shared between the Company and its employees.

Employer Responsibilities

- Ensuring all employees are physically fit and capable to perform the job duties assigned
- Ensuring personnel possess valid driver's licenses for the class of vehicle being driven
- Responding quickly to eliminate workplace hazards
- Ensuring all vehicles and equipment are kept in good safe working order
- Ensuring employees follow safe job procedures
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness
- Ensuring the vehicles are large enough and designed for how they are used

Supervisor Responsibilities

- Establishing and maintaining safe and healthful working conditions
- Monitoring employee work behaviors using behavior-based safety tools
- Ensuring employees are not impaired by illness or medication use
- Setting good examples, instructing their employees, making sure they fully understand and follow safe procedures

Employee Responsibilities

- Obey all traffic laws and follow to common rules of the road
- Notifying their supervisors if they are fatigued to the point of not being able to perform their duties safely
- Ensuring they are physically and mentally fit to perform their job functions safely; they must take responsibility for their own safety as well
- Notifying their supervisor if they are taking prescription or over-the-counter medications
- Each employee must possess a valid driver's license
- No employee will undertake a job that appears to be unsafe
- Employees are to report to a superior or designated individual all unsafe conditions encountered during work
- Seatbelts must be used by the driver and all passengers and properly maintained

SAFE PRACTICES

Driver Requirements

GTG Automation, Inc. will only allow authorized employees to drive a motor vehicle in the course and scope of the work to be performed, or operate a company owned vehicle.

Each driver will be appropriately assessed, licensed, and trained to operate the company vehicle. The driver's license of each driver will be valid and kept current. All drivers will undergo a medical assessment that will be kept on file based on jurisdictional requirements.

Authorized drivers will be prohibited from operating a motor vehicle while under the influence of any of the following that might impair their driving skills:

- Alcohol
- Illegal drugs
- Prescription or over the counter medications - without prior approval

Authorized drivers will report to the appropriate personnel any of the following:

- Collision
- Traffic violation
- Near miss incident

Seat belts will always be worn by all occupants whenever the vehicle is in motion.

Vehicle Requirements

The company vehicle will be fit for the purposes intended and will be maintained in a safe working order.

When transporting loads, the load will be secured and will not exceed the manufacturers load specifications, or the legal limits for the vehicle.

Safe Driving Practices

All authorized drivers will obey all traffic laws and follow safe driving practices and safe driving behaviors to include but not limited to:

- Cell phone use is prohibited while driving
- Do not manipulate radios or other equipment which may cause a distraction
- Do not exceed the posted speed limit
- Maintaining a safe distance between other vehicles
- Do not exceed the occupant capacity of the vehicle
- Safety when operating around railroad crossings (controlled and uncontrolled crossings) – including navigating across uncontrolled/unprotected crossings with any/all special-use or tracked vehicles.

Backing Safety

Drivers are expected to take the best available safety precautions when backing a vehicle. Large vehicles, in particular pose greater risk when backing. Safe methods include, but are not limited to:

- Spotters
- Cameras
- Proximity Detection Systems
- Tag-based Systems
- Internal Traffic Control Plans

Spotters

For vehicles with an obstructed view, the use of spotters can be an effective means in protecting employees on foot behind vehicles. However, this places the spotters at risk for injury or death. Implementing the following actions will help keep spotters safe:

- Ensure that spotters and drivers agree on hand signals before backing up
- Instruct spotters to always maintain visual contact with the driver while the vehicle is backing
- Instruct drivers to stop backing immediately if they lose sight of the spotter
- Not give spotters additional duties while they acting as spotters
- Instruct spotters not to use personal mobile phones, personal headphones, or other items which could pose a distraction during spotting activities
- Provide spotters with high visibility clothing, especially during night operations

Spotting signals:



Back up



Back, turn left



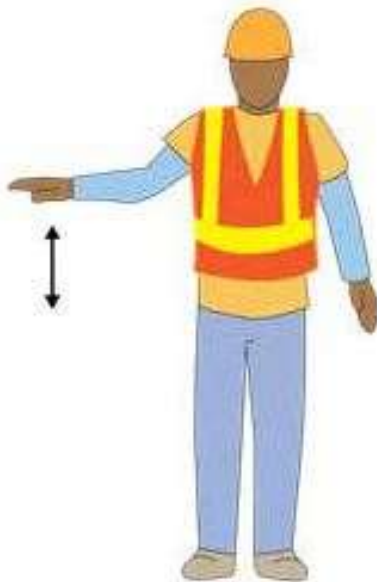
Back, turn right



Move forward



Distance left to back



Slow down



Stop

Cameras

Many newer vehicles (as well as some types of mobile equipment) can accommodate a rear-view camera to provide operators with a view of what is behind them. Viewing screens can be mounted on the dash provided they do not obstruct the field of vision out of the windshield. Construction sites or mines may require the use of more rugged camera equipment. Determining where to mount a camera for maximum effectiveness may be difficult, especially on large vehicles. For example, dump trucks may require two or three cameras to monitor the blind spots on the front, rear, and side of the vehicle.

Proximity Detection Systems

Radar and ultrasonic technology both are used in backing safety systems. A radar system transmits a signal, which is bounced off an object. The signal is then received by a receiver. These systems alert the driver with a visual and/or audio warning. These systems must be positioned so that they will not detect harmless objects, such as the concrete slab of a driveway, which can interfere with the detection of an object or person behind the vehicle or mobile equipment. Also, the composition of an object can affect detection, with some materials being virtually invisible to radar. Like cameras, this equipment can be mounted on most vehicles and may be an option from some manufacturers.

Ultrasonic systems, such as sonar, emit bursts of ultrasonic waves in a frequency above the hearing threshold of humans. When the waves strike an object, they generate echoes used to determine the distance to the object. These systems alert the driver with a visual and/or audio warning.

Tag-Based Systems

Another type of proximity detection system is an electromagnetic field-based system, which is a type of tag-based system. This system consists of electromagnetic field generators and field detecting devices. One electromagnetic field-based system uses electromagnetic field generators installed on a vehicle and electronic sensing devices (a tag) worn by persons working near the vehicle. Another electromagnetic field-based system uses field generators worn by persons working near the vehicle, with the sensing devices installed on the vehicle. These electromagnetic field-based systems can be programmed to warn affected workers, stop the vehicle, or both, when workers get within the predefined danger zone of the vehicle.

Internal Traffic Control Plans

An internal traffic control plan (ITCP) is another method used to address back-over hazards. These are plans that project managers can use to coordinate the flow of moving equipment, workers, and vehicles at a worksite to minimize or eliminate vehicles and employees from crossing paths. These plans can significantly reduce, or possibly eliminate, the need for vehicles to back up on a site.

SAFE PRACTICES

This company recognizes that its greatest assets are its employees, a fact demonstrated by a commitment to their safety.

A driver safety program saves lives and reduces injuries. It also prevents material losses and helps this company guard against the range of liabilities that may emerge from a vehicular accident.

Accordingly, management will provide resources needed to support a culture of safety and will actively encourage employees to participate in planning and implementation of the driver safety program.

If the company operates any of the following types of commercial motor vehicles in interstate commerce, it will comply with applicable U.S. Department of Transportation (DOT) safety regulations, many of which may not be detailed in this chapter:

- A vehicle with a gross vehicle weight rating or gross combination weight rating (whichever is greater) of 10,000 lbs. or more
- A vehicle designed or used to transport between 9 and 15 passengers (including the driver) for compensation
- A vehicle designed or used to transport 16 or more passengers
- Any size vehicle used in the transportation of materials found to be hazardous for the purposes of the Hazardous Materials Transportation Act (49 U.S.C. 5101 et seq.) and which require the motor vehicle to be placarded under the Hazardous Materials Regulations (49 CFR chapter I, subchapter C)

Please see [fmcsa.dot.gov](https://www.fmcsa.dot.gov) or safety.servicescompany.com for more information.

FLEET

This company will maintain a fleet of vehicles, if necessary, for business in accordance with relevant regulatory standards and vehicle manufacturer's advice.

Fleet Selection

The safety coordinator will work with members of the safety committee and, if appropriate, this company's insurance company to establish guidelines for the selection of company vehicles, which should include the following:

- The appropriate vehicle type for expected use
- Required safety equipment
- Maintenance procedures
- Inspection procedures
- Protections against unauthorized use
- Record-keeping procedures
- Insurance

The National Highway Transportation Administration provides information on vehicle safety according to make and model.

Preventive Maintenance

All company vehicles will be maintained according to a regular schedule to ensure their safety and roadworthiness. All maintenance will be performed by a qualified individual or automotive shop according to the manufacturer's recommended service schedule.

In addition to regularly scheduled maintenance, fleet upkeep should include, but not be limited to:

- Basic inspections of the vehicle by the driver before every trip
- Immediate removal from service of any vehicle with mechanical problems
- Managerial certification of requested repairs before return to service

Recordkeeping

All vehicle maintenance, repair certification, and driver review will be recorded and kept through the life of the vehicle.

Vehicle Inspection

The operator will inspect each vehicle or piece of equipment on a daily basis before and after operation. Pre-use inspections shall include a walk around inspection to check for obvious defects and to ensure no obstacles are in the path of travel of the vehicle.

Each operator is responsible for the safe condition of the equipment. No employee may drive a vehicle having steering, brake, or other safety problems until a mechanic has made repairs. Drivers will report any other unsafe conditions to their supervisor as soon as safely possible.

Driver vehicle inspection reports will be completed daily, including documentation of repairs of defects and/or deficiencies found during these inspections. In addition. All vehicles will be inspected annually.

Hours of Service

GTG Automation, Inc. will ensure compliance with all applicable "hours of service" regulations.

DRIVER SELECTION, QUALIFICATION AND EVALUATION

Greg Griffin will work with members of the safety committee and, if appropriate, the company's insurance company to determine the qualification standards for motor vehicle operators.

Employment History

The evaluation for any new employee anticipated to drive a company vehicle (or their own vehicle-on-company business) will include a reference check and review of driving history through past employers.

Licenses

Any driver of a company vehicle or a personal vehicle on company business will possess a valid driver's license appropriate for the vehicle that will be driven and the circumstances in which the vehicle will be driven. All government regulations and insurance company requirements will be followed concerning driver qualification.

A driver will only operate a vehicle that requires a commercial driver's license (and any endorsement) if he or she is in possession of the appropriate license. All commercial drivers must be properly licensed for the vehicle that they will be operating.

Motor Vehicle Records

This company will check the driving records of any employee expected to drive for work. Further, an annual review of a motor vehicle record (MVR) for employees expected to drive for work reasons will indicate if they remain eligible to drive a company vehicle or their own on company business.

Road Test

All candidate drivers must successfully complete a road test administered by the company or authorized third party prior to placement.

Initial Assignment

The company will request and review an MVR for new applicants or current employees expected to add driving to existing responsibilities, whether operating their own vehicle or a company vehicle. The MVR review will consider the most recent three years of driving and should include motor vehicle records from all states in which the applicant has lived in that time.

MVRs and the information contained therein will remain as confidential as possible. Discussions of motor vehicle records will be restricted to individuals with a legitimate “need to know.”

Any qualification standard may entail a multi-tiered or point system approach to driver eligibility based on the frequency of the employee’s anticipated work driving and the severity of traffic convictions recorded in the MVR

Following are some examples of violations that, having occurred in the past 3 years, may warrant ineligibility to drive on company business:

- DWI/DUI/OUI
- Negligent motor vehicle homicide
- Operating with a suspended license
- Using a motor vehicle for commission of a felony
- Aggravated assault with a motor vehicle
- Operating a motor vehicle without the owner’s consent
- Reckless, careless or negligent driving, including speeding more than 15 MPH over limit
- Hit and run or leaving the scene of an accident with injury or death resulting, or property damage in excess of \$1,000

Following are examples of violations that, having occurred more than three times in two years, may warrant ineligibility to drive:

- Minor moving violations
- Accidents

Annual Review

Employees cited for a violation that may affect their eligibility to drive on company business will inform their supervisor.

In addition to the initial MVR review, a review of an employee’s MVR will occur annually to confirm the driver’s continued eligibility to drive for work.

Medical Check-Up

All company drivers must be medically cleared to drive every 24 months.

Defensive Driver Training

The company may consider or require the completion of a driver safety course or defensive driving course in determining eligibility to drive a company vehicle or a personal vehicle while on company business.

Driver Agreements

Employees who will operate a motor vehicle as part of their job are required to confirm awareness and understanding of the company's driver safety policy.

The safety coordinator, with the safety committee, will create a "driver agreement" that allows a driver to confirm his or her awareness and understanding of this policy, driver expectations, vehicle maintenance and care requirements, and the procedures for reporting moving violations and accidents.

Driver Qualification File

The company will maintain a driver qualification file for every driver including all documents required to verify his or her qualifications.

Meetings

The safety coordinator, with the safety committee, will determine whether or under what conditions an employee may permit another individual to drive a company vehicle.

A driver or other employee who permits an unauthorized individual to operate a company vehicle faces disciplinary action and financial accountability for any costs incurred by allowing unauthorized personnel to operate a company vehicle.

Securing Materials

The driver will prevent the unsafe movement of any cargo, such as tools or equipment by securing it appropriately. Drivers should secure anything that may present a hazard outside the passenger compartment.

Vehicle Occupancy

No company vehicle transports more passengers than safely possible. Every adult in the vehicle must have a seatbelt. If children must be transported, each must have the appropriate child safety restraint. Vehicles may be operated only if each passenger is safely restrained in their seat.

Seat Belts

The company recognizes that seat belts effectively prevent injuries and loss of life in an automotive accident.

All company employees will wear seatbelts when operating a company-owned vehicle or any vehicle on company premises or on company business. Any occupant of a vehicle owned by this company, on company premises, or in a vehicle on company business will wear a seatbelt or, if required, an appropriate child restraint system.

This company encourages its employees to always wear a seatbelt when driving or riding in an automobile, to ensure child restraints are used properly, and to encourage other passengers or drivers do the same.

Alcohol and Drug Use

During “duty hours”, which include working hours, break periods, and on-call-periods, employees are forbidden to operate a motor vehicle under the influence of alcohol, illegal drugs, or prescription medication that can cause impairment or drowsiness. The consumption of alcohol or illegal drugs while performing company business or while in a company facility may result in disciplinary action up to and including termination. All drivers are prohibited from driving while impaired by illness, fatigue, drugs, alcohol or other substances.

If an employee takes prescribed medication or over-the-counter medication known to affect the ability to operate a motor vehicle or other heavy machinery, the employee will inform his or her immediate supervisor and refrain from such duties until able to do so safely.

Drivers will remain aware of driving behaviors that indicate impairment such as weaving, inappropriate speed, and erratic or abrupt driving. Staying a safe distance from drivers who may be impaired and bringing dangerous drivers to the attention of the authorities helps keep roads safe.

Drivers who operate a commercial motor vehicle as defined by the Federal Highway Administration (FHA) must possess a commercial driver’s license (CDL) and are subject to FHA’s regulations on alcohol and drug use and testing.

A drug free workplace policy and supporting procedures must be in place and communicated to all employees before drug testing. The rule requires pre-employment, reasonable suspicion, random, post-accident, return-to-duty and follow-up testing. For details on the program, refer to the Federal Motor Carrier Safety Regulations, Title 49, Part 382.

Distracted Driving

Driving skills rely on the focus of the vehicle operator. Every driver will devote his or her full attention to the task of driving while behind the wheel. Text messaging while driving is strictly prohibited. Drivers will not engage in texting or the use of hand-held mobile phones while driving. Distractions come in many forms and contribute to 25 to 30 percent of all traffic accidents.

Distractions include, but are not limited to the following:

- Text messaging and other cell phone use (even with hands-free headset)
- Reaching for an object inside the vehicle
- Looking at an object, person or event outside the vehicle
- Eating and drinking
- Reading
- Grooming and hygiene
- Electronics use (computer, tablet, GPS)
- Adjusting non-critical controls
- Horseplay
- Emotional distractions

Fatigued Driving

Driving fatigued greatly increases the risk of an accident. All drivers will be trained in the importance of being well rested, alert and sober. Also, the importance of being able to continually search the road for any potential situations requiring quick action.

To prevent fatigue, drivers should stop every two hours and get out and stretch by taking a walk.

Drivers are required to follow the FMCSA Hours of Service Drivers Final Rule and take a 30-minute break after 8 hours of driving time.

Aggressive Driving

The company prohibits aggressive driving while operating a company vehicle or a personal vehicle on company business. Aggressive driving behaviors include, but are not limited to the following:

- Excessive Speed
- Tailgating
- Failure to signal lane change
- Running a red light
- Passing on the right
- Any offensive, rude, or hostile act or gesture directed at another driver

Young Drivers

Teenage drivers are the most likely to engage in risky driving behaviors, and vehicle crashes are the leading cause of death for 15- to 20-year-olds. Federal law prohibits drivers under 17 to operate a vehicle as part of their job, and it is at the discretion of the safety coordinator to prohibit driving for any employee based on a lack of driving experience.

Driving in Work Zones

All drivers in work zones must take special care. Patience and care go a long way to contribute to driving safely around construction. Heavy machinery and workers can slow everything down but driving rushed makes it difficult to observe other workers and leads to poor decision making. Workers must be vigilant and minimize distractions to respond quickly to the unexpected when behind the wheel, especially when driving where others are working.

MONITORING

As part of our driver safety policy, every work-related accident and near miss involving motor vehicles will be handled in a way to reduce risk and encourage future safe behaviors in the future. While operating a vehicle for company purposes, drivers will have at least one mode of contact in the vehicle including, but not limited to: cell phone, CB radio, or two-way radio.

Additionally, the company's driver safety policy requires periodic review of the policy itself and its impact on the safety and health of employees.

Incident, Accident Analysis, and Reporting

If an employee experiences a vehicular accident while driving a company car or a personal car on company business must, and must do the following:

- Stop the vehicle. If it can be done safely, move the vehicle off the road
- immediately notify their supervisor as soon as safely possible
 - If emergency services are required, they should be contacted first then their supervisor
- Call appropriate law enforcement authority if damage is done to another vehicle or property that does not belong to this company for an emergency, call 911 to summon both police and emergency medical services
 - NOTE: All motor vehicle incidents while on company business must be reported immediately to the involved company employee's supervisor(s) and when applicable law enforcement as well as the company's insurance company.
- Mark the scene as necessary for safety
- Gather the names of other drivers and witnesses
- Diagram the accident, noting vehicles involved, where vehicle occupants were seated at the time of the accident, the date, time and weather conditions
- Exchange the following information with other drivers involved: License plate number, registration information and insurance information
- Document the name and badge number of the responding law enforcement professional.
- Cooperate with law enforcement professionals and participate in the company's accident investigation

Do not assume, blame, or apologize. Only give statements about what happened to police or an appropriate member of company management.

Any accident will be investigated according to the company's accident investigation policy. (See chapter on "Accident Investigation" for more details.) Use the Motor Vehicle Accident Report at the end of this chapter to accompany the company's Accident/Incident Report.

This company will comply with all recordkeeping requirements of our safety policy and any applicable regulatory authority. Specifically, all records will be retained in the driver's qualification file during employment and at least three years after.

Disciplinary Actions

Safety incidents involving an employee and a violation of our safety policy in a company vehicle (or personal vehicle used on company business) may result in disciplinary actions up to termination, including the revocation of driving privileges as determined by management.

Reward Program

It is at the discretion of the safety coordinator and, if appropriate, the safety committee to devise and implement a safe driver reward program to encourage safe driving habits and reward safe driving behaviors.

Policy Review

All aspects of this policy and the company's driver safety program are subject to annual review by the safety coordinator and the safety committee to ensure the effectiveness of the policy to guarantee a safe working environment for company employees.

TRAINING

This company will train every employee who will drive for work related reasons on driver safety at no cost to the employee during working hours. Training methods will include, but are not limited to, hands-on, practical exams.

The company will use only training material that is appropriate in content and vocabulary to educational level, literacy, and language of employees.

DRIVER TRAINING

The driver safety program focuses on training and prevention. All new drivers must complete an orientation to cover:

- Policies and procedures for drivers
- Governmental regulations
- Maintenance guidelines and inspection procedures
- Driver training that encourages safe, defensive road behavior

Training Components

The safety coordinator will ensure any employee at this company who drives on work business is qualified and capable to drive. Drivers will complete training in the following minimum elements for driver safety:

- Defensive driving
- Proper attitude
- Safe distances
- Intersection driving
- Poor driving conditions
- Split-second decision-making
- Distracted driving
- Driving in Work Zones
- Good visual habits
- Safety restraints

Training Records

Training records will include the following information:

- The dates of the training sessions
- The contents or a summary of the training sessions
- The names and qualifications of persons conducting the training
- The names and job titles of the employees attending the training

The company will maintain employee training records for at least 3 years from the date on which the training occurred.

FORMS & ATTACHMENTS

On the following pages, please find the following document(s):

- Motor Vehicle Accident Report
- Driver Safety Training Documentation

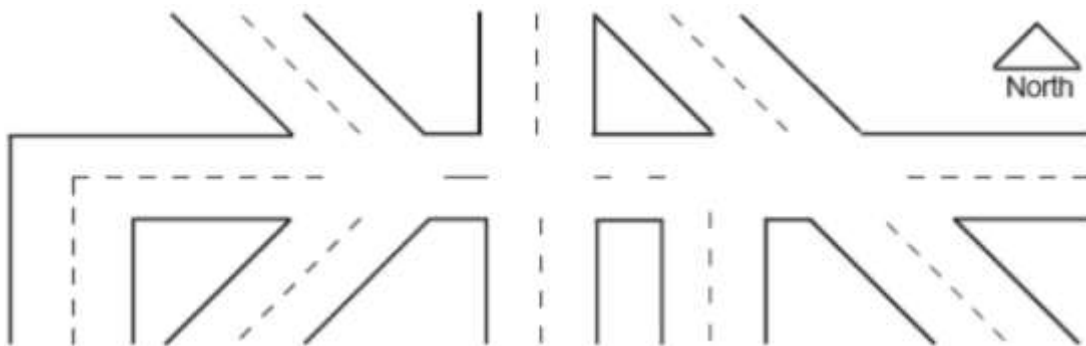
MOTOR VEHICLE ACCIDENT REPORT

Your Information			Their Information		
Name			Driver's Name		
Street			Street		
City	State	Zip	City	State	Zip
Phone	Driver License #		Phone	Driver License #	
License Plate #	Vehicle Type		License Plate #	Vehicle Type	
Name of Insurance			Name of Insurance		
Policy Holder	Policy #		Policy Holder	Policy #	
Passengers Information:			Passengers' information:		

ACCIDENT DETAILS

Date	Time	Appx. Speed	Explain how the accident happened
Street			
City	State	Zip	
Investigating Officer:			Describe your vehicle's damage
Police Department:			
Phone	Badge #		Describe another vehicle's damage
Investigating Officer:			
Police Department:			Witnesses Information:
Phone	Badge #		Witnesses Information

SKETCH OF THE ACCIDENT SCENE (Try to Estimate Distances)



TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to ensure no employee is exposed to electrical hazards in the workplace. Greg Griffin is the supervisor responsible for ensuring the following policy for controls, training, personal protective equipment, and safe work practices are enforced:

RESPONSIBILITIES

Electrical safety is a responsibility shared between the Company and its employees.

Employer Responsibilities

GTG Automation, Inc. is responsible for:

- Ensuring that only Qualified persons perform electrical work on de-energized equipment that has been locked-tagged out
- Training personnel in how to perform a job hazard analysis
- Responding quickly to eliminate workplace hazards
- Ensuring all equipment is kept in good repair
- Ensuring employees follow safe job procedures
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness

Safety Committee Responsibilities

It is the responsibility of the safety committee to:

- Assist in ensuring lockout-tagout is followed when necessary
- Assist in training employees to recognize and control workplace hazards
- Monitor the workplace for hazards
- Encourage employees to report hazards
- Implement appropriate controls
- Ensure corrective action is taken promptly

Employee Responsibilities

All employees are expected to:

- Perform electrical work on de-energized equipment that has been locked-tagged out only if qualified
- Qualified Persons are responsible for maintaining qualifications
- Follow safe job procedures
- Report hazards to a supervisor immediately

TRAINING

Greg Griffin will ensure all employees exposed to work involving electrical systems or energized parts will be trained in and familiar with the safety-related work practices required by OSHA regulation and the National Fire Protection Association NFPA 70E that pertain to their respective job assignments.

Greg Griffin will ensure that all employees exposed to work involving electrical systems will be trained in, and familiar with, the following:

- The requirements of NFPA 70E Standards for Electrical Safety in the Workplace
- The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment
- The skills and techniques necessary to determine the nominal voltage of exposed live parts
- The clearance distances specified in §1910.333(c) and the corresponding voltages to which the qualified person will be exposed

The training required will be of the classroom or on-the-job type. The degree of training provided will be determined by the risk to the employee based upon the NFPA 70E - Standards for Electrical Safety in the Workplace.

- The training requirements apply to employees who face a risk of electric shock that is not reduced to a safe level by the electrical installation requirements
- Other employees who also may reasonably be expected to face comparable risk of injury due to electric shock or other electrical hazards will also be trained
- Employees will be trained in and familiar with the safety-related work practices required that pertain to their respective job assignments
- Employees who are not qualified persons will also be trained in and familiar with any electrically related safety practices not specifically addressed by regulations but which are necessary for their safety

Qualified persons (i.e. those permitted to work on or near exposed energized parts) will, at a minimum, be trained in and familiar with the following:

- The skills and techniques necessary to distinguish exposed live parts from other parts of electric equipment
- The skills and techniques necessary to determine the nominal voltage of exposed live parts
- The specified clearance distances and the corresponding voltages to which the qualified person will be exposed
- Qualified persons whose work on energized equipment involves either direct contact or contact by means of tools or materials will also have the required training

SAFE PRACTICES

- Only qualified personnel are authorized to perform work, service, or maintenance on energized electrical parts or systems at GTG Automation, Inc.
- Non-qualified personnel are prohibited by Company Policy from working on or near exposed energized electrical circuits or systems. If a work task requires unqualified personnel, any exposed electrical systems will be de-energized and lockout/tagout procedures adhered to, per Company Policy, before unqualified personnel are allowed access to the work areas. Non-qualified personnel will be trained in the recognition and avoidance of electrical hazards in the work area
- Safe work practices will be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts, when work is performed near or on equipment or circuits that are or may be energized. The specific safe work practices will be consistent with the nature and extent of the associated electrical hazards
- Live parts to which an employee may be exposed will be de-energized before the employee works on or near them, unless Greg Griffin can demonstrate that de-energizing introduces additional or increased hazards or is infeasible due to equipment design or operational limitations. Live parts that operate at less than 50 volts to ground need not be de-energized if there will be no increased exposure to electrical burns or to explosion due to electric arcs
- Live parts of electrical equipment operating at 50 volts or more will be guarded against accidental contact by cabinets or other forms of enclosures that only qualified persons will be able to access. Other examples might include:
 - Enclosing in a room or vault
 - Screens or partitions
 - Elevations of at least 8 feet
- Entrances to rooms and other guarded locations containing live parts will be marked with conspicuous warning signs forbidding unqualified persons to enter
- If the exposed live parts are not de-energized for reasons of increased or additional hazards or infeasibility, other safe work practices will be used to protect employees who may be exposed to the electrical hazards involved. Such work practices will protect employees against contact with energized circuit parts directly with any part of their body or indirectly through some other conductive object. The work practices that are used will be suitable for the conditions under which the work is to be performed and for the voltage level of the exposed electric conductors or circuit parts
- NFPA 70E and OSHA require employers to prove that working in a de-energized state creates more or worse hazards, or is not practical because of equipment design or operational limitations. Examples include: working on life-support systems; emergency alarm systems; ventilation equipment for hazardous locations; work on circuits that are part of a continuous process that cannot be completely shut down
- All electrical conductors and equipment will be acceptable, certified, listed, labeled, or otherwise determined to be safe by a qualified testing laboratory
- Electrical equipment will be free from recognized hazards that are likely to cause death or serious physical harm to employees
- Electrical equipment will not be used unless the manufacturer's name, trademark, or other descriptive marking is placed on the equipment providing voltage, current, wattage, or other ratings as necessary. The marking will be of sufficient durability to withstand the environment involved

- Sufficient access and working space will be provided and maintained about all electric equipment to permit ready and safe operation and maintenance of such equipment
- When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, will be guarded
- Equipment intended to break current will have an interrupting rating at system voltage sufficient for the current that must be interrupted.
- By partitions or screens, only qualified persons will have access to the space within reach of the live parts. Any openings in such partitions or screens will be so sized and located that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them.
- The employer will establish and implement an assured equipment grounding conductor program on construction sites covering all cord sets, receptacles which are not a part of the building or structure, and equipment connected by cord and plug which are available for use or used by employees.
- Barriers or other means of guarding will be provided to ensure that workspace for electrical equipment will not be used as a passageway during periods when energized parts of electrical equipment are exposed.
- Worn or frayed electric cords or cables will not be used.
- Extension cords will not be fastened with staples, hung from nails, or suspended by wire.

De-Energized Electrical Equipment

- All de-energized exposed parts will be treated as live throughout the work process
- Conductors and parts of electric equipment that have been de-energized but have not been locked out or tagged will be treated as energized parts
- While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts will be locked out or tagged or both

Lockout-Tagout Procedures

Greg Griffin will maintain a written copy of these procedures and will make them available for inspection by employees and OSHA

De-energizing equipment

- Safe procedures for de-energizing circuits and equipment will be determined before circuits or equipment are de-energized
- The circuits and equipment to be worked on will be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, may not be used as the sole means for de-energizing circuits or equipment. Interlocks for electric equipment may not be used as a substitute for lockout and tagging procedures
- Stored electric energy which might endanger personnel will be released. Capacitors will be discharged and high capacitance elements will be short-circuited and grounded, if the stored electric energy might endanger personnel
- Stored non-electrical energy in devices that could reenergize electric circuit parts will be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device

Application of locks and tags includes

- A lock and a tag will be placed on each disconnecting means used to de-energize circuits and equipment on which work is to be performed. The lock will be attached so as to prevent persons from operating the disconnecting means unless they resort to undue force or the use of tools
- Each tag will contain a statement prohibiting unauthorized operation of the disconnecting means and removal of the tag
- If a lock cannot be applied, or if Greg Griffin can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock, a tag may be used without a lock
- A tag used without a lock will be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by use of a lock. Examples of additional safety measures include the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device
- A lock may be placed without a tag only under the following conditions: only one circuit or piece of equipment is de-energized; the lockout period does not extend beyond the work shift; employees exposed to the hazards associated with reenergizing the circuit or equipment are familiar with this procedure
- Verification of de-energized condition requirements will be met before any circuits or equipment can be considered and worked as de-energized
- A qualified person will operate the equipment operating controls or otherwise verify that the equipment cannot be restarted
- A qualified person will use test equipment to test the circuit elements and electrical parts of equipment that employees will be exposed to, and will verify that the circuit elements and equipment parts are de-energized. The test will also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage backfeed even though specific parts of the circuit have been de-energized and presumed to be safe. If the circuit to be tested is over 600 volts, nominal, the test equipment will be checked for proper operation immediately after this test
- Reenergizing equipment requirements will be met before circuits or equipment are reenergized, even temporarily
- A qualified person will conduct tests and visual inspections to verify that all tools, electrical jumpers, shorts, grounds, or other devices have been removed, so that the circuits and equipment can be safely energized
- Employees exposed to the hazards associated with reenergizing the circuit or equipment will be warned to stay clear of circuits and equipment
- Each lock and tag will be removed by the employee who applied it or under his or her direct supervision. However, if this employee is absent from the workplace, then the lock or tag may be removed by a qualified person designated to perform this task provided that: Greg Griffin ensures that the employee who applied the lock or tag is not available at the workplace. Greg Griffin ensures that the employee is aware that the lock or tag has been removed before he or she resumes work at that workplace
- There will be a visual determination that all employees are clear of the circuits and equipment

Energized Electrical Equipment

Only qualified personnel may work on electric circuit parts or equipment that has not been de-energized under the previously stated procedures. Such personnel will be capable of working safely on energized circuits and will be familiar with the proper use of special precautionary techniques, personal protective equipment, insulating and shielding materials, and insulated tools.

- If work is to be performed under or near overhead lines, the lines will be de-energized and grounded, or other protective measures will be provided before work is started. If the lines are to be de-energized, arrangements will be made with the person or organization that operates or controls the electric circuits involved to de-energize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions will prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment
- When an unqualified person is working in an elevated position near overhead lines, the location will be such that the person and the longest conductive object he or she may contact cannot come closer to any unguarded, energized overhead line than the following distances:
 - For voltages to ground 50kV or below – 10 feet
 - For voltages to ground over 50kV – 10 feet plus 4 inches for every 10kV over 50kV
- When an unqualified person is working on the ground in the vicinity of overhead lines, the person may not bring any conductive object closer to unguarded, energized overhead lines than the distances given above. For voltages normally encountered with overhead power line, objects which do not have an insulating rating for the voltage involved are considered to be conductive
- When a qualified person is working in the vicinity of overhead lines, whether in an elevated position or on the ground, the person may not approach or take any conductive object without an approved insulating handle closer to exposed energized parts than shown in Table S-5 unless:
 - The person is insulated from the energized part (gloves, with sleeves if necessary, rated for the voltage involved are considered to be insulation of the person from the energized part on which work is performed)
 - The energized part is insulated both from all other conductive objects at a different potential and from the person
 - The person is insulated from all conductive objects at a potential different from that of the energized part

Table S-5 - Approach Distances for Qualified Employees - Alternating Currents

Voltage range (phase to phase)	Minimum approach distance
300V and less	Avoid Contact
Over 300V, not over 750V	1 ft. 0 in.
Over 750V, not over 2kV	1 ft. 6 in.
Over 2kV, not over 15kV	2 ft. 0 in.
Over 15kV, not over 37kV	3 ft. 0 in.
Over 37kV, not over 87.5kV	3 ft. 6 in.
Over 87.5kV, not over 121kV	4 ft. 0 in.
Over 121kV, not over 140kV	4 ft. 6 in.

- Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines will be operated so that a clearance of 10 ft. is maintained. If the voltage is higher than 50kV, the clearance will be increased 4 in. for every 10kV over that voltage. However, under any of the following conditions, the clearance may be reduced
- If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. If the voltage is higher than 50kV, the clearance will be increased 4 in. for every 10 kV over that voltage
- If insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier
- If the equipment is an aerial lift insulated for the voltage involved, and if the work is performed by a qualified person, the clearance (between the uninsulated portion of the aerial lift and the power line) may be reduced to the distance given in Table S-5
- Employees standing on the ground will not contact the vehicle or mechanical equipment or any of its attachments, unless:
 - The employee is using protective equipment rated for the voltage
 - The equipment is located so that no uninsulated part of its structure (that portion of the structure that provides a conductive path to employees on the ground) can come closer to the line than permitted below
- If any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding may not stand at the grounding location whenever there is a possibility of overhead line contact
- Additional precautions, such as the use of barricades or insulation, will be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point

Illumination

- Employees may not enter spaces containing exposed energized parts, unless illumination is provided that enables the employees to perform the work safely
- Where lack of illumination or an obstruction precludes observation of the work to be performed, employees may not perform tasks near exposed energized parts
- Employees may not reach blindly into areas which may contain energized parts

Confined Spaces

- When an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, GTG Automation, Inc. will provide, and the employee will use, protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with these parts
- Doors, hinged panels, and the like will be secured to prevent their swinging into an employee and causing the employee to contact exposed energized parts

Personal Protective Equipment (PPE)

- Face shields, aprons, and rubber gloves will be provided for workers handling acids or batteries.
- Facilities for quick drenching of the eyes and body will be provided within 25 feet (7.62 m) of battery handling areas.
- In work areas where the exact location of underground electric powerlines is unknown, employees using jack-hammers, bars, or other hand tools which may contact a line will be provided with insulated protective gloves.

Conductive Materials and Equipment

Conductive materials and equipment that are in contact with any part of an employee's body will be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts.

- If an employee will handle long dimensional conductive objects (such as ducts and pipes) in areas with exposed live parts, Greg Griffin will institute work practices (such as the use of insulation, guarding, and material handling techniques) which will minimize the hazard

Portable Ladders

Portable ladders will have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized parts.

Conductive Apparel

Conductive articles of jewelry and clothing (such as watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) may not be worn if they might contact exposed energized parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means.

Housekeeping

- Where live parts present an electrical contact hazard, employees may not perform housekeeping duties at such close distances to the parts that there is a possibility of contact, unless adequate safeguards (such as insulating equipment or barriers) are provided
- Electrically conductive cleaning materials (including conductive solids such as steel wool, metalized cloth, and silicon carbide, as well as conductive liquid solutions) may not be used in proximity to energized parts unless procedures are followed which will prevent electrical contact
- Working spaces, walkways, and similar locations will be kept clear of cords so as not to create a hazard to employees.

Interlocks

Only a qualified person following the requirements of this section may defeat an electrical safety interlock, and then only temporarily while he or she is working on the equipment. The interlock system will be returned to its operable condition when this work is completed.

Utilities Grounding & Deenergization

GTG Automation, Inc. has designated Greg Griffin to communicate with the system operator to deenergize certain sections of line or equipment that must be worked on. When multiple crews are working on the same lines or equipment, each crew must coordinate their activities. Activities could include ensuring all means through which known sources of electricity may be supplied are open, that network protectors are maintained to immediately trip open if closed when a primary conductor is deenergized, and that all manual overrides are disabled.

All electric energy sources (e.g. switches, disconnectors, jumpers, and taps) that are supplied to lines and equipment must be deenergized.

All electric energy sources must be made inoperable unless the design doesn't permit, in which case tagging must be in place to indicate employees are working.

Temporary protective grounds must be placed in a manner that GTG Automation, Inc. can demonstrate employees will not be exposed to hazardous differences in electric potential. Guidelines on how the employer can establish the equipotential zone can be found in CFR 1910.269 Appendix C.

The American Society for Testing and Materials Standard Specifications for Temporary Protective Grounds to Be Used on De-Energized Electric Power Lines and Equipment, ASTM F855-17, provides guidelines for protective grounding equipment. These include that grounding equipment must be capable of conducting the maximum fault current that could flow at the point of grounding until the fault can be cleared, as well as having an ampacity greater than or equal to No. 2 AWG copper. IEEE also provides guidelines for selecting and installing protective grounding equipment in 1048-2016.

Grounds are permitted to be removed temporarily during tests. If this happens, each employee must:

- Use insulated equipment
- Isolate themselves from any hazards
- Use any other means necessary to protect themselves in case the previously grounded lines and equipment become energized

[illegible]

POLICY

GTG Automation, Inc. has designated Greg Griffin as the administrator/supervisor for Emergency Action Plans. GTG Automation, Inc. will have an Emergency Action Plan whenever an OSHA standard requires one. Emergency Action Plans will be in writing, posted in the workplace, and available to employees for review. The names and job titles of every person in the chain of command will be posted.

RESPONSIBILITIES

GTG Automation, Inc. will have and maintain an employee alarm system. The employee alarm system will use a distinctive signal for each purpose. For companies with less than ten (10) employees, voice communication is an acceptable alarm provided all employees can hear the alarm

Greg Griffin will ensure that all employees are informed and trained in the following minimum elements for Emergency Action Plans:

- Procedures for avoiding a fire or other emergency
- Procedures for emergency evacuation for all areas of work, including type of evacuation and exit route assignments
- Safe assembly areas are designated for all work areas in the event of evacuation
- Procedures for employees who operate critical plant operations before they evacuate, if applicable
 - Suppliers who rely on the EAP of the Client, must be made aware if they have employees who are considered to be part of critical operations. If so, the Client shall make prior contractual provisions for additional Supplier employee training, tools and equipment
- Procedures to account for all employees after evacuation
- Procedures to be followed by employees performing rescue or medical duties
 - Suppliers who rely on the EAP of the Client, must be made aware of the provisions for rescue and medical services
- The members in the chain of command who may be contacted by employees who need more information about the Plan or for an explanation of their duties under the Plan

A written emergency action must be kept in the workplace, and available to employees for review, employers with 10 or fewer employees may communicate the plan orally. Suppliers who rely on the EAP of the client, must have a copy of the Client's EAP at the job site.

Greg Griffin may be contacted by employees who need more information about the plan or an explanation of their duties under the plan. Suppliers who rely on the EAP of the Client, must be made aware of the name of the Client employee who is assigned site ownership of the EAP.

TRAINING

GTG Automation, Inc. will designate and train employees to assist in a safe and orderly evacuation of other employees.

Greg Griffin will review the Emergency Action Plan with each employee covered by the plan:

- When each Plan is developed, or an employee is initially assigned to a job
- When the employee's responsibilities under the Plan change
- When any element of the Plan is changed

Fire Protection/Prevention training will be required on initial hiring and annually thereafter. All employees will be trained in the hazards involved in incipient stage firefighting and for escape purposes. Employees are instructed to ensure the local Emergency Medical Service EMS (Fire Department) is notified before attempting to extinguish any fire, and that if a fire is not immediately extinguished using one fire extinguisher, or the fire recurs to evacuate immediately.

PROCEDURES

All fire extinguishers will be inspected by Greg Griffin on a monthly basis; this inspection will be recorded and documented with the required annual maintenance check. Records of inspection will be kept on file in the office. Greg Griffin will ensure that all employees are trained in the proper operation of all types of fire extinguishers provided by the company.

EMERGENCY ACTION PLAN

The Emergency Evacuation Plan shall include procedures for: Reporting a fire or other emergency, emergency evacuation, including type of evacuation and exit route assignments, procedures to follow by employees who remain to operate critical plant operations before they evacuate, accounting for all employees after evacuation, procedures to follow by employees who perform medical or rescue duties, and obtaining the name or job title of every employee who may be contacted by employees who need more information about the plan or an explanation of their duties under the plan.

Workplace emergencies can happen at any time and prudence dictates that response procedures must be planned and prepared for in advance. Because it is hard to think clearly during an emergency, it is essential to plan our response.

Emergency planning is the first step, and it can be challenging even if the workplace only has a few employees. Determinations must be made as to what emergencies could affect our workplace, who will lead and make decisions during an emergency, and what procedures will ensure that employees respond appropriately. These elements are the foundation of our workplace Emergency Plan.

Emergency planning may not prevent emergencies, but it can protect lives, equipment, and property over the long term. The following information in this Section describes how GTG Automation, Inc. plans for workplace emergencies so that you and your coworkers respond appropriately when an unlikely event happens.

OSHA requires most employers to have Emergency Plans. Those that have more than 10 employees must have written plans. Those that have 10 or fewer employees do not have to put their plans in writing; however, they must ensure that their employees know what procedures to follow to protect themselves in an emergency.

MANAGING WORKPLACE EMERGENCIES

Much can be learned about planning for workplace emergencies from professional emergency responders. When someone calls 911 to report an emergency, he or she connects with a local network of fire, police, and other emergency service professionals who will respond as efficiently as possible. This network is part of a larger incident-management system that can respond to an emergency and accomplish the following:

- Identify, locate, and determine the extent of the emergency
- Determine the resources necessary to manage and control the emergency
- Coordinate command-and-control responsibilities between police and fire departments, hospitals and other medical service providers, government agencies, and on-site responders
- Establish and maintain communication between on-scene emergency responders and other emergency service providers
- Provide for the safety of victims

AN INCIDENT-MANAGEMENT SYSTEM FOR OUR WORKPLACE

With thoughtful planning, a small-scale version of the incident management system used by professional responders can be created. Our workplace will be ready to respond to any emergency – from a heart attack to an earthquake – and manage it in the most effective, efficient way possible. The essential parts of this system are our employees, our Emergency Action Plan, communication and emergency-response equipment, and our workplace.

The goal is for our Emergency Plan to ensure the well-being of everyone at our workplace. This is accomplished by involving employees in the ongoing planning processes, identifying emergencies that could affect our workplace, maintaining an emergency chain of command, and developing emergency response policy and procedures.

INVOLVING EMPLOYEES IN THE PLANNING PROCESS

Perhaps the most important element of emergency planning is getting employees involved in the planning process; when employees participate, they will take the Plan seriously and be more likely to respond appropriately during an emergency. From the start, they should be aware that the purpose of the plan is to ensure their safety.

- Employees will review the Plan to ensure that they know the procedures to follow to respond safely in an emergency. Each employee will have a copy of the plan or know where to obtain one
- Employees shall have a process to report and are encouraged to report workplace hazards and unsafe work practices that could contribute to an emergency

IDENTIFY EMERGENCIES THAT COULD AFFECT THE WORKPLACE

Identify any external incident (outside our workplace) that could threaten employees or the public and any incident within our workplace that could cause an emergency.

Examples include the following:

- Earthquake: external
- Explosion: external or internal
- Fire: external or internal
- Hazardous-substance release: external or internal
- Medical: internal
- Weather-related event (hurricane, tornado, blizzard, etc.): external
- Threat of violence: external or internal

Electrical, heating and cooling, and telecommunication-system failures can disrupt workplace activities and contribute to emergencies. Human error also contributes too many workplace emergencies; employees will be trained to do their jobs safely.

THE CHAIN OF COMMAND

The chain of command links one person with overall responsibility for managing an emergency to others responsible for carrying out specific emergency response tasks. A chain of command establishes who is in charge and ensures that everyone in the chain responds to emergencies in an organized way.

At the top of the chain is the incident commander, a trained employee who has overall responsibility for managing emergencies.

Just below the incident commander are the volunteer on-scene coordinators.

In an organization that has multiple buildings or workplaces, the chain of command might also include a facility manager, an emergency director, and other management units.

At many small- to medium-sized workplaces, the chain of command consists of an incident commander and one or two volunteer on-scene coordinators.

THE RESPONSIBILITIES OF THE INCIDENT COMMANDER

The incident commander has overall command of a workplace emergency, including the following responsibilities:

- Assessing incidents to determine if it is necessary to order emergency response
- Supervising on-scene coordinators' activities during an emergency
- Directing shutdown of critical workplace equipment or operations
- Coordinating the activities of professional responders such as ambulance, police, and fire departments
- Determining if an evacuation is necessary and managing an evacuation

The incident commander will be an employee who has experience managing others, assessing complex events, and making effective decisions under difficult circumstances

THE ROLE OF THE ON-SCENE COORDINATORS

On-scene coordinators are responsible for coordinating other employees' activities during an emergency (guiding them to appropriate exits and safe areas during an evacuation, for example) and for other emergency-response tasks for which they have volunteered and been properly trained.

Generally, each coordinator will be responsible for no more than 20 employees within a designated work area. On-scene coordinators must know how to respond to all emergencies identified in our Emergency Plan, the evacuation procedures for the particular workplace, and how to use emergency communication equipment. They will also know cardiopulmonary resuscitation (CPR), first aid, and how to respond to threats of violence.

Their primary responsibilities include the following:

- Checking rooms and other enclosed spaces for employees who may be trapped or unable to evacuate during an emergency
- Knowing who may need assistance during an evacuation and how to assist them
- Coordinating the emergency activities of employees
- Ensuring that employees understand how to respond to workplace emergencies
- Knowing the workplace layout, appropriate escape routes, and areas that employees must not enter during an evacuation
- Verifying that employees are in designated safe areas after an evacuation

The established chain of command minimizes confusion during an emergency. An effective chain of command helps ensure that responders manage an emergency in the most efficient way possible

RESPONDING TO EMERGENCIES

It is the policy of GTG Automation, Inc. to protect employees from physical harm, harassment, and intimidation. To provide a safe working environment for all employees, GTG Automation, Inc. is committed to establishing an effective Emergency Plan. The Plan is based on an "Incident Management System" (IMS) that consists of volunteer employees trained to respond to any workplace emergency. The system is modeled on the IMS system used by fire, police, and emergency medical-service responders. It provides for overall command and control of any emergency incident. It improves communication between IMS personnel and the fire, police, and medical personnel who respond to a call for help. It also provides appropriate emergency assistance during the first few minutes it takes for emergency responders to arrive.

EMERGENCY RESPONSE PROCEDURES

Emergency procedures are important because they tell employees exactly what to do to ensure their safety during an emergency to accomplish each of the following tasks:

- Report emergencies to local fire and police departments-Call 911
- Inform the emergency chain of command of an emergency
- Warn employees about an emergency
- Conduct an orderly, efficient workplace evacuation
- Assist employees with disabilities or injuries during an evacuation
- Shut down critical equipment, operate fire extinguishers, and perform other essential services during an evacuation
- Account for employees at a designated safe area after an evacuation
- Perform rescue and first aid that may be necessary during an emergency

Other Critical Information

The following are included in our Company procedures:

- The names of the incident commander, the on-scene coordinators, and others responsible for carrying out the plan, and how to contact them during an emergency
- The name of the person who has the authority to order a workplace evacuation (typically, the incident commander)
- The names and phone numbers of those who understand the Emergency Plan and will inform others about it (typically the incident commander and the on-scene coordinators)

Planning Considerations—Accounting for Employees after an Evacuation

A designated meeting area a safe distance away from the emergency site will be identified in advance to ensure that employees know they must meet there after they evacuate the workplace. An on-scene coordinator should take a “Roll-Call” to identify employees not present. A determination will need to be made as to what information or assistance employees may need if they cannot return to the workplace after an evacuation.

Alerting Employees to an Emergency

The Company may use a public address system, portable radios, an alarm, an air-horn, or any other means that will reach and warn all employees. Alarms will be distinctive, be recognizable by all employees, and have a back-up power supply in case the primary power fails. We may need alarms that employees can hear and see.

Conducting Employee Rescues

It takes more than good intentions to save lives. Would-be rescuers can endanger themselves and those they are trying to rescue. During most emergencies, leave rescue work to professional responders who are appropriately trained and equipped. The exceptions would be during a catastrophe, such as a severe earthquake, that could delay professional emergency responders for hours or days. Also, jobs such as handling hazardous substances or working in confined spaces could result in emergencies for which fire or police departments are not trained. We will need to find out what kind of emergencies local responders are trained and equipped to respond to. If they are unable to respond to emergencies unique to our workplace, our employees must be trained and able to respond promptly.

Coordinating with Multi-Employer Workplaces

If we happen to share a facility, building, or worksite with other employers, we will consider working with them to develop, if feasible, a facility-wide Emergency Plan. If a facility-wide plan is not feasible, we will ensure that our plan does not conflict with the plans of the other employers in the facility.

Quick-Response Teams

A quick-response team consists of volunteer employees trained to handle workplace incidents that require immediate action, such as medical emergencies, threatening or violent people, and hazardous-substance releases. The following considerations are relevant to quick response teams:

- Types of incidents that require immediate action
- Roles and responsibilities of team members
- Communication and response procedures for the team

Training Employees about Emergencies and Evacuations

To protect themselves during an emergency, all employees must understand the following elements of the Emergency Plan:

- The roles of the incident commander and on-scene coordinators
- How to respond to threats and intimidation
- The method(s) for warning employees of emergencies
- The method for contacting employees' next of kin after an emergency
- The procedure for summoning emergency responders
- The location of safe meeting areas
- How to respond to an emergency and to an order to evacuate

New employees will be trained about the Emergency Plan when they are first hired, and all employees will be informed about any changes to the plan.

On-scene coordinators will be trained in first aid and CPR, bloodborne-pathogen protection, and how to use rescue equipment.

Regular training drills will be scheduled so that employees can practice. Outside fire and police departments will be included in the drills when possible. The effectiveness of each drill will be evaluated and activities that need strengthening will be identified. The results will be shared with all employees.

When a workplace emergency requires an evacuation, all employees must know to leave, what emergency exits to take, and where to meet. Employees may also need to know how to shut down critical equipment during an evacuation.

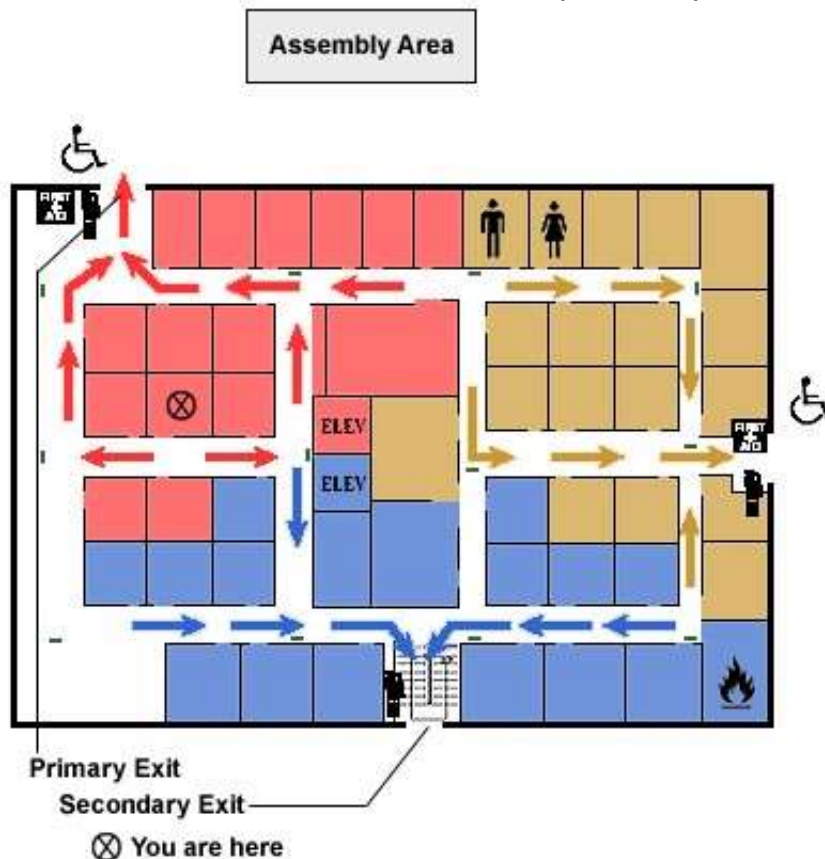
Evacuation Exits

Our workplaces will have a primary evacuation exit and an alternate exit. Diagrams will be posted that show the evacuation routes and the exits where all employees will see them. The exits and exit routes will be identified. Characteristics of exits include:

- They are clearly marked, well lit, and visible under emergency conditions
- They are wide enough to accommodate employees during an evacuation
- They are unobstructed and clear of debris at all times
- They are unlikely to expose employees to other hazards

An essential part of our Emergency Plan is an evacuation diagram – a floor plan of the facility or workplace that shows evacuation exits and describes the emergency evacuation procedure. Mark the exit routes and the “Roll-Call” assembly area on the diagram so that they are easy to see, for example:

GTG AUTOMATION, INC. MAIN OFFICE & SHOP (EXAMPLE)



Exit Routes

How would you escape from your workplace in an emergency? Do you know where all the exits are in case your first choice is too crowded? Are you sure the doors will be unlocked and that the exit access behind them will not be blocked during a fire, explosion, or other crisis? Knowing the answers to these questions could keep you safe during an emergency.

Workplace Exit Routes

Usually, a workplace must have at least two exit routes for prompt evacuation. But more than two exits are required if the number of employees, size of the building, or arrangement of the workplace will not allow a safe evacuation. Exit routes must be located as far away as practical from each other in case one is blocked by fire or smoke.

General Requirements for Exits

- Exits must be separated from the workplace by fire-resistant materials – that is, a one-hour fire-resistance rating if the exit connects three or fewer stories, and a two-hour fire-resistance rating if the exit connects more than three floors
- Exits can have only those openings necessary to allow access to the exit from occupied areas of the workplace or to the exit discharge. Openings must be protected by a self-closing, approved fire door that remains closed or automatically closes in an emergency
- Always keep the line-of-sight to exit signs clearly visible
- Install “EXIT” signs using plainly legible letters

Safety Features for Exit Routes

- Keep exit routes free of explosives or highly flammable materials, equipment, or other obstructions
- Exit routes will be arranged so that employees will not have to travel toward a high-hazard area unless the path of travel is effectively shielded from the high-hazard area
- Ensure that exit routes are free and unobstructed by materials, equipment, locked doors, or dead-end corridors
- Provide lighting for exit routes adequate for employees with normal vision
- Keep exit route doors free of decorations or signs that obscure their visibility of exit route doors
- Post signs along the exit access indicating the direction of travel to the nearest exit and exit discharge if that direction is not immediately apparent
- Mark doors or passages along an exit access that could be mistaken for an exit “Not an Exit” or with a sign identifying its use (such as “Closet”)
- Maintain exit routes during construction, repairs, or alterations

Design and Construction Requirements

- Exit routes must be permanent parts of the workplace
- Exit discharges must lead directly outside or to a street, walkway, refuge area, public way, or open space with access to the outside
- Exit discharge areas must be large enough to accommodate people likely to use the exit route
- Exit route doors must unlock from the inside. They must be free of devices or alarms that could restrict use of the exit route if the device or alarm fails
- Exit routes can be connected to rooms only by side-hinged doors that swing out in the direction of travel if the room may be occupied by more than 50 people
- Exit routes must support the maximum permitted occupant load for each floor served, and the capacity of an exit route may not decrease in the direction of exit route travel to the exit discharge
- Exit routes must have ceilings at least 7 ft., 6 in. high. An exit access must be at least 28 inches wide at all points

Providing Medical Assistance and First Aid

If there is not an emergency clinic or hospital nearby that will admit victims of emergencies from our workplace then on-scene coordinators will ensure that some members of on-site personnel have appropriate first-aid training and supplies.

Recording Critical Employee Information

After a medical emergency, an employee may be unable to contact next of kin or other relatives. Supervisors will have access to employees' home telephone numbers, the names and telephone numbers of family members they want you to contact, physician names and phone numbers, and information employees have given about their medical conditions or medications. This information will be kept with employees' permanent employment records and updated annually.

Reporting Fire and Other Emergencies

The Emergency Action Plan procedure for reporting fires and other emergencies is to contact the supervisor, employees and Call 911. Our Emergency Plan has a procedure for reporting fires and other emergencies to professional responders. Report all fires by calling 911. Fires are generally not reported to fire departments by fire alarms; most fire alarms warn only building occupants. The incident commander will stay in a safe location to oversee and relay relevant information to professional emergency responders.

Selecting and Using Personal Protective Equipment

Personal protective equipment includes clothing and equipment that protects emergency responders against specific hazards. Examples include work gloves, goggles, hard hats, and respirators.

Properly used, personal protective equipment offers protection against a hazard but does not eliminate the hazard. If it fails or is not appropriate for a particular task, the user risks exposure.

Appropriate, effective protection depends on selecting, wearing, and using the equipment properly. The following steps outline the procedures for selecting personal protective equipment:

1. Identify emergency-related hazards for which personal protective equipment may be necessary; for example, those responding to medical emergencies need protection from bloodborne pathogens
2. Determine which personal protective equipment will protect users from the hazards; for example, latex gloves and face shields may be necessary to protect responders from bloodborne pathogens
3. Determine who will use the equipment; it is critical that the equipment fit the user and not cause allergic reactions or other health problems
4. Determine the conditions under which responders will use the equipment; the equipment must not fail under those conditions
5. Ensure that emergency responders know how to use the equipment. Whether they are wearing hard hats or atmosphere-supplying respirators, responders will know how the equipment will protect them and when it will not protect them. Responders will know how to wear, use, and maintain the equipment, and how to discard contaminated equipment

TYPES OF EMERGENCIES

Following are types of emergencies that could affect workplaces and summarizes what to do when responding to them. Consider factors such as workplace size and location, number of employees on-site, and the nature of their work in determining how to respond.

Earthquake

During an earthquake, people in most workplaces are at greatest risk from collapsing ceilings, windows, light fixtures, and other falling objects. If you are indoors, the safest response is to take cover under sturdy furniture or to brace yourself against an inside wall. Stay away from windows, skylights, bookcases, and other heavy objects. Protect your head and neck.

What to do:

- If indoors, stay there. Take cover under sturdy furniture or against inside walls
- Do not use elevators
- Stay away from windows, skylights, and other objects that could fall
- Use stairways to leave the workplace if the order is given to evacuate

Be ready to rescue victims; professional responders may not be able to respond; remove victims to a triage area if possible

Explosion

Any workplace that handles, stores, or processes flammable gases, liquids, and solids is vulnerable. Explosions offer no warnings, causing disorganization and panic.

What to do:

- Try to establish communication with on-scene coordinators
- Assess damage to the workplace and estimate human casualties
- Administer first aid if it is safe to do so
- Do not use elevators
- Evacuate following established procedures

Fire

If needed, invite a local fire department representative to our workplace to help identify fire hazards and to discuss how our workplace should respond to a fire. It is the byproducts of fire – smoke and fire gasses – that kill. A quick, orderly evacuation is the most effective response to an out-of-control fire.

What to do:

- Pull the fire alarm (or set off the predetermined signal)
- Call 911; tell the dispatcher the location and the nature of the emergency
- Inform an on-scene coordinator
- Do not use elevators
- Use ONE fire extinguisher for incipient stage fires or fires that can be extinguished with ONE extinguisher, fire extinguishers may be used for escape purposes

If on-scene coordinators or other employees are permitted to use fire extinguishers, they will be properly trained in their use for incipient stage fires and escape.

Hazardous-Substance Release

Hazardous substances include solvents, pesticides, paints, petroleum products, and heavy metals – any substance hazardous to health. Even if our workplace does not use hazardous substances, could it be affected by a nearby release or an accident on a local freeway? If so, our Emergency Plan describes how the scene commander and coordinators will respond and notify fire and police departments.

What to do:

- Inform the incident commander
- Evacuate the area surrounding the release
- Call 911; tell the dispatcher the location and the nature of the emergency

If our workplace uses hazardous chemicals, our Company Hazard Communication (HAZCOM) Program requires that we inventory them, keep the manufacturer-supplied safety data sheets, label the chemical containers, and train employees to protect themselves from the chemicals' hazards.

If employees must wear personal protective equipment during an emergency – chemical suits, gloves, hoods, boots, or respirators, for example – make sure that equipment will be available when they need it, that it fits them, and that they know how to use it.

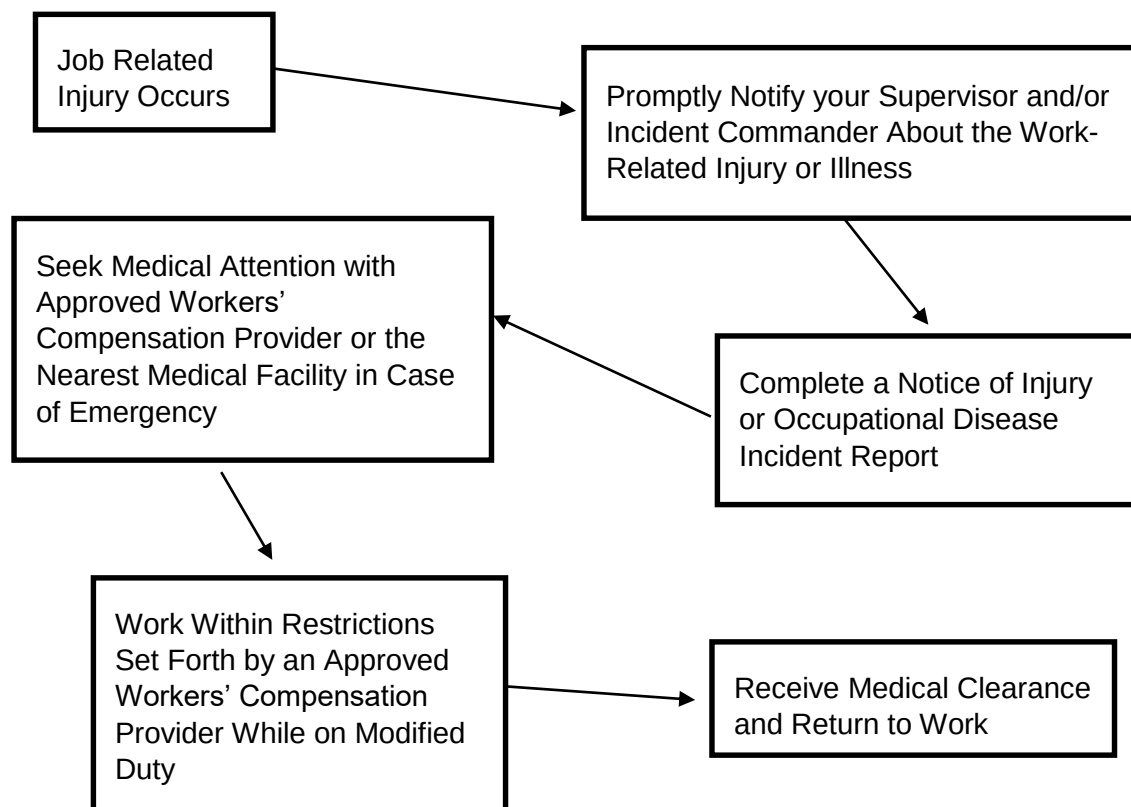
Medical

The most likely workplace emergency is a medical emergency. A serious medical emergency such as cardiac arrest requires immediate attention – response time is critical. It is essential that medical first responders know how to perform first aid/CPR.

What to do:

- Call 911. Tell the dispatcher the location and the nature of the emergency
- Do not move the victim
- Notify an on-scene coordinator for CPR or other first-aid tasks
- Inform the incident commander
- Assist professional medical responders when they arrive
- Inform the victim's supervisor
- Follow the medical case management process

Medical Case Management Process



Weather-Related Event

Hurricanes, tornadoes, blizzards, and floods are likely to be the cause of weather-related workplace emergencies. Many communities experience floods following warm spring rain. Winter storms often bring strong winds, freezing rain, and snow that can cause structural damage and power outages.

What to do:

- Wait for instructions from the incident commander; a power failure will slow communication
- Tune a battery-powered radio to a station that broadcasts local news
- Do not evacuate the workplace unless ordered to do so

Threats of Violence

Threats of violence may be delivered in any form: face-to-face, by fax, e-mail, phone, or in writing. Threats can be directed toward the workplace or toward a specific person. Police departments, mental health professionals, and employee-assistance program counselors offer prevention information, security inspections, and employee training that help reduce the risk of workplace violence.

What to do:

- Inform an on-scene coordinator
- Activate a silent alarm if your workplace has one
- Isolate the threatening person if it is possible to do so safely
- Inform the incident commander

Bomb Threats

Take all bomb threats seriously. Do not use fire alarms or phones in the building – they generate radio waves that could trigger a bomb. If someone finds a package that may contain or that may be a bomb, he or she should note its size, shape, and whether it emits a sound, and then notify the incident commander. Call 911 from outside the building to report the emergency and determine if an evacuation is necessary. Use a communication method that does not generate radio waves to order the evacuation.

Consider offering Threat-management training is available to on-scene coordinators and if appropriate, members of quick-response teams.

Terrorism

Although terrorist acts pose minimal risks to most workplaces, the devastating effects of recent acts have changed the perception of a “secure workplace” and added a new dimension to emergency planning. What distinguishes terrorist acts is the use of threats and violence to intimidate or coerce. Factors to consider in emergency planning include the following:

How do others perceive the mission of our Company in these contexts?

- Political activities
- Business activities
- Economic activities
- Social responsibilities

How vulnerable are our critical resources from terrorist attack?

- Production machinery and equipment
- Mail and HVAC systems
- Electronic communication, power, data, and systems hardware
- Real estate and other physical property
- Finance and administrative transactions
- Employees at the workplace or at other locations

EMERGENCY ACTION PLAN (PAGE 1 OF 3) (TO BE POSTED AT ALL COMPANY FACILITIES AND WORKPLACES)

Company Name		Location	
Street Address		City	State Zip
Prepared by		Title	
Signature	Date	Phone Number	
Emergency Scene Commander		Emergency Scene Coordinator	

Purpose

This Plan identifies necessary management and employee actions during fires and other emergencies. Education and training are provided so that all employees know and understand the Emergency Action Plan.

Location of Plan

The Emergency Action Plan will be located at the Designated Safety Coordinator's office, a copy will also be maintained at the company's main office. Upon request, an OSHA representative may obtain a copy of the plan from The Designated Safety Coordinator.

Exit Routes

Draw a diagram of jobsite or facility exit routes in space below, designate meeting place or "Roll-Call" area as well.

EMERGENCY ACTION PLAN (PAGE 2 OF 3)

Accounting for Employees		
After exiting, all employees are to assemble for "Roll-Call" at this location:		
The following persons are responsible for ensuring that employees comply with this requirement:		
Name	Title	
Critical Operations		
To minimize damage from the emergency, the following personnel are responsible for shutting down the listed critical operations:		
Names	Critical Operations	
As soon as shutdowns are completed, the employees who performed critical operations will take the nearest exit route in accordance with general emergency procedures.		
Rescue and Medical Duties		
The following personnel are certified and trained in both CPR and general first aid. These persons are to be contacted as specified in the "General Emergency Training":		
Name	Title	Phone Number
Reporting Emergencies		
The following personnel have the duty of contacting public responders to come to the emergency scene. The personnel are listed in descending order of availability:		
Name	Title	Phone Number

EMERGENCY ACTION PLAN (PAGE 3 OF 3)

Alarm Systems and Notification of Emergencies			
In the event of a workplace or facility emergency, employees will be notified as follows:			
Identify Method(s) of Notification:			
Types of Evacuation			
OSHA requires to have an established system of types of evacuation to follow for different emergency circumstances. The following listing represents company policy for various emergency situations:			
Partial Evacuation: Code Yellow – 3 rings or horn blasts: RESPONDERS (trained extinguisher personnel and trained rescue and medical personnel)			
Full Evacuation: Code Red – 4 rings or horn blasts: RESPONDERS (n/a)			
Note: If there is more than one evacuation type, the alarm signal for each will be distinctive.			
Other (Describe)			
Other (Describe)			
Public Emergency Response Information			
Ensure that 911 emergency services cover the same area this Emergency Action Plan does			
Local Police Department:			
Local Fire Department:			
Local Ambulance/EMS:			
Local Hospital:			
Further Information			
For further information or explanation about any duties under this Plan, contact:			
Name and Title			
Name and Title			
This Emergency Action Plan is authorized and approved by:			
Name		Title	
Signature		Date	

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to ensure proper safe work practices and procedures are followed to protect employees from the fall hazards.

REFERENCES

- 1926 Subpart M, Fall protection
- § 1926.500, Scope, application, and definitions applicable to this subpart
- § 1926.501, Duty to have fall protection
- § 1926.502, Fall protection systems criteria and practices
- § 1926.503, Training requirements
- Appendix A, Determining roof widths - Non-mandatory guidelines for complying with 1926.501(b)(10)
- Appendix B, Guardrail systems - Non-mandatory guidelines for complying with 1926.502(b)
- Appendix C, Personal fall arrest systems - Non-mandatory guidelines for complying with 1926.502(d)
- Appendix D, Positioning device systems - Non-mandatory guidelines for complying with 1926.502(e)
- Appendix E, Sample fall protection plan - Non-mandatory guidelines for complying with 1926.502(k)

RESPONSIBILITIES

Employer Responsibilities

GTG Automation, Inc. will provide at no cost to employees fall protection such as guard rails, safety nets, or personal fall arrest systems whenever employees are potentially exposed to falls to lower levels from heights of six feet or greater. This includes work near and around bins, tanks and excavations. Exception: When the standard methods of protection are not feasible or a greater hazard would be created. The exposure determination will be made without regards to the use of PPE.

GTG Automation, Inc. is responsible for:

- Ensuring that safety inspections of the facility occur on regular basis
- Training personnel in fall protection equipment selection and use
- Responding quickly to eliminate workplace hazards
- Ensuring all equipment is kept in good repair
- Ensuring employees follow safe job procedures
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness

Greg Griffin Responsibilities

Greg Griffin is the Program Administrator – designated qualified person - responsible for managing the Fall Protection Program. Greg Griffin will specify a fall protection system for each work-site, supervise its implementation, and inspect the system prior to use.

Safety Committee Responsibilities

- Assist in fall protection as necessary
- Assist in training employees to recognize and control workplace hazards
- Monitor the workplace for hazards
- Encourage employees to report hazards
- Implement appropriate controls
- Ensure corrective action is taken promptly

Employee Responsibilities

Employees will comply with the fall protection program at all times when working at heights of 6 feet or above will wear appropriate PPE (The fall protection system used will be appropriate for the specific work location or situation using best practices).

All employees are expected to: assist in job hazard analyses; follow safe job procedures; and report hazards to a supervisor immediately

TRAINING

Greg Griffin will ensure that all employees who participate in work where fall hazards are present are trained in recognition of fall hazards, fall protection procedures, equipment, and work practices. Written certification records will be maintained showing who was trained, types of training, dates of training, signature of person providing training, and the date training was determined to be adequate. Employees will be certified upon completion of training in the following areas:

- The nature of fall hazards in the work area
- The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used
- The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, personal fall restraint systems, slide guard systems, positioning devices, and other protection to be used
- The role of each employee in the safety monitoring system when this system is used
- The limitations on mechanical equipment use of during roofing
- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection
- The role of employees in the fall protection work plan

Employee re-training in fall protection will be provided when: previous training is deemed deficient; changes in work environment occur which would necessitate additional training; changes in fall protection equipment or systems occur; employee is observed applying unsafe work practices.

PROCEDURES

Prior to the start of work, Greg Griffin will make an initial survey of the types of fall hazards which are expected to be encountered and develop a plan relative to providing the kind and number of safeguards that will protect against these fall hazards. Each employee on a walking/working surface (horizontal and vertical surface) with an unprotected side or edge which is 6 feet or more above a lower level will be protected from falling by the use of guardrail systems, safety nets, or personal fall arrest systems.

- All accidents and serious incidents involving GTG Automation, Inc. employees will be reported immediately to the supervisor for the work location. All accidents/incidents will be investigated under the guidelines of the company Accident Investigation Program. Changes will be implemented to the Fall Protection Plan as necessary
- GTG Automation, Inc. will provide for prompt rescue of employees in the event of a fall or will assure the employees are able to rescue themselves
- All materials and equipment purchased and used at GTG Automation, Inc. for fall protection will comply to ANSI and ASTM standards required for that material or equipment

Fall Protection Locations

Fall protection is required wherever the potential to fall 6 feet or more exists. Fall protection is not needed if an employee or employees are on a low sloped roof for inspection/observation, provided that they do not approach within 8 feet of the roof's edge.

Fall Protection Work Plans

Greg Griffin will develop and implement a written fall-protection work plan including each area of the work place where employees are assigned and where fall hazards of 6 feet or more exist. It is recommended that the written plan be upgraded as conditions change. The fall-protection work plan will:

- Identify all fall hazards in the work area as the project work progresses
- Describe the method of fall arrest or fall restraint to be provided
- Describe the procedures for assembly, maintenance, and disassembly of the fall-protection system
- Describe procedures for the handling, storage, and securing of tools and materials
- Describe the method of providing overhead protection for workers who may be in, or pass through, the area below the work site
- Be available on the job site for inspection
- Ensure that employees are trained and instructed
- Include inspection of fall-protection devices and systems to ensure compliance with applicable parts of this procedure

Fall-Restraint & Fall-Arrest Systems

Greg Griffin will ensure that fall-restraint or fall-arrest systems are provided, installed, and implemented according to the following requirements. Fall-restraint and arrest protection will consist of:

Standard Guardrails

- Top rail 39 to 45 inches above the working surface, and must be smooth and of a shape to permit grasping easily
- Midrail (center between riser and top rail), screen or mesh (continuous) or intermediate vertical members (not more than 19 inches apart) will be provided between the top rail and working surface
- Guardrail systems will be capable of supporting 250 pounds in the downward or outward direction at any point along the top edge
- Midrail will support a 150-pound load in the downward or outward direction
- Top rails and midrails will be at least 1/4-inch nominal thickness. Plastic or steel banding will not be used
- Chain gates will be used to cover hoisting areas, and the guardrails will extend 4 feet minimum on either side of the opening
- Rails will be so constructed so as not to deflect under test loads. If cable or rope is used it will have tension-adjusting capability and remain taut at all times
- Wood Railings: Wood components will be minimum 1500 lb.-ft. / in.² fiber (stress grade) construction grade lumber. Posts will be at least 2-inch by 4-inch (5 cm x 10 cm) lumber spaced not more than 8 feet (2.4 m) apart on centers. The top rail will be at least 2-inch by 4-inch (5 cm x 10 cm) lumber; the intermediate rail will be at least 1-inch by 6-inch (2.5 cm x 15 cm) lumber
- Pipe Railings: Post, top rails, and intermediate railings will be at least one and one-half inches nominal diameter (schedule 40 pipe) with posts spaced not more than 8 feet (2.4 m) apart on centers
- Structural Steel Railings: Posts, top rails, and intermediate rails will be at least 2-inch by 2-inch (5 cm x 10 cm) by 3/8-inch (1.1 cm) angles, with posts spaced not more than 8 feet (2.4 m) apart on centers

Portable Guardrails

- Portable guardrails may be used in locations where permanent guardrails are not feasible
- Top rail 39 to 45 inches above the working surface, and must be smooth and of a shape to permit grasping easily
- Midrail (center between riser and top rail), screen or mesh (continuous) or intermediate vertical members (not more than 19 inches apart) will be provided between the top rail and working surface
- Guardrail systems will be capable of supporting 250 pounds in the downward or outward direction at any point along the top edge
- Midrail will support a 150-pound load in the downward or outward direction

Harness, Lanyards, Lifelines & Anchor Points

- An approved Class III full-body harness will be used
- All full-body harness and lanyard hardware assemblies will be capable of withstanding a tensile loading of 4,000 pounds without cracking, breaking, or taking a permanent deformation
- Anchorage points used for fall restraint will supporting four times the intended load
- Restraint protection and positioning devices will be rigged to allow the movement of employees only as far as the sides and edges of the walking / working surface
- Full-body harnesses will be attached to securely rigged restraint lines
- Rope-grab devices are prohibited for fall-restraint applications unless they are part of a fall-restraint system designed specifically for the purpose by the manufacturer and used in strict accordance with the manufacturer's recommendations and instructions
- Greg Griffin will ensure component compatibility
- Body-harness systems or components subject to impact loading will be immediately removed from service and will not be used again for employee protection unless inspected and determined by a competent person to be undamaged and suitable for reuse
- All safety lines and lanyards will be protected against being cut or abraded
- Body-harness systems will be rigged to minimize free-fall distance with a maximum free-fall distance allowed of 6 feet, and ensure that employees will not contact any lower level
- Hardware will have a corrosion-resistant finish and all surfaces and edges will be smooth to prevent damage to the attached body harness or lanyard
- When vertical lifelines (droplines) are used, not more than one employee will be attached to any one lifeline
- Full-body harness systems will be secured to anchorages capable of supporting 5,000 pounds per employee, except when self-retracting lifelines or other deceleration devices are used which limit free fall to two feet; in this case, anchorages will be capable of supporting 3,000 pounds
- Independent lifelines (droplines) will have a minimum tensile strength of 5,200 pounds, except that self-retracting lifelines and lanyards, which automatically limit free-fall distance to two feet or less, will have a minimum tensile strength of 3,000 pounds
- Horizontal lifelines will have a tensile strength capable of supporting a fall-impact load of at least 5,200 pounds per employee using the lifeline, applied anywhere along the lifeline
- Lanyards will have a minimum tensile strength of 5,200 pounds
- All components of body-harness systems whose strength is not otherwise specified in this section will be capable of supporting a minimum fall-impact load of 5,000 pounds applied at the lanyard point of connection
- Snap-hooks will not be connected to loops made in webbing-type lanyards
- Snap-hooks will not be connected to each other
- Not more than one snap-hook will be connected to any one D-ring
- Independent lifelines used on rock-scaling operations, or in areas where the lifeline may be subjected to cutting or abrasion, will be a minimum of 7/8-inch wire core manila rope. For all other lifeline applications, a minimum of 3/4-inch manila rope or its equivalent, with a minimum breaking strength of 5,000 pounds, will be used

- Safety harnesses, lanyards, and lifelines, independently attached or attended, will be used while performing the following types of work when other equivalent protection is not provided:
 - Work in hoppers, bins, silos, tanks, or other confined spaces
 - Work on hazardous slopes, or dismantling safety nets
 - Working on poles or from boatswains chairs at elevations
- Fall protection will be used when working at heights greater than six feet, on swinging scaffolds or other unguarded locations, and work on skips and platforms used in shafts by crews when the skip or cage does not include the opening to within one foot of the sides of the shaft, unless cages are provided
- Full-body harness systems will be inspected prior to each use for mildew, wear, damage, and other deterioration, and defective components will be removed from service if their function or strength has been adversely affected

Safety Nets

- Safety nets will be installed as close as practicable under the walking/working surface on which employees are working, but in no case more than 30 feet (9.1 m) below such level. When nets are used on bridges, the potential fall area from the walking/working surface to the net will be unobstructed
- Safety nets will extend outward from the outermost projection of the work surface as follows:

Vertical distance from working level to horizontal plane of net	Minimum required horizontal distance of outer edge of net from the edge of the working surface
Up to 5 feet	8 feet
More than 5 feet up to 10 feet	10 feet
More than 10 feet	13 feet

- Safety nets will be installed with sufficient clearance under them to prevent contact with the surface or structures below when subjected to an impact force equal to the drop test specified in the full-body harness section
- Safety nets and their installations will be capable of absorbing an impact force equal to that produced by the drop test specified in the full-body harness section
- Safety nets and safety-net installations will be drop-tested at the job site before being used as a fall-protection system. The drop-test will consist of a 400-pound bag of sand 30+2 inches in diameter dropped into the net from the highest walking / working surface on which employees are to be protected. Exception: when the employer can demonstrate that a drop-test is not feasible or practicable, the net and net installation will be certified by a qualified person to be in compliance with the provisions of this section
- Safety nets will be inspected weekly for mildew, wear, damage, and other deterioration, and defective components will be removed from service
- Materials, scrap pieces, and tools which have fallen into the safety net will be removed as soon as possible from the net, and at least before the next work shift

- The maximum size of each safety net mesh opening will not exceed 36 square inches nor be longer than six inches on any side measured center-to-center of mesh ropes or webbing. All mesh crossings will be secured to prevent the enlargement of any mesh opening
- Each safety net (or section of it) will have a border rope for webbing with a minimum breaking strength of 5,000 pounds
- Connections between the safety-net panels will be as strong as integral net components and will be spaced not more than six inches apart

Catch Platforms

A catch platform will be installed within ten vertical feet of the work area. The catch platform's width will equal the distance of the fall but will be a minimum of 45 inches wide and will be equipped with standard guardrails on all open sides.

Guarding Of Low-Pitched Roof Perimeters

During the performance of work on low-pitched roofs with a ground-to-eaves height greater than 6 feet, Greg Griffin will ensure that employees engaged in such work be protected from falling from all unprotected sides and edges of the roof as follows:

- By the use of a fall-restraint or fall-arrest system, as defined in applicable OSHA or state regulations
- Mechanical equipment will be used or stored only in areas where employees are protected by a warning line system, or fall-restraint, or fall-arrest systems as described in applicable OSHA or state regulations. Mechanical equipment may not be used or stored where the only protection is provided by the use of a safety monitor
- The general provisions section of this section do not apply at points of access such as stairways, ladders and ramps, or when employees are on the roof only to inspect, investigate, or estimate roof-level conditions. Roof-edge materials handling areas and materials storage areas will be guarded as provided in the roof-edge materials handling section of this section
- Workers engaged in built-up roofing on low-pitched roofs less than 50 feet wide may use a safety system without warning lines where the use of hot tar poses additional hazards

Warning-Line Systems & Access Paths

- When mechanical equipment is not being used, the warning line will be erected not less than 6 feet (1.8 m) from the roof edge
- When mechanical equipment is being used, the warning line will be erected not less than 6 feet (1.8 m) from the roof edge which is parallel to the direction of mechanical equipment operation, and not less than 10 feet (3.1 m) from the roof edge which is perpendicular to the direction of mechanical equipment operation
- Points of access, materials handling areas, storage areas, and hoisting areas will be connected to the work area by an access path formed by two warning lines
- When the path to a point of access is not in use, a rope, wire, chain, or other barricade, equivalent in strength and height to the warning line, will be placed across the path at the point where the path intersects the warning line erected around the work area, or the path will be offset such that a person cannot walk directly into the work area
- Warning lines will be erected around all sides of the work area for work 6 to 10 feet from the roof edge.

- A warning-line system as prescribed in 29 CFR 1926.500 and supplemented by the use of a safety-monitor system as prescribed in 29 CFR 1926.500 to protect any employee engaged in duties between the forward edge of the warning line and the unprotected sides and edges, including the leading edge, of a low-pitched roof or walking/working surface
- Warning line and safety monitor systems as described in 29 CFR 1926.500 are prohibited on surfaces exceeding a 4/12 pitch, and on any surface whose dimensions are less than 45 inches in all directions
- The warning line will consist of a rope, wire, or chain and supporting stanchions
- The rope, wire, or chain will be flagged at not more than six feet intervals with high-visibility material
- The rope, wire, or chain will be rigged and supported in such a way that its lowest point (including sag) is no less than 39 inches from the roof surface and its highest point is no more than 45 inches from the roof surface
- After being erected, with the rope, wire or chain attached, stanchions will be capable of resisting, without tipping over, a force of at least 16 pounds applied horizontally against the stanchion, 30 inches above the roof surface, perpendicular to the warning line, and in the direction of the roof edge
- The rope, wire, or chain will have a minimum tensile strength of 500 pounds, and after being attached to the stanchions, will be capable of supporting, without breaking, the loads applied to the stanchions
- The line will be attached at each stanchion in such a way that pulling of one section of line between stanchions will not result in slack being taken up in adjacent sections before the stanchion tips over.
- Access paths: points of access, materials-handling areas, and storage areas will be connected to the work area by a clear access path formed by two warning lines.
- When the path to a point of access is not in use, a rope, wire or chain, equal in strength and height to the warning line, will be placed at the point where the path intersects the warning line erected around the work area.

Roof-edge Materials-Handling Areas & Materials Storage

Employees working in a roof-edge materials-handling or materials storage area location on a low-pitched roof with a ground-to-work-area height greater than six feet will be protected from falling along all unprotected roof sides and edges of the area.

- When guardrails are used at hoisting areas, a minimum of four feet of guardrail will be erected on each side of the access point through which materials are hoisted
- A chain or gate will be placed across the opening between the guardrail sections when hoisting operations are not taking place
- When guardrails are used at bitumen pipe outlets, a minimum of four feet of guardrail will be erected on each side of the pipe
- When safety-harness systems are used, they will not be attached to the hoist
- When fall-restraint systems are used, they will be rigged to allow the movement of employees only as far as the roof edge
- Materials will not be stored within six feet of the roof edge unless guardrails are erected at the roof edge

Leading-Edge Control Zone

When performing leading-edge work, Greg Griffin will ensure that a control zone is established according to the following requirements:

- The control zone will begin a minimum of six feet back from the leading edge to prevent exposure by employees who are not protected by fall-restraint or fall-arrest systems
- The control zone will be separated from other areas of the low-pitched roof or walking/working surface by the erection of a warning-line system
- The warning-line system will consist of wire, rope, or chain supported on stanchions, or a method which provides equivalent protection
- The spacing of the stanchions and support of the line will be such that the lowest point of the line (including sag) is not less than 39 inches from the walking / working surface, and its highest point is not more than 45 inches from the working / walking surface
- Each line will have a minimum tensile strength of 500 pounds
- Each line will be flagged or clearly marked with high-visibility materials at intervals not to exceed six feet

Safety-Monitor System

The employer will designate a competent person to monitor the safety of other employees and the employer will ensure that the safety monitor complies with the following requirements:

- Be competent to recognize fall hazards
- Warn the monitored employee(s) when it appears they are unaware of a fall hazard or is acting in an unsafe manner
- The safety monitor will be on the same walking/working surface and within visual sighting distance of the employee(s) being monitored
- The safety monitor will be close enough to communicate orally with the employee(s) being monitored
- The safety monitor will have no other responsibilities that could take his/her attention from the monitoring function
- The safety monitoring system will not be used as a fall protection system for any work other than roofing work on roof slopes of 2 in 12 (vertical to horizontal) or less
- Use of a safety monitoring system alone (i.e., without the warning line system) is not permitted on roofs more than 50 feet (15.25 m) in width
- When selected, the employer will ensure that the safety-monitor system will be addressed in the fall-protection work plan, include the name of the safety monitor(s) and the extent of their training in both the safety-monitor and warning-line systems, and will ensure that the following requirements are met:
 - The safety-monitor system will not be used when adverse weather conditions create additional hazards.
 - A person acting in the capacity of a safety monitor will be trained in the function of both the safety-monitor and warning-lines systems

- The safety monitor will:
 - Be a competent person as defined in 29 CFR 1926.32(f)
 - Have control authority over the work as it relates to fall protection
 - Be instantly distinguishable from members of the work crew
 - Engage in no other duties while acting as safety monitor
 - Be positioned in relation to the workers under their protection, so as to have a clear, unobstructed view and be able to maintain normal voice communication
 - Not supervise more than eight exposed employees at one time
- Control zone workers will be distinguished from other members of the crew by wearing a high-visibility vest only while in the control zone

General Safety Considerations

The company will ensure prompt rescue of employees in the event of a fall or will assure that employees are able to rescue themselves.

Fall arrest systems will be inspected prior to each use for wear, damage and other deterioration, and defective components will be removed from service.

If Fall Protection Plans are utilized, site specific plans will be prepared, or modified by a Qualified Person, and maintained at the job site. The plan will be under the supervision of a Competent Person, and the plan will address why the use of conventional fall protection is infeasible, or why their use would cause a greater hazard.

If Fall Protection Plans are utilized, Greg Griffin will post a written notice of how is designated to work in controlled access zones. No other employees may enter controlled access zones.

If Fall Protection Plans are utilized, and in the event an employee falls, or some other related, serious incident occurs, (e.g., a near miss) the company will investigate the circumstances of the fall or other incident to determine if the fall protection plan needs to be changed (e.g. new practices, procedures, or training) and will implement those changes to prevent similar types of falls or incidents.

All affected employees will undergo training to recognize fall hazards and how to minimize these hazards. Retraining will occur when the following conditions occur: it is determined that employees already trained do not have the necessary understanding or skill, work place changes, and/or fall protection systems or equipment changes that render previous training obsolete. This training is documented, and the latest training certification is maintained.

Hole Covers

Covers located in roadways and vehicular aisles shall be capable of supporting at least twice the maximum axle load of the largest vehicle expected to cross over the cover without failing.

All other covers shall be capable of supporting, without failure, at least twice the weight of employees, equipment, and materials that may be imposed on the cover at any one time.

In order to prevent accidental displacement by the wind, equipment, or employees, all covers shall be secured when installed.

All covers shall be color coded or be marked with the word "HOLE" or "COVER" to provide warning of the hazard.

Note: This provision does not apply to cast iron manhole covers or steel grates used on streets or roadways.

[illegible]

POLICY

GTG Automation, Inc. has adopted this policy to inform employees of the Fatigue Management Plan. This ensures the safety and health of the employees.

RESPONSIBILITIES

Fatigue Management is a shared responsibility between the Company and its employees.

Employer Responsibilities

- Ensuring all employees are physically fit and capable to perform the job duties assigned
- Training personnel to recognize and manage fatigue
- Responding quickly to eliminate workplace hazards
- Providing adequate rest breaks
- Ensuring employees follow safe job procedures
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness
- Conduct periodic assessments of the fatigue management plan's effectiveness and incorporate a continuous improvement plan created to close any gaps

Supervisor Responsibilities

- Establishing and maintaining safe and healthful working conditions
- Monitoring employee fatigue
- Ensuring employees are not impaired by illness or medication use
- Setting good examples, instructing their employees, making sure they fully understand and follow safe procedures

Employee Responsibilities

- Notifying their supervisors if they are fatigued to the point of not being able to perform their duties safely
- Ensuring they are physically and mentally fit to perform their job functions safely; they must take responsibility for their own safety as well
- Notifying their supervisor if they are taking prescription or over-the-counter medications
- No employee is expected to undertake a job until he/she has received instructions on how to do it properly and safely, and is authorized to perform the job
- No employee will undertake a job that appears to be unsafe
- Employees are to report to a superior or designated individual all unsafe conditions encountered during work
- Personal protective equipment must be used when and where required, and properly maintained

TRAINING

GTG Automation, Inc. shall provide training to affected employees upon initial assignment and annually thereafter, training will consist of but not limited to:

- Recognizing symptoms of fatigue
- Company safe practices and controls
- Proper procedures to report fatigue to management

WORKER FATIGUE

GTG Automation, Inc. shall analyze work tasks and/or schedules that affect workers' amount, timing, and quality of sleep each day, amount of time since last sleep period, time of day, and workload and time on task.

Causes of Fatigue

- Poor quality or interrupted sleep over a period
- Long work hours and extended or irregular shifts
- Demanding workload

Prevention

In an effort to prevent fatigue, GTG Automation, Inc. will analyze any work tasks or schedule that may have an affect on the amount and quality of sleep it has on the employee.

GTG Automation, Inc. shall establish limits on work hours and the amount of work performed, allow for suitable rest periods, and control job rotation schedules accordingly.

GTG Automation, Inc. shall perform periodic assessments of work tasks for evidence of increasing fatigue factors and develop corrective actions to improve those tasks and lessen worker fatigue.

GTG Automation, Inc. shall evaluate and provide the following to help control fatigue and increase mental alertness of affected employees:

- Chairs and anti-fatigue mats
- Lift assist devices for repetitive lifting
- Ergonomics of workstations and equipment

Reporting

It is the policy of GTG Automation, Inc. that all employees feeling fatigued or tired and it is preventing them to perform their duty safely, must be reported to the supervisor immediately.

GTG Automation, Inc. shall provide periodic rest breaks for personnel and will also periodically evaluate and improve work tasks to control fatigue.

Over the Counter and Prescription Drugs

GTG Automation, Inc. shall ensure that employees do not use over the counter or prescription drugs to increase mental alertness.

All employees of GTG Automation, Inc. are discouraged from taking any substance known to increase fatigue, including fatigue that sets in after the effects if the drug wears off.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
CONTENT OF TRAINING:	
ATTENDEES	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to ensure proper safe work practices and procedures are followed for the protection of our employees against fire/explosion hazards. The following work practices, procedures, and engineering controls will be enforced as an integral part of our Company safety policy

RESPONSIBILITIES

Greg Griffin is designated as the supervisor to manage the Fire Prevention Program. GTG Automation, Inc. will have and maintain an employee alarm system. The employee alarm system will use a distinctive signal for each purpose. Greg Griffin will ensure that all employees are informed and trained in the following minimum elements for Emergency Action Plans:

- Greg Griffin will ensure all employees are trained in the proper operation of all types of fire extinguishers provided by the company
- As warranted by the project, GTG Automation, Inc. will provide a trained and equipped organization (Fire Brigade) to assure adequate protection to life
- Procedures for reporting a fire or other emergency
- Procedures for emergency evacuation for all areas of work, including type of evacuation and exit route assignments
- Safe assembly areas designated for all work areas in the event of evacuation
- Procedures to be followed by employees who remain to operate critical plant operations before they evacuate
- Procedures to account for all employees after evacuation
- Procedures to be followed by employees performing rescue or medical duties
- The members in the chain of command who may be contacted by employees who need more information about the Plan or for an explanation of their duties under the Plan
- All materials will be stored, handled, and piled with regard to their fire characteristics

TRAINING

GTG Automation, Inc. will designate and train employees to assist in a safe and orderly evacuation of other employees.

Greg Griffin will review the Fire Prevention Plan with each employee covered by the plan: when each Plan is developed or an employee is initially assigned to a job; when the employee's responsibilities under the Plan change; when any element of the Plan is changed.

Fire Protection/Prevention training will be required on initial hiring and annually thereafter. Employees will be trained in fighting class A, B, C, D, and K fires using the PASS method.

All employees will be trained in the hazards involved in using fire extinguishers for incipient stage firefighting and escape purposes. Employees are instructed to ensure the local Emergency Medical Service EMS (Fire Department) is notified before attempting to extinguish any fire, and that if a fire is not immediately extinguished using one fire extinguisher, or the fire recurs to evacuate immediately.

Where the employer has provided portable fire extinguishers for employee use in the workplace, the employer will also provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved with incipient stage fire fighting.

The employer will provide training upon initial employment and at least annually thereafter.

SAFE PRACTICES

The employer shall assure that portable fire extinguishers are subjected to monthly checks and an annual maintenance check. The employer shall record the annual maintenance date & retain this record for 1 year after the last entry of life of the shell, whichever is less.

All fire extinguishers and firefighting equipment will be inspected by Greg Griffin on a monthly basis; this inspection will be recorded and documented with the required annual maintenance check. And defective equipment will be replaced immediately. Records of inspection will be kept on file in the office.

Procedures are instructions for accomplishing specific tasks. Emergency procedures are important because they tell employees exactly what to do to ensure their safety during an emergency to accomplish each of the following tasks:

- Report emergencies to local fire and police departments
- Inform the emergency chain of command of an emergency
- Warn employees about an emergency
- Conduct an orderly, efficient workplace evacuation
- Assist employees with disabilities or injuries during an evacuation
- Shut down critical equipment, operate fire extinguishers, and perform other essential services during an evacuation. Account for employees at a designated safe area after an evacuation
- Perform rescue and first aid that may be necessary during an emergency

FIRE CLASSES

Not all fires are the same. Different fuels create different fires and require different types of fire extinguishing agents. The fire types are listed below:

- Class A – Ordinary combustibles such as wood, paper, cloth, trash, and plastics
- Class B – Flammable liquids such as gasoline, petroleum oil, and paint. Also includes flammable gasses such as propane and butane
 - Class B does NOT include fires involving cooking oils and grease
- Class C – Energized Electrical Equipment such as motors, transformers, and appliances.
 - If the power is removed, Class C fires become one of the other classes of fire
- Class D – Combustible metals such as potassium, sodium, aluminum, and magnesium
- Class K – Cooking oils and grease such as animal fats and vegetable fats

SELECTION AND DISTRIBUTION

Portable fire extinguishers will be provided for employee use and selected and distributed based on the classes of anticipated workplace fires and on the size and degree of hazard which would affect their use.

GTG Automation, Inc. will distribute portable fire extinguishers for use by employees on Class A fires so that the travel distance for employees to any extinguisher is 75 feet (22.9 m) or less.

GTG Automation, Inc. may use uniformly spaced standpipe systems or hose stations connected to a sprinkler system installed for emergency use by employees instead of Class A portable fire extinguishers, provided that such systems meet the respective requirements of 1910.158 or 1910.159, that they provide total coverage of the area to be protected, and that employees are trained at least annually in their use.

GTG Automation, Inc. will distribute portable fire extinguishers for use by employees on Class B fires so that the travel distance from the Class B hazard area to any extinguisher is 50 feet (15.2 m) or less.

GTG Automation, Inc. will distribute portable fire extinguishers used for Class C hazards on the basis of the appropriate pattern for the existing Class A or Class B hazards.

GTG Automation, Inc. will distribute portable fire extinguishers or other containers of Class D extinguishing agent for use by employees so that the travel distance from the combustible metal working area to any extinguishing agent is 75 feet (22.9 m) or less. Portable fire extinguishers for Class D hazards are required in those combustible metal working areas where combustible metal powders, flakes, shavings, or similarly sized products are generated at least once every two weeks.

INSPECTION, MAINTENANCE, AND TESTING

Greg Griffin will be responsible for the inspection, maintenance and testing of all portable fire extinguishers in the workplace.

Portable extinguishers or hose used in lieu thereof will be visually inspected monthly.

GTG Automation, Inc. will assure that:

- Portable fire extinguishers are subjected to an annual maintenance check. Stored pressure extinguishers do not require an internal examination. The employer will record the annual maintenance date and retain this record for one year after the last entry or the life of the shell, whichever is less. The record will be available to the Assistant Secretary upon request.
- Stored pressure dry chemical extinguishers that require a 12-year hydrostatic test are emptied and subjected to applicable maintenance procedures every 6 years. Dry chemical extinguishers having non-refillable disposable containers are exempt from this requirement. When recharging or hydrostatic testing is performed, the 6-year requirement begins from that date.
- Alternate equivalent protection is provided when portable fire extinguishers are removed from service for maintenance and recharging.

Hydrostatic Testing

GTG Automation, Inc. will assure that hydrostatic testing is performed by trained persons with suitable testing equipment and facilities.

GTG Automation, Inc. will assure that portable extinguishers are hydrostatically tested at the intervals listed in the table below, except under any of the following conditions:

- When the unit has been repaired by soldering, welding, brazing, or use of patching compounds;
- When the cylinder or shell threads are damaged;
- When there is corrosion that has caused pitting, including corrosion under removable name plate assemblies;
- When the extinguisher has been burned in a fire; or
- When a calcium chloride extinguishing agent has been used in a stainless steel shell.

In addition to an external visual examination, the employer will assure that an internal examination of cylinders and shells to be tested is made prior to the hydrostatic tests.

Type of Extinguishers	Test Interval (Years)
Soda Acid (soldered brass shells) (until 1/1/82)	(1)
Soda Acid (stainless steel shells)	5
Cartridge operated water and/or antifreeze	5
Stored pressure water and/or antifreeze	5
Wetting agent	5
Foam (soldered brass shells) (until 1/1/82)	(1)
Foam (stainless steel shells)	5
Aqueous film forming foam (AFFF)	5
Loaded steam	5
Dry chemicals with stainless steel	5
Carbon Dioxide	5
Dry chemical, stored pressure, with mild steel, brazed brass, or aluminum shells	12
Dry chemical, cartridge or cylinder operated, with mild steel shells	12
Halon 1211	12
Halon 1301	12
Dry Powder, cartridge, or cylinder operated with mild steel shells	12

1 Extinguishers having shells constructed of copper or brass joined by soft solder or rivets will not be hydrostatically tested and will be removed from service by January 1, 1982. (Not permitted)

GTG Automation, Inc. will assure that:

- Portable fire extinguishers are hydrostatically tested whenever they show new evidence of corrosion or mechanical injury, except under the conditions listed in paragraphs (f)(2)(i)-(v) of this section.
- Hydrostatic tests are performed on extinguisher hose assemblies which are equipped with a shut-off nozzle at the discharge end of the hose. The test interval will be the same as specified for the extinguisher on which the hose is installed.

- Carbon dioxide hose assemblies with a shut-off nozzle are hydrostatically tested at 1,250 psi (8,620 kPa).
- Dry chemical and dry powder hose assemblies with a shut-off nozzle are hydrostatically tested at 300 psi (2,070 kPa).

Hose assemblies passing a hydrostatic test do not require any type of recording or stamping. GTG Automation, Inc. will assure that:

- Hose assemblies for carbon dioxide extinguishers that require a hydrostatic test are tested within a protective cage device.
- Carbon dioxide extinguishers and nitrogen or carbon dioxide cylinders used with wheeled extinguishers are tested every 5 years at 5/3 of the service pressure as stamped into the cylinder. Nitrogen cylinders which comply with 49 CFR 173.34(e)(15) may be hydrostatically tested every 10 years.
- All stored pressure and Halon 1211 types of extinguishers are hydrostatically tested at the factory test pressure not to exceed two times the service pressure.
- Acceptable self-generating type soda acid and foam extinguishers are tested at 350 psi (2,410 kPa).

Air or gas pressure may not be used for hydrostatic testing.

Extinguisher shells, cylinders, or cartridges which fail a hydrostatic pressure test, or which are not fit for testing will be removed from service and from the workplace.

The equipment for testing compressed gas type cylinders will be of the water jacket type. The equipment will be provided with an expansion indicator which operates with an accuracy within one percent of the total expansion or .1cc (.1mL) of liquid.

The equipment for testing non-compressed gas type cylinders will consist of the following:

A hydrostatic test pump, hand or power operated, capable of producing not less than 150 percent of the test pressure, which will include appropriate check valves and fittings;

A flexible connection for attachment to fittings to test through the extinguisher nozzle, test bonnet, or hose outlet, as is applicable; and

A protective cage or barrier for personal protection of the tester, designed to provide visual observation of the extinguisher under test.

GTG Automation, Inc. will maintain and provide upon request to the Assistant Secretary evidence that the required hydrostatic testing of fire extinguishers has been performed at the time intervals shown in the table above. Such evidence will be in the form of a certification record which includes the date of the test, the signature of the person who performed the test and the serial number, or other identifier, of the fire extinguisher that was tested. Such records will be kept until the extinguisher is hydrostatically retested at the time interval specified in the table above or until the extinguisher is taken out of service, whichever comes first.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

It is the policy of GTG Automation, Inc. that training in first aid response is not a requirement for employment, but that local Emergency Medical Services are utilized for emergency medical care. Greg Griffin is designated as the administrator of the Medical Services Program.

- Medical services for employee evaluations, employment requirements, and special conditions of work are provided to employees at no cost as specified in OSHA requirements
- A person(s) who has a valid certificate in first aid training, the American Red Cross, or equivalent will be available at work sites to render emergency first aid
- Provisions will be made prior to commencement of a project for prompt medical attention in case of serious injury
- First aid supplies will be easily accessible when required
- Proper equipment for prompt transportation of the injured person to a physician or hospital or a communication system for contacting necessary ambulance service will be provided
- Greg Griffin is the designated first aid provider and certified in cardiopulmonary resuscitation CPR and is responsible for rendering first aid in the event of an injury requiring immediate response when emergency medical services are not available, and will also be responsible for first aid training of any employee required
- Injured employees are to be transported to medical facilities by emergency medical services. If emergency medical service is not available in a timely manner, the injured employee will be transported to the nearest medical service in a company vehicle by the job foreman
- In areas where 911 service is not available employees will be notified of phone numbers to contact local emergency response medical services. Greg Griffin will be responsible for posting of emergency phone numbers at all jobsites. The phone numbers will be conspicuously posted in all work locations
- Greg Griffin is responsible for the accessibility of First Aid Kits and for checking the contents of all First Aid Kits before being sent out to each job and at least weekly on each job to ensure that the expended items are replaced
- A valid certificate in first aid training must be obtained from the American Red Cross or equivalent training that can be verified by documentary evidence
- Medical and first aid facilities shall be made available and in the absence of facilities, Greg Griffin shall ensure a person trained to render first aid shall be available at the work site
- Prior to employees sent to a work site, GTG Automation, Inc. ensures that arrangements to transport an injured or ill employees from the work site to the nearest health care facility are in place
- GTG Automation, Inc. ensures that an ambulance service is readily available to the work site when travel conditions are normal
- When an ambulance service is not readily available or if travel conditions are not normal, GTG Automation, Inc. ensures that other transportation is available that:
 - is suitable, considering the distance to be travelled and the types of acute illnesses or injuries that may occur at the work site
 - protects occupants from the weather
 - has systems that allow the occupants to communicate with the health care facility to which the injured or ill worker is being taken
 - can accommodate a stretcher and an accompanying person if required to

- First aid kits are readily available in all company vehicles and in the company office. First aid kits will consist of appropriate items and stored in a weatherproof container with individual sealed packages of each type of item and will stock a minimum of the following items:

PPE for First Aid:	Antiseptics & Ointments:
3-Pair latex gloves	Alcohol
Surgical masks	Burn gel or cream
Clear eye protection or Face Shield	Alcohol swabs
Dust Masks or another needed Face Protection	Peroxide
Mouth-to-mouth barrier	Antiseptic spray and ointment
Large, sterile gauze pads: <i>6 each: 2X2's, 3X3' and 4X4's</i>	Pain relief tabs
Compress Dressings (4X8), <i>3 each</i>	6 burn treatment single-use packages: <i>0.5 g. Application</i>
Rolled gauze bandages: <i>2" and 3" wide, 3 each</i>	Good quality eye-wash solution, with eye cup
Large box assorted "Band-Aids"	1 eye covering bandages (for two eyes)
Two elastic wrap bandages (ace)	Self-activating cold packs: <i>4x5 inches</i>
Cotton balls and Q-tips	Liquid antiseptic hand soap
Surgical or athletic tape. <i>1" & 2" wide, 2 rolls each</i>	Blunt-nose surgical scissors

- Where the eyes or body of any person may be exposed to injurious corrosive materials, suitable facilities will be provided within the work area for quick drenching or flushing of eyes or body
- Eye wash bottles are available wherever eye wash stations are not available, for any employee required to work in an environment where exposure to eye hazards may exist. Wash facilities or drench barrels are available at each jobsite for employees
- Procedure for flushing eyes — Eye membranes absorb chemicals quickly. This can lead to eye damage within minutes. Flood the eye with lukewarm (never hot) water poured from a large glass two to three inches from the eye. Continue for 15 minutes. Blink the eye as much as possible during the flooding. Do not force the eyelid open and do not allow the eyes to be rubbed. If lukewarm water is not available, rinse the eye quickly using a gentle stream from a hose for at least 15 minutes
- Procedure for drenching skin — If poisons come in contact with the skin, they must be removed as quickly as possible. Remove contaminated clothing and flood the skin area with water for 10 minutes. Then gently wash the skin area with soap and water and rinse. Later, destroy contaminated clothing. For a chemical skin burn, rinse the area with lots of water, remove the clothes and cover with a soft, clean cloth. Do not apply grease or ointments
- GTG Automation, Inc. ensures that medical personnel will be readily available for advice and consultation in the matters of occupational health
- It is the policy of GTG Automation, Inc. that all of the requirements of OSHA §1926.50 will be met

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

This program is designed for the prevention of employee accidents and injuries while operating industrial trucks (forklifts). Only trained and certified operators, including supervisors, are allowed to operate Powered Industrial Trucks (Forklifts).

REFERENCES

- §1910.178 – Powered Industrial Trucks

RESPONSIBILITIES

Safe forklift operation is a responsibility shared between the Company and its employees.

Employer Responsibilities

GTG Automation, Inc. is responsible for:

- Ensuring each powered industrial truck operator is competent to operate a powered industrial truck safely, as demonstrated by the successful completion of our training and evaluation
- Responding quickly to eliminate workplace hazards
- Ensuring all equipment is kept in good repair
- Ensuring employees follow safe job procedures
- Reviewing jobsite conditions whenever there is a significant change to any element of the job or there has been an injury or illness

Safety Committee Responsibilities

- Assist in jobsite review for hazards to forklifts as necessary
- Assist in training employees to recognize and control workplace hazards
- Ensure operators of forklifts are certified operators
- Encourage employees to report hazards
- Implement appropriate controls
- Ensure corrective action is taken promptly

Employee Responsibilities

- Operate forklifts only when certified to do so
- Follow safe job procedures
- Report hazards to a supervisor immediately

Powered Industrial Truck Operators:

Operators are responsible for the following:

- Operating all powered industrial trucks in a safe manner consistent with safe rules of operation.
- Inspecting powered industrial trucks at the beginning of each work shift and completing the appropriate inspection forms.
- Reporting all equipment malfunctions and/or maintenance needs to their supervisors immediately.
- Park lift in safe place, remove key, tag or note problem.

TRAINING

Training will include: formal classroom education, practical training, and an instructor's evaluation of the operator's performance. The instructor providing the training will be knowledgeable about the formal education and worksite requirements and qualified to provide operating instructions and evaluate each student's performance in the following:

- Load capacity
- Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate
- Differences between the truck and the automobile
- Truck controls and instrumentation: location, what they do, and how they work
- Engine or motor operation
- Steering and maneuvering
- Visibility (including restrictions due to loading)
- Fork and attachment adaptation, operation, and use limitations
- Vehicle capacity and stability
- Any vehicle inspection and maintenance that the operator will be required to perform
- Refueling and/or charging and recharging of batteries
- Operating limitations
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate

Workplace-related topics include:

- Surface conditions where the vehicle will be operated
- Composition of loads to be carried and load stability
- Load manipulation, stacking, and unstacking
- Pedestrian traffic in areas where the vehicle will be operated
- Narrow aisles and other restricted places where the vehicle will be operated
- Hazardous (classified) locations where the vehicle will be operated
- Ramps and other sloped surfaces that could affect the vehicle's stability
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust
- Other potentially hazardous environmental conditions in the workplace
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate

Refresher Training Requirements

Refresher training, including an evaluation of the effectiveness of that training, will be conducted to ensure that the operator has the knowledge and skills needed to operate the powered industrial truck safely.

Refresher training will be conducted when:

- The operator has been observed to operate the vehicle in an unsafe manner
- The operator has been involved in an accident or near-miss incident
- The operator has received an evaluation that reveals that the operator is not operating the truck safely
- The operator is assigned to drive a different type of truck
- A condition in the workplace changes in a manner that could affect safe operation of the truck

An evaluation and recertification of each powered industrial truck operator's performance will be conducted at least once every three years. Employee training records will be maintained for a minimum of 5 years.

SAFE PRACTICES

Operator Requirements

- Operators must be certified to use the equipment he/she is operating
- Operators are prohibited from operating powered industrial trucks while under the influence of any of the following that might impair their driving skills:
 - Alcohol
 - Illegal drugs
 - Prescription or over the counter medications

Equipment Inspection and Maintenance

- The operator will inspect their powered industrial truck before each shift
- A file will be maintained that lists the shift inspections of equipment. This file will be kept at the GTG Automation, Inc. Administration Offices
- A maintenance log will be kept that identifies repair needs and corrective actions taken for each powered industrial truck. This log will be kept at the Maintenance Administration Offices
- If repairs are needed on a powered industrial truck such that it cannot be safely operated, it will be taken out of service until the repairs have been made
- After repairs have been completed, the powered industrial truck will be given a performance test to ensure that the equipment is safe to operate
- Forklifts will be kept in clean condition, free of dirt, excess oil and grease

Changing and Charging Batteries

- Equipment will be provided to safely flush and neutralize spilled battery acid and electrolyte
- Smoking will be prohibited in all battery-charging areas
- Eyewash equipment will be maintained in all charging areas
- Precautions to prevent open flames, sparks and electric arcs in charging areas
- Employees who change and service batteries and handle corrosive liquids will wear the proper Personal Protective Equipment (PPE)

General Safety

- Only authorized, trained personnel will operate lift trucks
- Before start of shift, a visual inspection must be conducted. Employees will not operate an unsafe forklift at any time
- Fill fuel tanks out of doors while engine is off
- Operators will drive with both hands on the steering wheel. Horseplay is prohibited. Do not drive with wet or greasy hands
- No person will ride as a passenger on a forklift or on the load being carried
- A forklift will not be used to elevate a platform or pallet with persons on it, except work platforms especially designed for this purpose. Work platforms must have standard guard rails, and must be securely fastened to the forks
- No person will stand or walk under elevated forks
- Operators will avoid making jerky starts, quick turns, or sudden stops. The operator will not use reverse as a brake
- Slow down on wet & slippery surfaces, cross aisles or locations with obstructed visions
- Operators entering a building or nearing a blind corner will make their approach at reduced speed. Sound horn and proceed carefully
- Operators will give pedestrians the right-of-way at all times
- Operators will not drive toward any person who is in front of a fixed object or wall
- Operators will not overtake and pass another forklift traveling in the same direction, at intersections, blind spots, or hazardous locations
- Operators will not put their fingers, arms, or legs between the uprights of the mast, or beyond the contour of the forklift
- Forks will always be placed under the load as far as possible. Do not lift a load with one fork
- No load will be moved unless it is absolutely safe and secure
- Use extra care when handling long lengths of bar stock, pipe, or other materials
- Avoid sharp or fast end-swing
- Compressed gas cylinders will be moved only in special pallets designed for this purpose
- When loading or unloading trucks or trailers, the brakes on the vehicle will be set (locked) and the wheels of the truck and/or trailer will be chocked and secured
- Forklifts must be safely parked when not in use. The controls will be neutralized, power shut off, brakes set, key removed, and the forks left in a down position flat on the surface, and not obstructing walkways or aisles
- A forklift will not be left on an incline unless it is safely parked and the wheels blocked
- Only stable and safely arranged loads will be handled
- Only loads within the rated capacity of the powered industrial truck will be handled

Traveling

- GTG Automation, Inc. speed limits will be observed, and under all travel conditions, a powered industrial truck will be operated at speeds that will permit it to be brought to a stop in as safe manner
- Three truck lengths (or two seconds) will be maintained between powered industrial trucks in operation
- The powered industrial truck will be kept under control at all times
- When vision is obscured, the operator will slow down and sound the horn
- If the load blocks the operator's view, the powered industrial truck will be driven in the direction that provides the best visibility
- The powered industrial truck will cross railroad tracks at a diagonal
- The powered industrial truck will be parked 8 feet or further from the center line of the railroad tracks
- The operator will keep a clear view of the path of travel
- The loaded powered industrial truck will be driven with the load upgrade when driving on ascending or descending grades greater than 10%
- Dock boards and bridge plates will be properly secured before they are driven over
- When the forklift is not carrying a load, the operator will travel with the forks as low as possible (maximum of 3 inches on paved surfaces). When carrying a load, it will be carried as low as possible (consistent with safe operation, 2 to 6 inches above the surface)
- The forks will not be operated while the forklift is traveling
- On a downgrade, the load will be to the rear, and the forks raised only enough to clear the surface
- On an upgrade, the load will be ahead, and the forks raised only enough to clear the surface

Forklift Daily Inspection Checklist:

KEY OFF Procedures

The vehicle inspection

- ☐ Overhead guard
- ☐ Hydraulic cylinders
- ☐ Mast assembly
- ☐ Lift chains and rollers
- ☐ Forks
- ☐ Tires
- ☐ Gas gauge
- ☐ Check the engine oil level
- ☐ Examine the battery
- ☐ Inspect the hydraulic fluid level
- ☐ Check the engine coolant level

KEY ON Procedures

Test the standard equipment

- ☐ Front, tail, and brake lights
- ☐ Fuel gauge (if diesel)
- ☐ Windshield wiper
- ☐ Heater

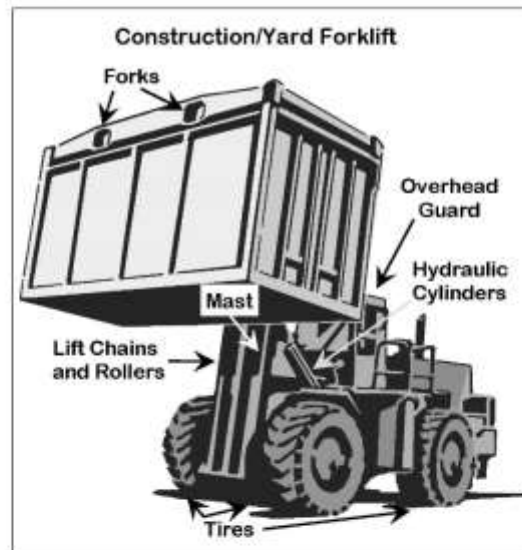
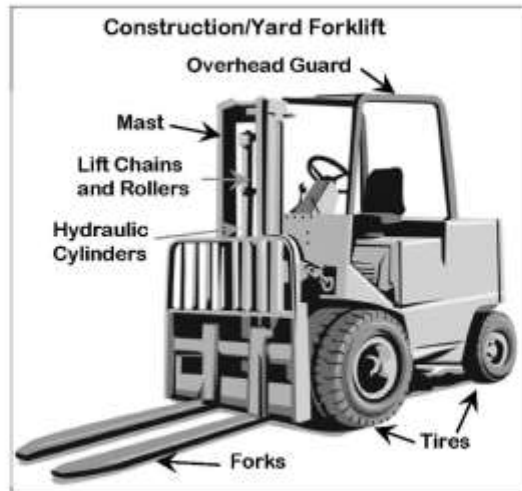
ENGINE RUNNING Procedures

Check the gauges

- ☐ Oil pressure indicator lamp
- ☐ Ammeter indicator lamp
- ☐ Ammeter
- ☐ Hour Meter
- ☐ Water Temperature Gauge

Test the standard equipment

- ☐ Steering
- ☐ Brakes
- ☐ Horn
- ☐ Safety seat (if equipped)
- ☐ Check the transmission fluid level
- ☐ Check the operation of load-handling attachments



Comments/Observations: _____

Printed name and signature of person(s) conducting inspection _____ Date _____

Printed name and signature of person(s) conducting inspection _____ Date _____

Performance Evaluation for Forklift Operators

Employee: _____ Date: _____ Time: _____

Evaluator: _____ Equipment Type: _____

YES NO

- ☐ ☐ Shows familiarity with truck controls.
- ☐ ☐ Gave proper signals when turning.
- ☐ ☐ Slowed down at intersections.
- ☐ ☐ Sounded horn at intersections.
- ☐ ☐ Obeyed signs.
- ☐ ☐ Kept a clear view of direction of travel.
- ☐ ☐ Turned corners correctly - was aware of rear end swing.
- ☐ ☐ Yielded to pedestrians.
- ☐ ☐ Drove under control and within proper traffic aisles.
- ☐ ☐ Approached load properly.
- ☐ ☐ Lifted load properly.
- ☐ ☐ Maneuvered properly.
- ☐ ☐ Traveled with load at proper height.
- ☐ ☐ Lowered load smoothly/slowly.
- ☐ ☐ Stops smoothly/completely.
- ☐ ☐ Load balanced properly.
- ☐ ☐ Forks under load all the way.
- ☐ ☐ Carried parts/stock in approved containers.
- ☐ ☐ Checked bridge-plates/ramps.
- ☐ ☐ Did place loads within marked area.
- ☐ ☐ Did stack loads evenly and neatly.
- ☐ ☐ Did drive backward when required.
- ☐ ☐ Did check load weights.
- ☐ ☐ Placed forks on the ground when parked, controls neutralized, brake on set, power off.
- ☐ ☐ Followed proper instructions for maintenance - checked both at beginning and end.

Comments: _____

Total Rating: ☐ Excellent ☐ Good ☐ Fair ☐ Poor ☐ Fail

Evaluator's Signature _____ Date _____

Operator's Signature _____ Date _____

Certification of Forklift Operator Training

The Company certifies that the following employee has been trained and has demonstrated competence in the following areas of powered industrial truck operations:

Truck-related topics:

- Operating instructions, warnings, and precautions for the types of truck the operator will be authorized to operate.
- Differences between the truck and an automobile.
- Truck controls and instrumentation: where they are located, what they do, and how they work.
- Engine or motor operation.
- Steering and maneuvering.
- Visibility (including restrictions due to loading).
- Fork and attachment adaptation, operation, and use limitations.
- Vehicle capacity.
- Vehicle stability.
- Any vehicle inspection and maintenance that the operator will be required to perform.
- Refueling and/or charging and recharging of batteries.
- Operating limitations.
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.

Workplace-related topics:

- Surface conditions where the vehicle will be operated.
- Composition of loads to be carried and load stability.
- Load manipulation, stacking, and un-stacking.
- Pedestrian traffic in areas where the vehicle will be operated.
- Narrow aisles and restricted areas that the vehicle will be operated.
- Hazardous (classified) locations where the vehicle will be operated.
- Ramps and sloped surfaces that could affect the vehicle's stability.
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust.
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

Employee Name: _____

Name of Trainer: _____

Signature of Trainer: _____

Date of Training: ____/____/____ Date of Evaluation: ____/____/____

POLICY

GTG Automation, Inc. has adopted this policy to inform employees of the written Gas Hazards Procedures. This ensures the safety and health of the employees.

RESPONSIBILITIES

Greg Griffin is responsible for ensuring that the following policy for control, training, personal protective equipment and safe work practices is enforced.

TRAINING

Training for Gas Hazard Awareness will be documented and available for review. Employees will be trained in gas hazards before initial assignment. Employees will receive refresher training at least: annually, as work requires; changing job assignments; changing equipment; changing environment.

Gas Hazard Awareness training requirements will include, at a minimum, the following:

- Locations of alarm stations
- Gas Monitoring Equipment – Portable and Fixed Detection
- Gas Alarms
- Gas Hazards – Characteristics of gases, to include at a minimum:
- Oxygen deficiency
- Oxygen or nitrogen enriched atmospheres
- Carbon monoxide, hydrogen sulfide, and methane
- Health hazards, particularly of the anticipated possible gas exposure
- The correct use, maintenance, and limitations of Personal Protective Equipment (PPE)

Hazard training will include any plant or department specific gases of concern, and will also include:

- Signs and symptoms of overexposure
- Personnel Rescue Procedures
- Use and care of Self-Contained Breathing Apparatus (SCBA) - includes donning and emergency procedures (when applicable)
- Evacuation procedures
- Staging Areas – Primary and Secondary

GAS DETECTORS/MONITORS

GTG Automation, Inc. will ensure each employee will use a portable gas detector as required in all high-hazard areas.

The gas monitor will be calibrated per the manufacturer's recommendations. Each monitor will contain a current calibration sticker on the monitor providing the date of calibration.

At the beginning of each day, a bump test is required to be completed on the monitor when in use per the requesting owner client and manufacturer's guidelines. This is to ensure the monitor and alarms are functioning correctly.

Bump Test: Briefly expose the portable detector to a known concentration of gas high enough to set off the alarm. Note the reading to ensure that it is correct. A bump test is not a calibration, but a quick way to ensure that the most important functions of the instrument are intact.

RESPIRATORY PROTECTION

GTG Automation, Inc. will ensure the company's respiratory protection program is in accordance with 29CFR 1910.134. Each employee will receive training in respiratory protection. The training will be documented and in writing.

EMERGENCY ACTION

GTG Automation, Inc. will ensure all employees are aware of the Owners Emergency Action Plan, including evacuation routes and alarms. Employees will participate in company emergency evacuation drills and practice rescue procedures.

GAS HAZARDS RECORD OF EMPLOYEE TRAINING

Employees have been made aware of the risks for Gas Hazards identified at this site and have been trained in the appropriate actions as defined in the procedures of this program. Employees have been instructed on how to fill out the report form whenever a violent incident occurs. The following is a list of employees who have received training on Gas Hazard Awareness procedures.

Topics in this training include:

- Locations of alarm systems
- Portable & fixed monitoring equipment
- Gas alarms
- Gas hazards-i.e. characteristics, signs of overexposure, etc.
- Personnel Rescue
- Respiratory Protection procedures
- Evacuation/Emergency Action procedures
- Staging procedures

Printed Name	Signature	Date

POLICY

GTG Automation, Inc. has adopted this policy to inform employees of the General Waste Management Plan. This ensures the safety and health of the employees.

Greg Griffin is responsible for ensuring that the following policy is enforced.

WASTE TYPES

- **Listed Wastes:** Wastes that EPA has determined are hazardous. The lists include the F-list (wastes from common manufacturing and industrial processes), K-list (wastes from specific industries), and P- and U-lists (wastes from commercial chemical products)
- **Characteristic Wastes:** Wastes that do not meet any of the listings above but that exhibit ignitability, corrosivity, reactivity, or toxicity
- **Universal Wastes:** Batteries, pesticides, mercury-containing equipment (e.g., thermostats) and lamps (e.g., fluorescent bulbs)
- **Mixed Wastes:** Waste that contains both radioactive and hazardous waste components
- **Construction Wastes:** Building materials such as bricks, concrete, wood, insulation, nails, electrical wiring, and rebar, as well as waste originating from site preparation such as dredging materials, tree stumps, and rubble. Construction waste may contain lead, asbestos, or other hazardous substances
- **Medical and Infectious Wastes:** Waste generated by health care activities includes a broad range of materials, from used needles and syringes to soiled dressings, body parts, diagnostic samples, blood, chemicals, pharmaceuticals, medical devices and radioactive materials

PROCEDURES

Waste Estimation

Prior to the commencement of work, it is the policy of the company to ensure that an estimation of the wastes, trash and scrap materials that will be generated is conducted. This will be performed so the need for containers, and waste removal, if necessary, can be determined.

Waste Disposal

The company will coordinate with the project or site owner to ensure the proper disposal of wastes or scrap materials. The company will ensure that the owner is aware of whether wastes and scrap materials will be taken off site or will be disposed of on the owner's site.

Safety Hazards

The company will ensure safe practices related to the immediate storage and handling of waste, scrap, or left over materials are carried out. Always be aware of what you are handling. The proper Personal Protective Equipment (PPE) will be used before handling.

Handling, Organization, and Storage

GTG Automation, Inc. will ensure that waste materials will be properly stored and handled to minimize the potential for a spill or impact to the environment. During outdoor activities, receptacles must be covered to prevent dispersion of waste materials and to control the potential for run-off.

It is the policy of GTG Automation, Inc. that all types of waste or scrape materials generated will be stored properly and in an organized fashion.

GTG Automation, Inc. ensures project-related wastes will be stored and maintained in an organized fashion to encourage proper disposal and minimize risks to employees. Proper waste receptacles will be provided for trash and materials that may be reused or recycled during a project.

Proper Methods of Disposal

It is the policy of GTG Automation, Inc. to ensure all employees are instructed in the proper method to dispose of wastes.

Employees of GTG Automation, Inc. will be instructed the general disposal of non-hazardous wastes, trash, or scrap materials. If wastes generated are classified as hazardous, employees will be trained to ensure proper disposal.

Waste Segregation

GTG Automation, Inc. is committed to encouraging employees to properly segregate waste or scrap materials to ensure the opportunity for reuse or recycle.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to ensure no employee is exposed hazards caused by improper or unsafe use of hand and portable powered tools. GTG Automation, Inc. will provide instruction and training by a Competent Person for each employee using any such tool. The program will enable each employee to recognize hazards related to hand and portable powered tool use and will train each employee in the procedures to be followed to minimize these hazards.

REFERENCES

- §1910.241 – Hand and Portable Powered Tools and Other Hand-Held Equipment
- §1926.300 – Tools - Hand and Power

RESPONSIBILITIES

Employer Responsibilities

GTG Automation, Inc. is responsible for:

- Ensuring that hand tools and portable powered equipment outside of the facility are inspected on a regular basis
- Ensuring each employee has been trained or instructed by a competent person in the following areas, as applicable:
 - All hand and power tools and similar equipment, whether furnished by GTG Automation, Inc. or the employee, will be maintained in a safe condition
 - Any tool not in compliance with any applicable OSHA requirements is prohibited. Such tools will either be identified as unsafe by tagging or locking the controls to render them inoperable, or the defective tool will be physically removed from its place of operation
 - When power operated tools are designed to accommodate guards, they will be equipped with such guards when in use
 - Guards shall be in place and operable at all times while the tool is in use. The guard may not be manipulated in such way that will comprise its integrity or compromise the protection in which intended. Guarding shall meet the requirements set forth in American National Standards Institute (ANSI) B15.1
 - Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, mists, vapors, or gases will be provided with the appropriate Personal Protective Equipment (PPE) necessary to protect them from the hazard
 - Belts, gears, shafts, pulleys, sprockets, spindles, drums, fly wheels, chains, or other reciprocating, rotating, or moving parts of equipment will be guarded if such parts are exposed to contact by employees or otherwise create a hazard
 - One or more methods of machine guarding will be provided to protect the operator and other employees in the machine area from hazards such as those created by point of operation, ingoing nip points, rotating parts, flying chips, and sparks. The point of operation of machines whose operation exposes an employee to injury, will be guarded

- All fuel powered tools will be stopped while being refueled, serviced, or maintained. When fuel powered tools are used in enclosed spaces, the applicable PPE requirements for hazardous atmospheres will apply. Responding quickly to eliminate workplace hazards; ensuring all equipment is kept in good repair; ensuring employees follow safe job procedures; and reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness

Safety Committee Responsibilities

It is the responsibility of the safety committee to:

- Assist in hand tool and portable powered equipment inspections
- Assist in training employees to recognize and control workplace hazards
- Monitor the workplace for hazards
- Encourage employees to report hazards
- Implement appropriate controls
- Ensure corrective action is taken promptly

Employee Responsibilities

All employees are expected to:

- Inspect hand tool and portable powered equipment before use
- Remove defective hand tool and portable powered equipment
- Follow safe job procedures
- Report hazards to a supervisor immediately

SAFE PRACTICES

General Power Tool Use

- Do not allow anyone to use power tools that has not been properly instructed and approved in the processes of safe operation
- Be familiar with your power tools. When using a new tool, or one that is foreign to you, take some time to “test-run” it and get a feel for its performance. Read and understand the operator’s manual and follow its instructions. Prior to its use, do a visual and operational inspection to ensure safe mechanical function
- Eye protection is extremely important and must always be worn when using power tools. When operations present potential eye injuries, adequate and appropriate protection must be selected. Use a face shield, protective goggles, or approved safety glasses depending on the job performed
- Hearing protection is required due to the extreme noise levels generated, especially during extended operating sessions
- Depending on the material being cut, gloves can be helpful and a respirator or dust mask may be required
- Wear clothing appropriate for power tools use; avoid long, loose shirtsleeves, neckwear, or untied long hair
- Check that the electrical circuit to be used is of the proper rating and that cords, plugs, and fittings are intact and secure. All power tools must be grounded unless they are double insulated
- Use only extension cords that are free of splices, taps, bare wires, or frayed and deteriorated insulation. Use 3-prong adapters

- Ensure all power tools are equipped with proper shields and guards, as recommended by the manufacturer. The guards are designed and engineered for the operator's safety
- Operate only properly maintained equipment. Check that spring-loaded on/off trigger switch functions properly
- If any operational problems are noted, remove the power tools from service and get it repaired immediately
- When repairing tools, changing blades, bits and/or cutters, disconnect the power source
- Remove chuck-keys or arbor wrenches before using the tool
- When possible, always secure your work on a stable platform using clamps or vices
- Unsafe practices and inadequate housekeeping create potentially dangerous work-zones; keep the work area free of trip hazards such as tangled power cords, cluttered material, scraps, bricks, or other obstacles and obstructions
- Be aware of your surroundings and always on the lookout for hazards. Avoid using power tools in a wet environment
- Always use the proper tool for the job. store tools in a dry, secure location

Powder-Actuated Tools

GTG Automation, Inc. employees are required to follow these general requirements for safe powder-actuated tool use:

- Operators and assistants using tools must use eye, head, and face protection as required by working conditions
- Inspect the tool before use to ensure that it is clean, that all moving parts are free, and that the barrel is free of debris or obstructions
- The muzzle end of the tool must have a guard at least 3 ½" in diameter to confine any flying fragments that might create a hazard
- If a tool is defective, it must be taken out of use until it is properly repaired
- Tools are to remain unloaded until they are to be used
- Never point a tool, loaded or unloaded, at anyone
- In case of a misfire, the tool must be held in the operating position for at least 30 seconds, tried a second time, then wait another 30 seconds before unloading in strict accordance with manufacturer's instructions. Never leave a tool unattended where it would be available to unauthorized personnel
- Fasteners must not be driven into exceptionally hard materials such as cast iron, glazed tile, hardened steel, glass block, or rock
- A backing must be used on soft materials to prevent fastener from passing completely through and becoming a flying hazard
- Fasteners must not be driven through an existing hole unless means of positive alignment is available
- Fasteners may not be driven into a cracked or fractured area caused by a previous fastener
- Tools must not be used in an explosive or flammable atmosphere

Requirements for loads and fasteners:

- There must be a standard means of identifying the power level of loads being used in the powder actuated tools
- No load may be used in excess of design specifications for a low velocity tool
- Fasteners used in tools must be only those designed to be used in such tools

Circular Saws

GTG Automation, Inc. employees are required to follow these safety guidelines when using a circular saw:

- Eye protection is extremely important and must always be worn when using circular protection must be selected. Use a face shield, protective goggles, or approved safety glasses depending on the job to be performed
- Hearing protection may be required due to the extreme noise levels generated, especially during extended use
- A respirator or dust mask may be required, depending on the material being cut
- Do not wear loose clothing, long-sleeves, or gloves while operating a circular saw
- Check that the electrical circuit to be used is of the proper rating and that cords, plugs, and fittings are intact and secure
- Circular saws must be grounded unless they are double insulated
- Use only extension cords that are free of splices, taps, bare wires, or frayed and deteriorated insulation. Do not use extensions over 100 ft. long due to the power drop. Operate only properly maintained equipment. Check that the spring-loaded on/off trigger switch functions properly. If any operational problems are noted, remove the circular saw from service and get it repaired immediately
- Be aware of your surroundings and always on the lookout for hazards. Avoid using circular saws in a wet environment
- Always cut material on an elevated work platform. Never attempt to cut any material lying on the ground or by simply holding the material in your opposite hand
- Be aware of the position of the cord. Always clear the cord before making the cut
- Inspect all material prior to cutting. Look for defects such as knots in the wood, nails and screws, or any obstruction that may impede the cut
- Always inspect the saw prior to operation, ensuring the blade is tight and guards are fully functional
- Never pin back or otherwise disable the retractable guard
- Unplug the saw when changing blades or making adjustments for depth or angle
- After tightening the blade or making other adjustments, be sure to remove wrench before operating the circular saw
- Maintain the saw and use only sharp blades or non-defective abrasive wheels free of distortion, cracks, or heat damage. A ring test will be performed on blades prior to installation to determine soundness
- Always store and discard saw blades in a safe responsible manner
- When the saw is not in use unplug the saw and place the saw out of the way with the blade facing down
- Always use the proper tool for the job. When not in use, store circular saws in a dry, secure location

Miter Saws

GTG Automation, Inc. employees are required to follow these safety guidelines when using a miter cut-off (chop) saw:

- Do not ever, under any circumstances, allow anyone to use a chop saw that has not been properly instructed and approved in the processes of its safe operation

- Prior to its use, do a visual and operational inspection to ensure safe mechanical function of the saw:
 - Make certain all blade guards are in place and working smoothly. Removing or pinning back guards is not only extremely hazardous; it is considered a serious safety violation
 - Check the blade to be sure that it is straight and the arbor bolt is tight
 - Ensure the “constant-pressure” trigger switch operates properly
 - Check that the electrical cords, plugs, and fittings are intact and secure. Frayed cords are not permissible
 - Be sure that arbor wrenches or keys were not inadvertently left behind on the machine during a blade change
- When setting-up the cutting station, it is important that the saw is positioned in a manner that the work piece’s point of contact with the cutting edge can be easily viewed without straining or stooping
- Make sure the work-zone is level and free of trip hazards such as tangled power cords, cluttered material piles, scraps, stones, bricks, or other obstacles and obstructions. Avoid unsafe distractions by setting up away from high traffic areas
- Ensure the saw’s table or platform being used is stable and does not wobble. Be sure that accessory benches (for cutting long stock) are steady and sturdy; get assistance when needed
- During cuts, keep blade speeds at recommended levels; over-pressure on cuts will create hazardous situations
- Hearing protection is required due to the extreme sonic and acoustical levels generated, especially during extended cutting
- Eye protection must always be worn when using a chop saw
- Depending on the material being cut, a dust mask may be required
- Wear clothing appropriate with chop saw use; avoid long, loose shirtsleeves, neckwear, or untied long hair
- If any operational problems are noted, remove the saw from service and get it repaired immediately
- Proper care and maintenance should always be given the saw. Damage usually occurs during careless transport, handling, and storage of the tool
- Allow only qualified personnel to make repairs to the saw

Drills

- Do not allow anyone to use an electric drill that has not been properly trained in the processes of safe portable drilling operations
- Operate only properly maintained equipment. Before use, carefully inspect the machine for defects that could cause malfunctions. Ensure the power cord is secure and intact, trigger switch functions properly, and that fasteners and attachments are tight and fitted. Operate the tool using both hands and follow the manufacturer’s operating instructions
- Eye protection must always be worn when doing overhead operations. When operations present potential eye injuries, appropriate protection must be selected. Depending on the task, use a face shield, protective goggles, or approved safety glasses
- When using a new or unfamiliar tool, take time to “test-run” it
- Wear clothing appropriate for drilling or boring; avoid long, loose shirtsleeves, neckwear, or untied long hair
- The electrical circuit is properly rated and that cords, plugs, and fittings are intact and secure

- Use only extension cords that are free of splices, taps, bare wires, or frayed and deteriorated insulation. Use 3-prong adapters
- Select the correct drill and bit for the job and mount it securely in the chuck. Avoid using bits that are dull or bent
- When possible, always secure your work on a stable platform using clamps or vices. The work-piece must be secured so it does not move
- Prior to beginning drilling operations, inspect each work piece for nails, knots, or flaws that could cause the tool to buck or jump
- Turn on the switch for a moment to see if the bit is properly centered and running true
- With the switch off, place the point of the bit in the punched layout or pilot hole
- Hold the drill firmly in one or both hands and at the correct drilling angle
- Turn on the switch and feed the drill into the work-piece. The pressure required will vary with the size of the drill, the diameter of the drill bit, and the kind of material being drilled
- During operation, keep the drill aligned with the direction of the hole. Keep your free hand away from point of operation
- If any operational problems are noted, remove the drill from service and get it repaired immediately
- work-zones; keep the work area free of trip hazards such as tangled power cords, cluttered material, scraps, stones, bricks, or other obstacles When repairing tools or changing bits, always disconnect the power source
- Unsafe practices and inadequate housekeeping create potentially dangerous and obstructions.
- Be aware of your surroundings and always on the lookout for hazards. Avoid using electric drills in a wet environment

Portable Abrasive Wheels

GTG Automation, Inc. employees are required to follow these safety guidelines when using handheld grinders or other portable abrasive wheels:

- Employees using grinding tools and/or are exposed to the hazards of falling, flying, abrasive, and splashing objects, or exposed to harmful dusts, fumes, or vapors will be provide with, and compelled to use, the particular personal protective equipment necessary to protect them from the hazard. This equipment includes eye and face, respiratory, hearing, and hand protection and will be properly maintained to meet all applicable standards
- All power grinding tools will be maintained in a safe condition. When these tools are designed to accommodate guards, they will be in place when the tool is in use. Safety guards will be strong enough to retain flying fragments and withstand the effects of a bursting wheel
- All grinding machines will be supplied with sufficient power to maintain safe spindle speeds under normal operating conditions
- All abrasive wheels will be carefully inspected and “ring-tested” before mounting to ensure that they are free from cracks or defects. To perform a sound or ring test, wheels should be tapped gently with a light, non-metallic instrument. If they sound cracked or dead, they could fly apart during operations and should be discarded. An intact, undamaged wheel will give a clear metallic tone or “ring”
- Only portable grinders with wheels 2 inches in diameter or less may be equipped with a positive on/off control switch. Grinders with wheels greater than 2 inches in diameter will be equipped with a momentary contact on/off switch and may have a lock-on control
- Grinders will be used on a 3-wire grounded circuit or be of the approved double insulated type. Using the tool’s power cord for hoisting or lowering will not be permitted

- All grinding/cutting wheels will fit freely on the spindle and must not be forced on. The spindle nut will be tightened only enough to hold the wheel in place
- When grinding metal, it is easy to leave razor-sharp edges; be sure you take them off before walking away from a work piece

Pneumatic Nailers and Staplers

- Never allow anyone to operate these tools without proper instruction in safe use
- Appropriate PPE must be worn when using compressed air tools and equipment
- Pneumatic powered tools must be secured to the hose by some positive means to prevent the tool from becoming accidentally disconnected
- All pneumatically powered nailers, staplers, or other similar equipment with automatic feed, that operate at over 100 psi at the tool, must have a safety device on the muzzle to prevent the tool from cycling and ejecting fasteners, unless the muzzle is in contact with the work surface
- Don't use compressed air to clean except where pressure is reduced to less than 30 psi
- The manufacturer's safe operating pressure for hoses, pipes, valves, filters, and other fittings must not be exceeded
- Avoid horseplay when using "air guns"
- Leave all safety features intact
- Always wear appropriate eye protection when using any air gun
- Hearing protection is often required depending on the noise level
- Read the owner's manual and operate the tool according to manufacturer's guidelines
- Ensure that tools are properly maintained and are in good working condition
- Never exceed manufacturer's recommended working pressures and never use more pressure than necessary (seldom more than 90 – 95 psi). Excessive pressure exerts more force, causing harder cycles. It is hard on tools and generates more flying debris
- Always keep the nose of the tool pointed toward the work-piece or downward when air charged. Never point the tool towards yourself or others
- During use, hold the nose of the gun firmly against the work-piece
- Ensure all safety features are intact and operational
- Always disconnect tool from air supply when clearing a jam or when not in use. Keep hoses and fittings in good condition
- Never carry an air-gun with your finger on the trigger. Accidental discharge and injury may result
- Tie-off and secure the air hose when working on a roof or scaffold to prevent the tool from falling on others
- Always move forward when working a nailer or stapler on a roof so you do not inadvertently trip or fall from the roof
- Never use volatile bottled gas to operate pneumatic fasteners or operate air guns around flammables; sparks may cause a fire
- Keep your free hand clear of air gun's nose during use
- Safety clips or retainers must be securely installed and maintained on pneumatic impact (percussion) tools to prevent attachments from being accidentally expelled

Air Compressors

GTG Automation, Inc. employees are required to follow these safety guidelines while operating air compressors:

- Every air receiver must be equipped with a pressure indicator gauge with one or more spring loaded safety valves
- Pressure gauges must be located so as to be readily visible
- The pressure relief safety valves may not exceed the rated working pressure of the air receiving tank
- No valve of any type may be placed between the safety valve and the air receiver
- Safety valves, pressure gauges, regulators, and other controlling devices must be designed and installed so that they cannot be easily rendered inoperative by any means, including weather elements
- All safety valves must be tested at frequent intervals to determine proper operating condition
- A drainpipe and valve must be installed at the lowest point of any air receiver to provide for the frequent and complete removal of accumulated oil and water
- Never install compressors on an unrated air tank. The air receiver tank must be rated equal to or higher than original equipment
- If pressure gauges or pressure relief valves are damaged, replace them with compatible equipment before using the compressor
- If a compressed air storage tank is dented, deeply gouged, or badly rusted, compressor must be removed from service
- Do not use compressed air to pressurize barrels, pipes, or other containers not designed or intended as pressure vessels
- If an air receiver is equipped with a quick connect/release fitting, make sure the lock collar is fully engaged when hose is connected. When the hose is released from the fitting, firmly grasp the hose close to the fitting before releasing the lock collar
- Before servicing a compressor, disconnect it from the power source and bleed the pressure from the tank. Use appropriate Lockout Tagout (LOTO)
- Pulleys and belts on compressor motors and pumps must be properly guarded
- If using a gas powered compressor, engine must be shut off before refueling
- If an electric powered compressor, check power cord for cuts and abrasions, if the cord, plug, or any components are damaged, replace before use

Hand Tools

- Damaged, worn-out, or defective tools should be tagged and removed from service
- Do not perform "make-shift" repairs to tools
- Never use a tool if its handle has splinters, burrs, cracks, splits or if the head of the tool is loose
- Do not use impact tools such as hammers, chisels, punches or steel stakes that have mushroomed heads
- When handing a tool to another person, direct sharp points and cutting edges down and away from yourself and the other person
- Carry all sharp tools in a sheath or holster. Do not carry sharp or pointed hand tools such as screwdrivers, utility knives, scribes, snips, scrapers, chisels or files in your pocket unless the tool is sheathed. Transport hand tools only in toolboxes or tool belts
- Use tied off containers to keep tools from falling off scaffolds and other elevated work platforms

- Avoid carrying tools in your hand when you are climbing. Carry tools in tool belts or hoist the tools to the work area using a hand line
- Do not throw tools from one location to another or from one employee to another

Hammers: Do not use a hammer if your hands are oily, greasy or wet

- Never strike another hardened steel tool or surface, such as a cold chisel, with a claw hammer
- Avoid striking nails or other objects with the "cheek" of the hammer
- Do not strike one hammer against another hammer
- Never use a hammer as a wedge or a pry bar

Hand Saws: When using a handsaw, hold the work-piece firmly against the work table.

- Do not use an adjustable blade saw, such as a hacksaw or a coping saw, if the blade is not taut
- Avoid using any saw with a dull blade; always keep blades clean and sharp
- Keep hands and fingers away from the point of cut when using any saw
- Never carry a hand saw by the blade

Screwdrivers: Do not use a screwdriver if your hands are wet, oily or greasy.

- Always match the size and type of screwdriver blade to fit the head of the screw
- Never hold the work-piece against your body while using a screwdriver
- Avoid putting your fingers near the blade of the screwdriver when tightening a screw
- Use a drill, nail, or an awl to make a starting or pilot hole for screws
- Do not force a screwdriver by using a hammer or pliers on it
- Never use a screwdriver as a punch, chisel, pry bar, or nail puller
- When performing electrical work, ensure the screwdriver has a properly insulated handle

Pliers: Do not use pliers that are cracked, broken or sprung.

- Never use pliers as a wrench or a hammer
- Do not attempt to force pliers by using a hammer on them
- When you are performing electrical work, use pliers that have properly insulated handles
- When using diagonal cutting pliers, shield the loose pieces of cut material from flying into the air

Wrenches

GTG Automation, Inc. employees are required to follow these safety guidelines when using wrenches:

- Inspect the wrench carefully before use and do not use if damaged
- Discard any wrench that has spread, nicked or battered jaws, or if the handle is loose, broken or bent
- Always use the proper size wrench for the job. A slipping wrench can damage bolt heads and nuts and cause personal injury. Do not use a shim to make a wrench fit the fastener
- Use a wrench that gives a straight, clean pull. If you must push the wrench, use the heel of your hand; do not wrap your fingers around the tool
- Do not cock the wrench in a manner that puts a strain on the points of contact; this can lead to tool failure. Keep the wrench flush with bolt head
- Avoid using a pipe or other "cheater bars" to extend the length of a wrench. Under excessive force, the wrench or bolt can slip or break

- Do not use a hammer with a wrench unless the wrench has been specifically designed for this purpose
- Replace cracked, worn, or “tweaked” wrenches
- Do not attempt to straighten a bent wrench. It will only weaken it further
- Do not substitute slip-joint pliers for a wrench; the pliers can slip and damage the bolt heads and nuts and cause hand injuries
- Sockets designed for use with hand wrenches should not be interchanged on air or impact wrenches; this can result in damage or injury
- When using air impact or other air wrenches, wear eye protection to safeguard against blowing debris. Use only heavy-duty hardened sockets
- Use a torque wrench for tightening only. Never use torque wrenches to break nuts or bolts loose; they are designed to measure tightness
- Be sure the jaws on you pipe wrenches are still sharp as unexpected slippage can cause injury

Jacks—lever and ratchet, screw, and hydraulic

GTG Automation, Inc. employees are required to follow these safety guidelines when using jacks:

- The manufacturer's rated capacity will be legibly marked on all jacks and will not be exceeded
- All jacks will have a positive stop to prevent overtravel
- When it is necessary to provide a firm foundation, the base of the jack will be blocked or cribbed. Where there is a possibility of slippage of the metal cap of the jack, a wood block will be placed between the cap and the load
- After the load has been raised, it will be cribbed, blocked, or otherwise secured at once
- Hydraulic jacks exposed to freezing temperatures will be supplied with an adequate antifreeze liquid
- All jacks will be properly lubricated at regular intervals
- Each jack will be thoroughly inspected at times which depend upon the service conditions. Inspections will be not less frequent than the following:
 - For constant or intermittent use at one locality, once every 6 months
 - For jacks sent out of shop for special work, when sent out and when returned
 - For a jack subjected to abnormal load or shock, immediately before and immediately thereafter
 - Repair or replacement parts will be examined for possible defects
 - Jacks which are out of order will be tagged accordingly, and will not be used until repairs are made

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this program to ensure employees are informed of any chemical hazards and hazardous or toxic substances in their workplace:

GTG Automation, Inc. will develop, implement, and maintain at each workplace a written hazard communication program that describes how labels and other forms of warning, safety data sheets, and employee information will be accomplished.

A copy of the Company's Hazard Communication Program is available to all employees and will be kept at each jobsite by the foreman in charge, or in the office. Translations of the hazard communication program are available to non-English speaking employees upon request from Greg Griffin.

Employees will be notified of any hazardous substances used by any company other than GTG Automation, Inc. in the workplace and make safety data sheets available to employees.

A list of all chemicals known to be used at the workplace by company employees will be available for review at the jobsite and in the office. Safety Data Sheets (SDS) for all chemicals used in the workplace by GTG Automation, Inc. are available to employees at the worksite from the job foreman or in the office.

Changes of job assignments, changes in materials used, or any non-routine tasks involving hazardous substances or conditions will require notification and/or retraining of effected employees. Greg Griffin will inform or retrain employees of any new or additional hazards, detail methods of hazard abatement or elimination, and provide proper personal protective equipment or engineering controls necessary for the job. Notifications and retraining will be documented as to name of employee, date, description of action taken, and verification by Greg Griffin.

CONTAINER LABELING

Greg Griffin will ensure that each container of hazardous chemicals in the workplace is labeled, tagged, or marked with the following information:

- Identity of the hazardous chemical(s)
- Pictograms
- A signal words
- Hazard and precautionary statements
- The product identifier
- Supplier identification

Greg Griffin will ensure labels or other, written warning forms, are legible and prominently displayed on the container, or readily available in the work area throughout each work shift. When GTG Automation, Inc. has employees, whose primary language is not English, information will be presented in their language as well.

No container will be released for use until this information is verified. *Greg Griffin* will ensure that all containers are labeled with a copy of the original manufacturer's label or a label that has the appropriate identification and hazard warning.

SAFETY DATA SHEETS

An SDS will be gathered and made available for every hazardous material at the worksite.

SDS are readily available for review to all GTG Automation, Inc. employees, and cover all hazardous chemicals used in the workplace. SDS are kept with the hazard communication plan at the office location listed above. The safety data sheets are updated and managed by Greg Griffin. If a safety data sheet is not available for a hazardous chemical, before use, notify Greg Griffin, and a SDS will be obtained for the chemical to be used.

GTG Automation, Inc. will maintain in the workplace copies of the required safety data sheets for each hazardous chemical and shall ensure that they are readily accessible during each work shift to employees when they are in their work area(s). -Where employees must travel between workplaces during a work shift, i.e., their work is carried out at more than one geographical location, the safety data sheets may be kept at the primary workplace facility.

MULTI-EMPLOYER WORKPLACES

GTG Automation, Inc. will use the following methods when working multiemployer worksites or employees are on multiple worksites where hazardous chemicals are produced, used, or stored:

- On-site access to SDSs for each hazardous chemical that other employer(s)' employees may be exposed to
- Inform other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions, and in foreseeable emergencies
- Inform other employer(s) of the labeling systems used in the workplace

A copy of the written hazard communication program is available to employees, their designated representatives, the Assistant Secretary, or the Director upon request, in accordance with the requirements of 29 CFR 1910.1020 (e).

Where employees must travel between workplaces during a work shift (i.e., their work is carried out at more than one geographical location), the written hazard communication program may be kept at the primary workplace facility. If there is no primary site, the program must be sent with employees.

TRAINING

Required Hazard Communication Training

If you have employees who may be exposed to hazardous chemicals, you must inform them about the chemicals and train them when they are hired and whenever they are exposed to a new chemical hazard or a process change. Required employee training includes:

- An overview of the requirements in OSHA's CFR 29 1910.1200 hazard communication
- The written hazard-communication plan, and where it may be reviewed
- Hazardous chemicals present in their workplace
- The operations where hazardous chemicals are used
- Physical and health effects of the hazardous chemicals
- Methods used to determine the presence or release of hazardous chemicals in the work area
- How to reduce or prevent exposure to these hazardous chemicals through use of control/work practices and personal protective equipment
- Where to find and how to read the hazard-communication plan, the list of hazardous chemicals, and SDS

- The physical and health hazards of hazardous chemicals used by employees
- The meaning of warning labels on hazardous-chemical containers and on pipes that contain hazardous substances
- Emergency procedures to follow if an employee is exposed to these chemicals
- How to use personal protective equipment

Label Elements Training

GTG Automation, Inc. will ensure all employees know the following elements of the labels: product identifier, signal word, pictogram, hazard statement, precautionary statement, and name address and phone number of chemical manufacturers, distributor, or importer.

Employees will also be trained on how to use the labels, to ensure proper storage and quickly locate first aid information.

They also need to know how the elements work together on a label.

- The different pictograms to indicate multiple hazards
- Where there are similar precautions, the one with most protective information will be on the label

SDS Training

Employees will be trained on the standardized 16-section format and the type of information found in each one.

Training will also explain how the SDS information is related to the label information.

After attending the training, each employee will sign a company training form verifying they understand the above topics and how the topics are related to our hazard communication plan.

General Safety Considerations

Employers who produce, use, or store hazardous chemicals at a workplace in such a way that the employees of other employer(s) may be exposed will additionally ensure that the hazard communication programs developed and implemented include the following: methods the employer will use to provide the other employer(s) on-site access to safety data sheets, precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions and in foreseeable emergencies, the labeling system used in the workplace.

The company may not remove or deface existing labels on incoming containers of hazardous chemicals unless the container is immediately marked with the required information.

Hazardous Chemicals List

The following list identifies all hazardous chemicals used at this workplace. Detailed information about the physical and health effects of each chemical is included in a safety data sheet; the identity of each chemical on the list matches the identity of the chemical on its safety data sheet. Safety data sheets are readily available to employees in their work areas.

PRODUCT OR BRAND NAME	MANUFACTURER	HAZARDOUS INGREDIENT

Hazardous Non-Routine Tasks

Before employees perform non-routine tasks that may expose them to hazardous chemicals, they will be informed by their supervisors about the chemicals' hazards. Their supervisors also will inform them about the safe work practices necessary to control exposure and what to do in an emergency. Examples of non-routine tasks that may expose employees to hazardous chemicals include the following:

TASK:	HAZARD:

Hazardous Chemicals in Labeled or Unlabeled Pipes, Closed, or Hidden Systems

Before working in areas where hazardous chemicals are transferred through labeled or unlabeled pipes or where pipes are insulated with asbestos-containing material, employees will contact Greg Griffin for the following information: the chemicals in the pipes; the physical or health effects of the chemicals or the asbestos insulation; the safe work practices to prevent exposure.

Notification of Contractors

It is the responsibility of the assigned job foreman to provide any workplace-associated contractors and their employees with the following information, if they may be exposed to hazardous chemicals in our workplace:

- The identity of the chemicals, how to review safety data sheets, and an explanation of the container and pipe labeling system
- Safe work practices to prevent exposure

This person will also obtain a safety data sheet for any hazardous chemical a contractor brings into the workplace to which an employee of GTG Automation, Inc. may be exposed.

The Hazard Communication program will be made available, upon request, to employees, their designated representatives, the Assistant Secretary & the Director.

Hazard Communication in the Workplace

The essence of hazard communication is a warning. We use thousands of chemical products throughout our lives, at home and at work. However, most of us would be hard-pressed to distinguish safe products from hazardous ones without a warning (the familiar skull-and-crossbones, for example). The warning tells us the product is hazardous, that it can harm us if we use it improperly.

In the workplace, hazard communication ensures workers who may be exposed to hazardous chemicals know about the chemicals' hazards and understand how to protect themselves from exposure.

The Hazard Communication Process

Hazard communication begins when chemical manufacturers and importers evaluate their products to determine each product's chemical hazards. Next, they prepare a *Safety Data Sheet* (SDS) for each product. An SDS includes detailed information about the product's hazards. Manufacturers and importers must include an SDS and a warning label with each container of product they ship to a customer.

The part of the process that affects your workplace is the "*Written Hazard Communication Plan*." The plan identifies hazardous chemicals at your workplace and describes how you will use safety data sheets, warning labels, and training to protect employees and keep informed about the product's chemical hazards.

The labeling system, location of SDS, routine precautions and emergency procedures will be provided to other employers and employees who may be affected by hazardous chemicals produced, used, or stored at the worksite.

Definition of a Hazardous Chemical

OSHA's hazard-communication rule, 1910.1200, defines a hazardous chemical as "any element, chemical compound, or mixture that is a physical hazard or a health hazard".

Chemicals that are Physical Hazards

Chemicals that are physical hazards are unstable and, when handled improperly, can cause fires or explosions. A chemical that is a physical hazard has one of the following characteristics:

- Is a combustible liquid
- Is a compressed gas
- Is explosive
- Is flammable
- Is water-reactive
- Starts or promotes combustion in other materials
- Can ignite spontaneously in air

Chemicals that are Health Hazards

Chemicals that are health hazards can damage an exposed person's tissue, vital organs, or internal systems. Generally, the higher the chemical's toxicity, the lower the amount or dose necessary for it to have harmful effects. The effects vary from person to person, ranging from temporary discomfort to permanent damage, depending on the dose, the toxicity, and the duration of exposure to the chemical.

Health effects range from short-duration symptoms that often appear immediately (acute effects) to persistent symptoms that may appear after longer exposures (chronic effects). Health effects can be classified by how they affect tissue, vital organs, or internal systems:

- Agents that damage the lungs, skin, eyes, or mucous membranes
- Carcinogens cause cancer
- Corrosives damage living tissue
- Hematopoietic agents affect the blood system
- Hepatotoxins cause liver damage
- Sensitizers cause allergic reactions & Irritants cause inflammation of living tissue
- Nephrotoxins damage cells or tissues of the kidneys
- Neurotoxins damage tissues of the nervous system
- Reproductive toxins damage reproductive systems, endocrine systems, or a developing fetus

How to Determine Whether a Chemical is Hazardous

A chemical is hazardous if it is listed in any of the following documents:

- OSHA Division 2, Subdivision Z safety and health rules, Toxic and Hazardous Substances; Division 3, Subdivision Z, Toxic and Hazardous Substances (Construction); Division 4, Subdivision Z, Chemical/Toxins (Agriculture)
- Threshold Limit Values for Chemical Substances and Physical Agents in the Work Environment (latest edition). Published by the American Conference of Industrial Hygienists (ACGIH)
- The Registry of Toxic Effects of Chemical Substances, published by the National Institute for Occupational Safety and Health (NIOSH)
- The container label of the product will issue a warning of hazardous effects

Commonly Used Hazardous Chemicals

Listed below are chemicals among those most commonly used in U.S. workplaces:

HAZARDOUS CHEMICAL	HARMFUL EFFECTS
1,1,1-Trichloroethane	May cause mutations in cells; can irritate the skin and eyes and cause unconsciousness and death. High exposures may damage the liver and kidneys.
Acetone	Can irritate the skin, eyes, nose, and throat. High concentrations can cause dizziness and loss of consciousness.
Aluminum oxide	Can irritate the eyes, nose, and throat. Repeated high exposure can cause scarring of the lungs and shortness of breath.
Ammonia	Can irritate the lungs and burn the eyes and skin. Long-term exposure can cause irritation of the eyes, nose, mouth, and throat.
Benzene	A cancer-causing agent that has been shown to cause leukemia. May also cause headaches and irritation of the eyes, nose, and throat. High exposure can cause convulsions and death.
Ethylbenzene	Can irritate the eyes, nose, and throat. Repeated contact can cause drying and scaling of skin and may cause liver damage. High concentrations may cause dizziness and loss of consciousness.
Ethylene glycol	Can irritate the eyes, nose, or throat and cause nausea, vomiting, and headaches. Repeated or high exposure levels can cause kidney damage or stones and brain damage. May cause birth defects.
Freon 113	May cause skin irritation and rashes as well as drowsiness.
Glycol ethers	Can irritate the eyes, nose, and throat and may cause birth defects. Repeated or high exposure can cause kidney damage or stones. Brain damage also may occur.
Hydrochloric acid	Can irritate the lungs. High exposure can cause buildup of fluid in the lungs, which can cause death.
Lead	Can cause weakness and insomnia. Higher exposure can result in damage to the nervous and reproductive systems.
Methanol	Irritates the eyes, nose, mouth, and throat and can cause liver damage.
Methyl ethyl ketone	Can cause dizziness, headaches, blurred vision, and loss of consciousness. May cause birth defects.
Methyl isobutyl ketone	Irritates the skin, eyes, nose, and throat, and may cause dizziness, nausea, diarrhea, and loss of consciousness. Long-term exposure may damage the liver and kidneys.
Phenol	Can irritate the mouth, nose, throat, and eyes. Long-term exposure may damage the liver and kidneys and lead to genetic damage. May be a cancer risk. Major skin contacts or inhaling it can cause death.
Sodium hydroxide	Breathing the dust or droplets can irritate and burn the lungs. Contact can cause severe skin burns.
Sulfuric acid	Can severely burn the skin and eyes. Repeated long-term exposure can cause bronchitis, shortness of breath, and emphysema.
Tetrachloroethylene	A suspected human carcinogen that has caused liver cancer in animals. It may damage the liver and kidneys after low but repeated exposure. It can cause dizziness and loss of consciousness.
Xylene	Can irritate the eyes, nose, and throat; high levels can cause loss of consciousness and death. It may damage fetuses. Repeated exposure may damage bone marrow and eyes and cause stomach problems.

Using Safety Data Sheets

An SDS contains detailed information about a hazardous chemical product's health effects, physical and chemical characteristics, and safe practices for using it.

Responsibilities of Chemical Manufacturers, Importers, and Distributors

Chemical manufacturers and importers must prepare an SDS for each hazardous chemical product they produce. Distributors are responsible for ensuring that you have an SDS for each hazardous chemical product they sell to you.

What to do if You Use Hazardous Chemical Products at your Workplace

You must have a current SDS for each product. Employees must be able to review the SDS in their work area at any time. You can keep SDS in a notebook or on a computer, though employees must be able to obtain the information immediately in an emergency. One person will be responsible for managing all the SDS at your workplace. The person will ensure the list of hazardous chemicals is current, that the identity of each chemical on the list matches its identity on its SDS, and that incoming hazardous chemical containers have an SDS.

What to do When You No Longer Use a Hazardous Chemical at Your Workplace

When you no longer use a hazardous chemical, you do not need to keep its SDS. However, you do need to keep a record of the chemical's identity, the locations, and the calendar years it was used in your workplace, for at least 30 years. For more information about record-keeping requirements, see the "Access to employee exposure and medical records" section of 1910.1020.

Information required on Safety Data Sheets

Chemical manufacturers and importers must prepare an SDS for each hazardous chemical product they ship to you. The following information must appear on each sheet.

- Section 1, Identification includes product identifier; manufacturer or distributor name, address, phone number; emergency phone number; recommended use; restrictions on use.
- Section 2, Hazard(s) identification includes all hazards regarding the chemical; required label elements.
- Section 3, Composition/information on ingredients includes information on chemical ingredients, trade secret claims.
- Section 4, First-aid measures includes important symptoms/effects, acute, delayed; required treatment
- Section 5, Fire-fighting measures lists suitable extinguishing techniques, equipment, chemical hazards from fire.
- Section 6, Accidental release measures lists emergency procedures; protective equipment; proper methods of containment and cleanup.

- Section 7, Handling and storage lists precautions for safe handling and storage, including incompatibilities.
- Section 8, Exposure controls/personal protection lists OSHA's Permissible Exposure Limits (PELs); Threshold Limit Values (TLVs); appropriate engineering controls; personal protective equipment (PPE)
- Section 9, Physical and chemical properties lists the chemical's characteristics.
- Section 10, Stability and reactivity lists chemical stability and possibility of hazardous reactions.
- Section 11, Toxicological information includes routes of exposure; related symptoms, acute and chronic effects; numerical measures of toxicity.
- Section 12, Ecological information*
- Section 13, Disposal considerations*
- Section 14, Transport information*
- Section 15, Regulatory information*
- Section 16, Other information, includes the date of preparation or last revision.

* OSHA does not require these sections.

Using Container Warning Labels

The purpose of a container warning label is to warn employees about the container's contents and to refer employees to an appropriate SDS for more information about the chemical's physical and health hazards. Manufacturers, importers, and distributors must ensure that each hazardous chemical product sold to you has a label that includes the chemical's identity, a hazard warning, and a name and address for additional information about the product. If you use hazardous chemicals at your workplace, you must ensure that each hazardous chemical container has a legible label, in English, that identifies the chemical and warns of its hazards.

Containers that Must be Labeled

Original containers of hazardous chemicals from a manufacturer, importer, or distributor must have warning labels. Do not remove or deface them. If you transfer a hazardous chemical from a labeled container to an unlabeled container, label the container.

Contents of a Warning Label

A warning label must identify the chemical – a common chemical name or a code name is acceptable – and display a hazard warning such as DANGER or the familiar skull and crossbones.

- The identity of the chemical on the label, on its SDS, and on your hazardous chemical sheet must match
- If you are not sure a hazardous chemical container is properly labeled, contact the manufacturer or supplier
- Make someone at your workplace responsible for ensuring all hazardous-chemical containers are properly labeled

GTG Automation, Inc. will ensure that workplace labels or other forms of warning are legible, in English, and prominently displayed on the container, or readily available in the work area throughout each work shift. If GTG Automation, Inc. has employees who speak other languages, the company may add the information in their language to the material presented, as long as the information is presented in English as well.

Example of Original Container GHS Label

SAMPLE LABEL	
CODE _____ Product Name _____	Product Identifier
Company Name _____ Street Address _____ City _____ State _____ Postal Code _____ Country _____ Emergency Phone Number _____	Supplier Identification
Hazard Pictograms  	
Signal Word Danger	
Keep container tightly closed. Store in a cool, well-ventilated place that is locked. Keep away from heat/sparks/open flame. No smoking. Only use non-sparking tools. Use explosion-proof electrical equipment. Take precautionary measures against static discharge. Ground and bond container and receiving equipment. Do not breathe vapors. Wear protective gloves. Do not eat, drink or smoke when using this product. Wash hands thoroughly after handling. Dispose of in accordance with local, regional, national, international regulations as specified.	Precautionary Statements
In Case of Fire: use dry chemical (BC) or Carbon Dioxide (CO ₂) fire extinguisher to extinguish.	Hazard Statements Highly flammable liquid and vapor. May cause liver and kidney damage.
First Aid If exposed call Poison Center. If on skin (or hair): Take off immediately any contaminated clothing. Rinse skin with water.	Supplemental Information Directions for Use _____ _____ _____ Fill weight: _____ Lot Number: _____ Gross weight: _____ Fill Date: _____ Expiration Date: _____

OSHA 3492-02 2012

Secondary/Portable Containers

Secondary containers are used to hold material transferred from the manufacturers' original container. These are required to be labelled if:

- Is not used within the work shift by the individual who makes the transfer
- The worker who made the transfer leaves the work area
- The container is moved to another work area and is no longer in the possession of the person who filled the container

Labels for secondary containers must include:

- The identity of the chemical and appropriate hazard warnings must be shown on the label.
- The hazard warning that provides users with an immediate understanding of the primary health and/or physical hazard(s) of the chemical through the use of words, pictures, symbols, or any combination of these elements
- The name and address of the manufacturer, importer or other responsible party

The hazard label message must be legible, permanently displayed and written in English

Portable containers are intended for immediate use of a chemical by the person who makes the transfer. Labels on portable containers are not required if the worker who made the transfer uses all of the contents during the work shift, or the chemical is return to a labelled primary or secondary container at the end of the shift, or when work is completed.

CONFIRMATION OF EMPLOYEE'S HAZARD COMMUNICATION TRAINING

I, _____, have been informed about the hazardous chemicals that I may be exposed to during my work, and I have received training on the following topics:

- An overview of the requirements in OSHA's hazard communication rules.
- Hazardous chemicals present in the workplace.
- The written hazard-communication plan.
- Physical and health effects of the hazardous chemicals.
- Methods to determine the presence or release of hazardous chemicals in the work area.
- How to reduce or prevent exposure to these hazardous chemicals through use of exposure controls/work practices and personal protective equipment.
- Steps we have taken to reduce or prevent exposure to these chemicals.
- Emergency procedures to follow if exposed to these chemicals.
- How to read labels and review Safety Data Sheets.

Note to Employee: This form becomes part of your personnel file; read and understand it before signing.

By signing below, I attest and verify that I have received training in the above areas of hazard communication, and that I understand the content of that training.

Employee

Date

Trainer

Date

HAZWOPER – Hazardous Waste Operations and Emergency Response**POLICY**

GTG Automation, Inc. has implemented this policy to ensure no employee is exposed to Hazardous Waste material at levels in excess of Permissible Exposure Limits (PEL). Greg Griffin is responsible for enforcing this policy.

TRAINING

All employees working on site exposed to hazardous substances, health or safety hazards and their supervisors responsible for the site will be trained before starting hazardous waste work. Greg Griffin is the assigned supervisor responsible for ensuring all employees receive the required training and certification required by OSHA regulations. All employees will receive review training as required.

Employees will not be permitted to participate in or supervise field activities until they have been trained to a level required by their job function and responsibility.

The training will thoroughly cover the following:

- Names of personnel and alternates responsible for site safety and health
- Safety, health, and other hazards present on the site
- Use of Personal Protective Equipment (PPE)
- Work practices by which employees can minimize risks from hazards
- Safe use of engineering controls and equipment on the site
- Medical surveillance requirements
- The contents of the site safety and health plan

GTG Automation, Inc. employee training will be based on the duties and function to be performed by each employee responder. The skill and knowledge levels required for all new responders will be conveyed to them through training before they are permitted to take part in actual emergency operations on an incident. Employees who participate, or are expected to participate, in emergency response, will be given the following training:

First Responders at the Awareness Level – are individuals who are likely to witness or discover a hazardous substance release and who have been trained to initiate an emergency response sequence by notifying the proper authorities of the release. They would take no further action beyond notifying the authorities of the release.

First Responders at the Operations Level – receive 8 hours training or have had sufficient experience to demonstrate competency in areas of responding to releases or potential releases of hazardous substance, to protect nearby persons, property, or the environment from the effects of the release. Their function is to contain the release from a safe distance and help keep it from spreading. Training certification is required.

- Hazardous Materials Technicians – receive 24 hours of training equal to first responder operations level with knowledge of how to implement emergency response plan, know the classification, identification, and verification of known or unknown substances, functions within an assigned role in the ICS, how to select & use of proper PPE, perform advanced containment, & understands decontamination & toxicology. Training certification is required
- Hazardous Materials Specialist – in addition to the 24 hours of training for the technical level, the specialist will be able to develop a site safety and control plan. Training certification is required
- On-Scene Incident Commander – is required to have at least 24 hours of training equal to the first responder operations level. This person knows how to implement the program and system, PPE, hazard risks, state and Federal regulations, and decontamination. Training certification is required
- Trainers – who teach any of the above training subjects will have satisfactorily completed a training course for teaching the subjects they are expected to teach, or they will have the training and/or academic credentials and instructional experience necessary to demonstrate competent instructional skills and a good command of the subject matter of the courses they are to teach
- Refresher Training – will be received by employees who are trained in accordance with this plan. A record of methods used will be kept

Initial Training

- GTG Automation, Inc. employees engaged in hazardous substance removal or other activities that expose, or potentially expose, workers to hazardous substances and health hazards will receive a minimum of 40 hours of instruction off the site, and a minimum of three days actual field experience under the direct supervision of a trained, experienced supervisor
- Company employees on site only occasionally for a specific limited task and who are unlikely to be exposed over published exposure limits will receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor
- Company employees who regularly work in areas on site that have been monitored and cleared, indicating that exposures are under published exposure limits, where respirators are not necessary and monitoring results indicate that there are no health hazards or the possibility of an emergency developing, will receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor
- Workers with 24 hours of training who become general site workers or who are required to wear respirators, will have the additional 16 hours and two days of training necessary to total the required training

Supervisor Training

On-site supervisors directly responsible for, or who supervise employees engaged in, hazardous waste operations will receive 40 hours initial training and three days of supervised field experience. Supervisors will receive at least eight additional hours of specialized training at the time of job assignment on such topics as the company safety and health program, PPE program, spill containment program, health hazard monitoring procedure and techniques.

Qualifications for Trainers

Company trainers are qualified to instruct employees about the subject matter they are teaching. Such trainers have satisfactorily completed a training program for teaching the subjects they teach, or they have the academic credentials and instructional experience necessary for teaching the subjects.

Training Certification

Company employees that have successfully completed the training and field experience required are certified by their instructor and field-training supervisor as having completed the necessary training. A written certificate is given to each employee who has completed training. Any employee who is not certified, or who does not meet the above stated requirements, is prohibited from engaging in hazardous waste operations.

Emergency Response

Employees who are engaged in responding to emergencies at hazardous waste sites that may expose them to hazardous substances are trained in how to respond to such expected emergencies.

Refresher Training

All employees will receive eight hours of annual refresher training consisting of any critique of incidents that have occurred in the past year that can serve as training examples of related work, as well as other relevant topics.

Equivalent Training

Employers who can show by documentation or certification that an employee's work experience and/or training has resulted in equivalent required training will not be required to provide the initial training requirements. Equivalent training includes any academic training or the training that existing employees might have already received from actual hazardous waste site experience. GTG Automation, Inc. will provide a copy of the certification or documentation to our employees upon request.

All employees new to a site will receive appropriate, site-specific training and supervised field experience before entering the new site.

HAZWOPER (EMERGENCY RESPONSE)

An emergency response plan will handle anticipated emergencies prior to beginning emergency response operations. The plan is in writing and available for inspection by employees, their representatives, and OSHA.

Elements of the GTG Automation, Inc. Emergency Response Plan include:

- Pre-emergency planning and coordination with outside parties
- Personnel roles, lines of authority, training, and communications
- Emergency recognition and prevention
- Safe distances and places of refuge
- Site security and control
- Evacuation routes and procedures
- Decontamination
- Emergency medical treatment procedures
- Emergency alerting and response procedures
- Critiques of response and clean up
- PPE and emergency equipment
- Use of local or state emergency plans to avoid duplications

The senior official responding to an emergency will become the individual in charge of a site-specific Incident Command System (ICS) for controlling the operations at the site. Initially it is the senior officer on the first-due piece of responding emergency apparatus to arrive on the incident scene. As more senior officers arrive (i.e., battalion chief, fire chief, state law enforcement official, site coordinator, etc.) the position is passed up the line of authority which has been previously established.

The person in charge of the ICS will:

- Identify hazardous substances or conditions present
- Implement appropriate emergency operations & assure that PPE is worn
- Limit the number of emergency response personnel at that site to those who are actively performing emergency operations
- Designate a safety officer with specific responsibility to identify and evaluate hazards and to provide direction
- Begin decontamination procedures after emergency operations have terminated

Emergency response employees with signs or symptoms that may be from exposure to hazardous substances during an emergency will be provided with medical consultation.

Specific requirements for chemical protective clothing/equipment to be used by hazardous material specialists are found in §1910.120 – Appendix B.

Post-Emergency Response Operations

Upon completion of the emergency response, if it is necessary to remove hazardous substances, health hazards and materials contaminated with them (such as contaminated soil or other elements of the natural environment) from the site of the incident, GTG Automation, Inc., or the responsible party conducting the clean-up, will meet all the requirements of OSHA 1910.120 – HAZWOPER, paragraphs (b) through (o).

HAZWOPER (RCRA)

- The written Safety and Health Program for our employees identifies, evaluates, controls safety and health hazards, and provides for emergency response. The program details a specific chain of command, addresses tasks and objectives of the operations, and addresses site-specific procedures
- The Medical Surveillance Program is provided to GTG Automation, Inc. employees at no cost. Employees who may be exposed to health hazards for 30 days or more a year or wear a respirator 30 or more days a year are covered under the Medical Surveillance Program. The Medical Surveillance Program also covers employees who are injured or develop symptoms due to exposure to hazards. Members of Company HAZMAT teams are also covered by the Medical Surveillance Program
- Engineering controls, safe practices, and PPE will be used to reduce and maintain employee exposures below the PEL established by OSHA. Feasible engineering controls include the use of pressurized cabs or control booths on equipment, and/or the use of remotely operated material handling equipment
- Air monitoring is used to identify and qualify airborne levels of hazardous substances. The monitoring will address initial entry, periodic monitoring, possible Immediately Dangerous to Life and Health (IDLH) conditions, and wherever exposure may be a possibility. The task-specific conditions, duration, and the hazards and potential hazards will be identified, including a guide for PPE assessment
- Decontamination procedures are developed, communicated to employees, and implemented before any employees or equipment may enter areas on site where potential for exposure to hazardous substances exists. The procedures minimize employee contact with hazardous substances or with equipment that has contacted hazardous substances
- All Company employees leaving a contaminated area will be appropriately decontaminated. All contaminated clothing and equipment leaving a contaminated area will be appropriately disposed of or decontaminated
- Decontamination procedures will be monitored by the site Safety and Health Supervisor to determine their effectiveness. When such procedures are found to be ineffective, appropriate steps will be taken to correct any deficiencies
- Decontamination will be performed in geographical areas that will minimize the exposure of uncontaminated employees or equipment to contaminated employees or equipment

- PPE & equipment will be decontaminated, cleaned, laundered, maintained, or replaced as needed to maintain their effectiveness. Employees, whose non-impermeable clothing becomes wetted with hazardous substances, will immediately remove that clothing and proceed to shower. The clothing will be disposed of or decontaminated before it is removed from the work zone
- Unauthorized employees will not remove protective clothing or equipment from change rooms
- Where the decontamination procedure indicates a need for regular showers and change rooms outside of a contaminated area, such facilities will be provided and meet the requirements of OSHA §1910.141 – Sanitation – (d) Washing Facilities, and (e) Change Rooms
- Other effective means for cleansing will be provided and used if temperature conditions prevent the effective use of water

SAFETY AND HEALTH PROGRAM

GTG Automation, Inc. has developed and implemented this Safety and Health Program for our employees involved in hazardous waste operations. The program identifies, evaluates, and controls safety and health hazards and provides for emergency response for hazardous waste operations.

The program includes the following:

- An organizational structure
- A comprehensive work-plan
- A site-specific safety and health plan which does not repeat standard operating procedures
- The safety and health training program
- The medical surveillance programs
- The Company's standard operating procedures for safety and health
- Any necessary interface between general program and site-specific activities

SITE EXCAVATION

Site excavations created during initial site preparation or during hazardous waste operations will be shored or sloped as appropriate to prevent accidental collapse in accordance with OSHA Regulations.

CONTRACTORS AND SUBCONTRACTORS

In the event a contractor or sub-contractor services are retained for work in hazardous waste operations, GTG Automation, Inc. will inform those contractors, subcontractors, or their representatives of the site emergency response procedures and any potential fire, explosion, health, safety or other hazards of the operation that have been identified by our Company's information program.

PROGRAM AVAILABILITY

This written Safety and Health Program will be made available to any contractor or subcontractor or their representative who will be involved with the hazardous waste operation; to employees; to employee designated representatives; to OSHA personnel, and to personnel of other Federal, state, or local agencies with regulatory authority over the site.

ORGANIZATIONAL STRUCTURE OF THE SITE-SPECIFIC PROGRAM

The organizational structure establishes the specific chain of command and specifies the overall responsibilities of supervisors and employees. It includes the following elements:

- A general supervisor who has the responsibility and authority to direct all hazardous waste operations
- A site safety and health supervisor who has the responsibility and authority to implement the site safety and health plan and verify compliance
- All other personnel needed for hazardous waste site operations and emergency response and their general functions and responsibilities
- The lines of authority, responsibility, and communication

The organizational structure will be reviewed and updated as necessary to reflect the current status of waste site operations.

COMPREHENSIVE WORK-PLAN OF THE SITE-SPECIFIC PROGRAM

The comprehensive work-plan addresses the tasks and objectives of the site operations and the logistics and resources required to reach those tasks and objectives. The comprehensive work-plan will:

- Define anticipated clean-up activities as well as normal operating procedures that need not repeat procedures available elsewhere
- Define work tasks and objectives and identify the methods for accomplishing those tasks and objectives
- Establish personnel requirements for implementing the plan
- Provide for the implementation of the required training
- Provide for the implementation of the required informational programs
- Provide for the implementation of the required medical surveillance program

SITE-SPECIFIC SAFETY AND HEALTH PLAN

The Site-specific Safety and Health Plan is kept on site and addresses the safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection. The Site-specific Safety and Health Plan include the following minimum elements:

- A safety and health risk or hazard analysis for each site task and operation found in the work-plan
- Employee training assignments to assure compliance with regulations
- Personal protective equipment to be used by employees for each of the site tasks and operations being conducted as required by OSHA standards
- Medical surveillance requirements in accordance with regulations
- Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment to be used
- Site control measures in accordance with the required site control program
- Decontamination procedures in accordance with OSHA standards

- An emergency response plan meeting the requirements for safe and effective responses to emergencies, including the necessary PPE and other equipment
- Confined space entry procedures
- A spill containment program meeting OSHA requirement

The Site-specific Safety and Health Plan provides for pre-entry briefings to be held prior to initiating any site activity, and at such other times as necessary to ensure that employees are apprised of this Plan and that it is being followed. The information and data obtained from required site monitoring analysis work is used to update this Plan.

Inspections will be conducted by the site safety and health supervisor or the general supervisor as necessary to determine the effectiveness of the Plan. Any deficiencies in the effectiveness of the Plan will be corrected without delay.

MEDICAL SURVEILLANCE PROGRAM

Workers handling hazardous substances may be exposed to toxic chemicals, safety hazards, biologic hazards, and radiation. Therefore, a Medical Surveillance Program is essential to assess and monitor workers' health and fitness for employment in hazardous waste operations and during the course of work; to provide emergency and other treatment as needed; and to keep accurate records for future reference.

GTG Automation, Inc. has instituted a Medical Surveillance Program to cover the following categories of employees engaged in hazardous waste operations:

- All employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limits for these substances, without regard to the use of respirators, for 30 days or more a year
- All employees who wear a respirator for 30 days or more a year or as required by HAZWOPER regulations
- All employees who are injured, become ill, or develop signs or symptoms due to possible overexposure involving hazardous substances or health hazards from an emergency response or hazardous waste operation
- Members of HAZMAT teams

GTG Automation, Inc. has made medical examinations and consultations available to the above-named employee categories on the following schedules:

- Prior to job assignment
- At least once every twelve months for each employee covered unless the attending physician believes a longer interval (not greater than biennially) is appropriate
- At termination of employment or reassignment to an area where the employee would not be covered if the employee has not had an examination within the last six months
- As soon as possible, upon notification by an employee that the employee has developed signs or symptoms indicating possible overexposure to hazardous substances or health hazards, or that the employee has been injured or exposed above the permissible exposure limits in an emergency situation
- At more frequent times, if the examining physician determines that an increased frequency of examination is medically necessary

Employees who may have been injured, received a health impairment, developed signs, or symptoms resulting from exposure to hazardous substances from an emergency incident, or exposed without the necessary PPE being used: as soon as possible will receive follow-up examinations or consultations, if the examining physician determines that are medically necessary.

Elements of Medical Examinations and Consultations

Medical examinations include a medical and work history (or updated history if one is in the employee's file) with special emphasis on symptoms related to the handling of hazardous substances and health hazards, and to fitness for duty, including the ability to wear any required PPE under conditions (i.e., temperature extremes) that may be expected at the work site.

The content of medical examinations or consultations made available to employees will be determined by the attending physician.

All medical examinations and procedures will be performed by, or under the supervision of, a licensed physician knowledgeable in occupational medicine and will be provided without cost to our employees, without loss of pay, and at a reasonable time and place.

GTG Automation, Inc. will provide one copy of the HAZWOPER standard (§1926.120) and its appendices to the attending physician and in addition the following for each employee:

- A description of the employee's duties as they relate to the employee's exposures
- The employee's exposure levels or anticipated exposure levels
- A description of any personal protective equipment used or to be used
- Information from previous medical examinations of the employee that is not readily available to the examining physician
- Information required by §1910.134 – Respiratory Protection

Physician's Written Opinion

GTG Automation, Inc. will obtain and furnish the employee with a copy of a written opinion from the examining physician containing the following:

- The physician's opinion as to whether the employee has any detected medical conditions that would place the employee at increased risk of material impairment of the employee's health from work in hazardous waste operations or emergency response, or from respirator use
- The physician's recommended limitations upon the employees assigned work
- The results of the medical examination and tests if requested by the employee
- A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions that require further examination or treatment
- This written opinion will not reveal specific findings or diagnoses unrelated to occupational exposure

RECORDKEEPING

Accurate records of required medical surveillance will be retained for the period specified and meet the criteria of 29 CFR 1910.1020 (d) Preservation of Records.

The required record will include at least the following information:

- The name and social security number of the employee
- Physicians' written opinions, recommended limitations, and results of examinations and tests
- Any employee medical complaints related to exposure to hazardous substances
- A copy of the information provided to the examining physician by GTG Automation, Inc., with the exception of the HAZWOPER standard and its appendices

ENGINEERING CONTROLS, WORK PRACTICES, & PPE FOR EMPLOYEE PROTECTION

Engineering controls, work practices, PPE, or a combination of these will be implemented to protect employees from exposure to hazardous substances and safety and health hazards.

- Engineering controls and work practices are instituted to reduce and maintain employee exposure to or below the permissible exposure limits for substances regulated by OSHA 1910, Subpart Z, except when such controls and practices are not feasible
- Engineering controls include the use of pressurized cabs or control booths on equipment, and/or the use of remotely operated material handling equipment
- Work practices include removing all non-essential employees from potential exposure during opening of drums, wetting down dusty operations, and locating employees upwind of possible hazards
- Whenever engineering controls and work practices are not feasible, or not required, any reasonable combination of engineering controls, work practices, and PPE will be used to reduce and maintain to, or below, the permissible exposure limits for substances regulated by OSHA 1910, Subpart Z
- GTG Automation, Inc. will not implement a schedule of employee rotation as a means of compliance with permissible exposure limits except when there is no other feasible way of complying with the airborne or dermal dose limits for ionizing radiation
- GTG Automation, Inc. will comply with the provisions of OSHA 1910, Subpart G – Occupational Health and Environmental Control

An appropriate combination of engineering controls, work practices, and PPE will be used to reduce and maintain employee exposure to or below permissible exposure levels for hazardous substances and health hazards not regulated by OSHA 1910, Subparts G & Z.

PERSONAL PROTECTIVE EQUIPMENT PROGRAM

GTG Automation, Inc.'s PPE program, will meet requirements in §1910.120 – Appendix B:

- PPE selection based upon site hazards
- PPE use and limitations of the equipment
- Work mission duration
- PPE maintenance and storage
- PPE decontamination and disposal
- PPE training and proper fitting
- PPE donning and doffing procedures
- PPE inspection procedures prior to, during, and after use
- Evaluation of the effectiveness of the PPE program
- Limitations during temperature extremes, heat stress, and other appropriate medical considerations

Selection of Personal Protective Equipment

- PPE is selected and used that will protect employees from the hazards and potential hazards they will encounter as identified during the site evaluations
- PPE selection is based on assessments of the performance characteristics of the PPE relative to the requirements and limitations of the site, the task-specific conditions and duration, and the hazards & potential hazards identified on site
- Positive pressure self-contained breathing apparatus, or positive pressure air-line respirators equipped with an escape air supply will be used when chemical exposure levels present will create a substantial possibility of immediate death, immediate serious illness or injury, or impair the ability to escape
- Totally encapsulating chemical protective suits (Level A) will be used in conditions where skin absorption of a hazardous substance may result in a substantial possibility of immediate death, serious illness or injury, or impair the ability to escape
- The level of protection provided by PPE selection will be increased when additional information or site conditions show that increased protection is necessary to reduce employee exposures below permissible exposure limits
- Note: The level of protection may be decreased when additional information or site conditions show that such action will not result in hazardous exposures
- PPE will be selected and used to meet the OSHA requirements of §1910.132 – Personal Protective Equipment, and additional requirements specified in HAZWOPER regulations

Totally Encapsulating Chemical Protective Suits

- Totally encapsulating suits will protect employees from the particular hazards which are identified during site evaluations
- Totally encapsulating suits will be capable of maintaining positive air pressure
- Totally encapsulating suits will be capable of preventing inward test gas leakage of more than 0.5 percent

MONITORING

Monitoring is performed where there may be a question of employee exposure to hazardous concentrations of hazardous substances in order to assure proper selection of engineering controls, work practices, and PPE so that employees are not exposed to levels which exceed permissible exposure limits, if there are no permissible exposure limits, for hazardous substances.

Air monitoring is used to identify and quantify airborne levels of hazardous substances and safety and health hazards in order to determine the appropriate level of employee protection needed on site.

Upon initial entry, air monitoring will be conducted to identify any IDLH condition, exposure over permissible exposure limits, exposure over a radioactive material's dose limits, or other dangerous condition such as the presence of flammable atmospheres or oxygen-deficient environments.

Periodic monitoring is conducted when the possibility of an IDLH condition or flammable atmosphere has developed or when there is indication that exposures may have risen over permissible exposure limits since prior monitoring. Situations where it will be considered whether the possibility that exposures have risen are as follows:

- When work begins on a different portion of the site
- When contaminants other than those previously identified are being handled
- When a different type of operation is initiated (e.g., drum opening as opposed to exploratory well drilling)
- When employees are handling leaking drums or containers or working in areas with obvious liquid contamination (e.g., a spill or lagoon)
- After the actual clean-up phase of any hazardous waste operation commences, GTG Automation, Inc. will monitor those employees likely to have the highest exposures to those hazardous substances and health hazards likely to be present above permissible exposure limits by using personal sampling frequently enough to characterize employee exposures. If the employees likely to have the highest exposure are over permissible exposure limits, then monitoring will continue to determine all employees likely to be above those limits

DECONTAMINATION

Procedures for all phases of decontamination have been implemented as follows:

- A decontamination procedure will be developed, implemented, and communicated to employees before any employees or equipment may enter areas on site where potential for exposure to hazardous substances exists
- Standard operating procedures will be developed to minimize employee contact with hazardous substances or with equipment that has contacted hazardous substances
- All employees leaving a contaminated area will be appropriately decontaminated. All contaminated clothing and equipment leaving a contaminated area will be appropriately disposed of or decontaminated
- Decontamination procedures will be monitored by the site safety and health supervisor to determine their effectiveness. When such procedures are found to be ineffective, appropriate steps will be taken to correct any deficiencies

Decontamination will be performed in geographical areas that minimize the exposure of uncontaminated employees or equipment to contaminated employees or equipment. All equipment and solvents used for decontamination will be decontaminated or properly disposed of.

Personal protective clothing and equipment:

- Protective clothing and equipment will be decontaminated, cleaned, laundered, maintained, or replaced as needed to maintain their effectiveness
- Employees whose non-impermeable clothing becomes wetted with hazardous substances will immediately remove that clothing and proceed to shower. The clothing will be disposed of or decontaminated before removal from the work zone

Unauthorized employees will not remove protective clothing or equipment from change rooms. Commercial laundries or cleaning establishments that decontaminate protective clothing or equipment will be informed of the potentially harmful effects of exposures to hazardous substances.

Where the decontamination procedure indicates a need for regular showers and change rooms outside of a contaminated area, they will be provided and meet the requirements OSHA 1910.141 - Sanitation. If temperature conditions prevent the effective use of water, then other effective means for cleansing will be provided and used.

[illegible]

POLICY

GTG Automation, Inc. has implemented this plan to ensure no employees are exposed to Heat Stress Illnesses (HRI) in the workplace, and will evaluate if heat could be a problem on a particular day based on temperature and humidity levels. If required, GTG Automation, Inc. will implement adequate controls, methods, or procedures to reduce the risk of HRI and prevent heat illness in outdoor places of employment.

RESPONSIBILITIES

Employers

- Adjust work practices as necessary when labor complain of heat stress
- First try to control exposure through engineering controls
- Oversee heat stress training and acclimatization for new labor and for labor who have been off the job for a while
- Provide worker education and training, including periodic safety meetings on heat stress during hot weather or during work in hot environments
- Monitor the workplace to determine when hot conditions arise
- Determine whether labor is drinking enough water
- Determine a proper work/rest regimen for labor
- Arrange first aid training for labor
- When working in a manufacturing plant, for instance, a contractor may wish to adopt the plant's heat stress program if one exists

Safety Committee

- Assist in ensuring heat stress management is followed when necessary
- Assist in training employees to recognize and control workplace hazards
- Monitor the workplace for hazards
- Encourage employees to report hazards
- Implement appropriate controls
- Ensure corrective action is taken promptly

Employees

- Follow instructions and training for controlling heat stress
- Be alert to symptoms in yourself and others
- Avoid consumption of alcohol, illegal drugs, and excessive caffeine
- Check if prescription medications can increase heat stress
- Get adequate rest and sleep
- Drink small amounts of water regularly (up to 4 cups per hour) to maintain fluid levels and avoid dehydration

TRAINING

According to the National Institute of Occupational Safety and Health (NIOSH), heat stress training will cover the following components:

- Knowledge of heat stress hazards
- Recognition of risk factors, danger signs, and symptoms
- Awareness of first-aid procedures for, & potential health effects of, heat stroke
- Employee responsibilities in avoiding heat stress
- Dangers of using alcohol and/or drugs (including prescription drugs) in hot work environments

Employee Training

Training in the following topics will be provided to all supervisory and non-supervisory labor:

- Environmental and personal risk factors for heat illness
- Procedures for identifying, evaluating, and controlling exposures to the environmental and personal risk factors for heat illness
- Importance of frequent consumption of water (up to 4 cups per hour)
- The importance of acclimatization
- Different types of heat illness and common signs and symptoms of heat illness
- The importance of immediately reporting to the employer or designee symptoms or signs of heat illness
- Procedures for responding to symptoms of possible heat illness, including how emergency medical services will be provided will they become necessary
- Procedures for contacting emergency medical services, and if necessary, for transporting labor to a point where they can be reached by medical service personnel
- How to provide clear and precise directions to the work site

Supervisor Training

GTG Automation, Inc. supervisory personnel will be trained on the signs and symptoms of heat-related illnesses and how to prevent such illnesses before supervising employees in conditions where heat is identified as a thermal stressor. Prior to assignment to supervision of labor working in the heat, training on the following topics will occur:

- The information provided for employee training
- Procedures the supervisor will follow to implement controls as determined by the employer
- Emergency response procedures the supervisor will follow when an employee exhibits symptom consistent with possible heat illness, including emergency response procedures
- How to prevent employee heat related illnesses

PROCEDURES

The risks of working in hot construction environments can be reduced if labor and management cooperate to help control heat stress.

Management

- Monitor work conditions and ensure that the program and procedures are documented and implemented throughout the day.
- Give labor frequent breaks in a cool shaded area away from heat (cooling period no less than 5 minutes). The area will not be so cool that it causes cold shock – around 75° F is ideal. The provided shaded area will be either open air or provided with ventilation for cooling.
- Increase air movement by using fans where possible. This encourages body cooling through the evaporation of sweat
- Provide unlimited amounts of conveniently located cool (50°-60°F) potable drinking water
- Allow sufficient time for labor to become acclimated. A properly designed and applied acclimatization program decreases the risk of heat-related illnesses. Such a program exposes labor to work in a hot environment for progressively longer periods. NIOSH recommends that for labor who have had previous experience in hot jobs, the regimen will be: 50% exposure on day one; 60% on day two; 80% on day three; 100% on day four
- For new labor in a hot environment, the regimen will be 20% on day one, with a 20% increase in exposure each additional day
- Make allowances for labor who must wear personal protective clothing and equipment that retains heat and restricts the evaporation of sweat
- Schedule hot jobs for the cooler part of the day; schedule routine maintenance and repair work in hot areas for the cooler seasons of the year
- Consider the use of cooling vests containing ice packs or ice water to help rid bodies of excess heat.

Employees

- Wear light, loose clothing that permits the evaporation of sweat
- Drink plenty of water or sports beverages to keep hydrated. Do not wait until you are thirsty. Drink approximately one cup of water per hour
- Avoid beverages such as tea, coffee, or beer that make you pass urine more frequently

Where personal PPE must be worn:

- Use the lightest weight clothing and respirators available
- Wear light-colored garments that absorb less heat from the sun
- Use PPE that allows sweat to evaporate
- Avoid eating hot, heavy meals. They tend to increase internal body temperature by redirecting blood flow away from the skin to the digestive system
- Do not take salt tablets unless a physician prescribes them. Natural body salts lost through sweating are easily replaced by a normal diet

Emergency Medical Response

- GTG Automation, Inc. will have a written plan to provide emergency medical services
- GTG Automation, Inc. will ensure the availability of a suitable number of appropriately trained persons to render first aid. GTG Automation, Inc. will inform all labor of the procedure to follow in case of injury or illness
- When there is any sign of a heat related illness, the proper first aid will be implemented to the affected employee.
 - Taking the affected employee to a shady or air-conditioned area
 - Lay the employee down and elevate the legs and feet slightly
 - Remove tight or heavy clothing
 - Provide them with a drink of something cool, that does not contain caffeine or alcohol.
 - Monitor closely and contact emergency medical response if needed.

Emergency Transportation

Before labor are sent to a work site, GTG Automation, Inc. will ensure that arrangements are in place to transport injured or ill labor from the work site to the nearest health care facility. If ambulance service is not readily available to the work site or travel conditions are not normal, GTG Automation, Inc. will provide proper equipment for the prompt transportation of the injured or ill person to a physician or hospital where emergency care is provided. GTG Automation, Inc. will ensure that other transportation is available that:

- Is suitable, considering the distance to be traveled and the types of acute illnesses or injuries that may occur at the work site
- Protects occupants from the weather
- Have systems that allow the occupants to communicate with the health care facility to which the injured or ill worker is being taken
- Can accommodate a stretcher and an accompanying person if required to

Emergency Communication

GTG Automation, Inc. will provide an effective communication system for contacting hospitals or other emergency medical facilities, physicians, ambulance, or fire services. In the case of remote job sites, provisions for CB-type, 2-way radio communications will be implemented. The telephone numbers of the following emergency services in the area will be posted near the job telephone or otherwise made available to the labor where no job site telephone exists:

- A physician and at least one alternate if available
- Hospitals
- Ambulance services
- Fire-protection services

Response Time of EMS

GTG Automation, Inc. regards as important that from the time an accident happens, how many minutes it would take trained medical personnel to reach an injured worker.

Things GTG Automation, Inc. will consider include:

- How long would it take our labor to reach a phone to call 911? Are phones conveniently located in the work area or would they have to go to an office to call?
- How far are the emergency medical services from our work site?
- How would emergency medical services get to our work site? They may only be 100 feet away, but if it is across a limited access road, they may have gone 5 miles in one direction to turn around and come back
- How bad is traffic? Are back-ups common in the area at certain times?
- How available are emergency medical services? If there is only one ambulance and one medical team, they may be out on another emergency. It could take a long time for someone to respond to our call
- How large and complex is our work site? How difficult would it be for emergency services to find the place where the injured worker is? We may need to arrange for the emergency service to go to a central location (such as a reception area) and receive directions from there
- GTG Automation, Inc. will contact the local emergency medical service within the proximity of the work site and verify their response to the above inquiries and adjust our plan accordingly
- Our work site supervisor is responsible for inspecting, and maintaining first aid kits

New or temporary labor will be trained in these elements of GTG Automation, Inc.'s Emergency Medical Response Plan as part of their safety orientation before they start work.

RECOGNIZING AND AVOIDING HEAT STRESS

Heat Stress in Construction

Construction operations involving heavy physical work in hot, humid environments can put considerable heat stress on labor. Hot and humid conditions can occur either indoors or outdoors.

Asbestos removal, work with hazardous wastes, and other operations that require labor to wear semi-permeable or impermeable protective clothing can contribute significantly to heat stress. Heat stress causes the body's core temperature to rise.

When the Body's Core Temperature Rises

The human body functions best within a narrow range of internal temperature. This “core” temperature varies from 96.8° F to 100.4° F. A construction worker performing heavy work in a hot environment builds up body heat. To get rid of excess heat and keep internal temperature below 100.4° F, the body uses two cooling mechanisms:

The heart rate increases to move blood – and heat – from heart, lungs, and other vital organs to the skin.

Sweating increases to help cool blood and body. Evaporation of sweat is the most important way the body gets rid of excess heat.

When the body's cooling mechanisms work well, core temperature drops or stabilizes at a safe level (around 98.6° F). But when too much sweat is lost through heavy labor or working under hot, humid conditions, the body does not have enough water left to cool itself. The result is dehydration. Core temperature rises above 100.4° F. A series of heat-related illnesses, or heat stress disorders, can then develop.

Recognizing Heat Stress Disorders

Heat Rash

Heat rash – also known as prickly heat – is the most common problem in hot work environments.

Symptoms include:

- Red blotches and extreme itchiness in areas persistently damp with sweat
- Prickling sensation on the skin where sweating occurs

Treatment

Cool shaded environment, cool shower, thorough drying. In most cases, heat rashes disappear a few days after heat exposure ceases. If the skin is not cleaned frequently enough, the rash may become infected.

Heat Cramps

Under extreme conditions, such as removing asbestos from hot water pipes for several hours in heavy protective gear, the body may lose salt through excessive sweating. Heat cramps can result. These are spasms in larger muscles – usually back, leg, and arm. Cramping creates hard painful lumps within the muscles.

Treatment

Shade, stretch and massage muscles. GTG Automation, Inc. will provide methods for salt replacement (e.g., commercially available carbohydrate/electrolyte replacement fluids for drinking) during physical activities in hot climates where such activities could bring on heat-related illnesses.

Heat Exhaustion

Heat exhaustion occurs when the body can no longer keep blood flowing to supply vital organs and send blood to the skin to reduce body temperature at the same time. Signs and symptoms of heat exhaustion include:

- Weakness
- Difficulty continuing work
- Headache
- Breathlessness
- Nausea or vomiting
- Feeling faint or actually fainting

Labor fainting from heat exhaustion while operating machinery, vehicles, or equipment can injure themselves and others.

Treatment

Heat exhaustion casualties respond quickly to prompt first aid. If not treated promptly, however, heat exhaustion can lead to heat stroke—a medical emergency.

- Call 911
- Help the casualty to cool off by: Resting in a cool shaded place
- Drinking cool water
- Removing unnecessary clothing
- Loosening clothing

Showering or sponging with cool water takes at least 30 minutes to cool the body down once a worker becomes overheated and suffers heat exhaustion.

Heat Stroke

Heat stroke occurs when the body can no longer cool itself and body temperature rises to critical levels.

WARNING: Heat stroke requires immediate medical attention.

The primary signs and symptoms of heat stroke are:

- Confusion
- Irrational behavior
- Loss of consciousness
- Convulsions
- Lack of sweating
- Hot, dry skin
- Abnormally high body temperature — for example, 104° F

Treatment

For any worker showing signs or symptoms of heat stroke, Call 911.

- Provide immediate, aggressive, general cooling in a shaded area.
- Immerse casualty in tub of cool water or
- Place in cool shower or
- Spray with cool water from a hose
- Wrap casualty in cool, wet sheets and fan rapidly
- Transport casualty to hospital
- Do not give anything by mouth to an unconscious casualty

WARNING: Heat stroke can be fatal even after first aid is administered. Anyone suspected of suffering from heat stroke will not be sent home or left unattended unless that action has been approved by a physician. If in doubt as to what type of heat-related disorder the worker is suffering from, call for medical assistance.

Heat Stress Risk Assessment Factors

Factors that will be considered in assessing heat stress include:

- Personal Risk Factors
- Environmental Factors
- Job Factors

Personal Risk Factors

It is difficult to predict just who will be affected by heat stress and when, because individual susceptibility varies. There are, however, certain physical conditions that can reduce the body's natural ability to withstand high temperatures:

GTG Automation, Inc. will ensure that prior to assigning a task where heat related illness may occur, supervisors will consider the following most common personal factors that contribute to heat related illness.

- Weight: Laborers who are overweight are less efficient at losing heat.
- Poor physical condition: Being physically fit aids your ability to cope with the increased demands that heat places on your body.
- Previous heat illnesses: Labor are more sensitive to heat if they have experienced a previous heat-related illness.
- Age: As the body ages, its sweat glands become less efficient. Labor over the age of 40 may therefore have trouble with hot environments. Acclimatization to the heat and physical fitness can offset some age-related problems.

In addition, GTG Automation, Inc. will consider physical work factors when designing work procedures in hot thermal stressor environments to prevent heat-related illnesses.

Heart disease or high blood pressure: In order to pump blood to the skin and cool the body, the heart rate increases. This can cause stress on the heart.

Recent illness: Labor with recent illnesses involving diarrhea, vomiting, or fever have an increased risk of dehydration and heat stress because their bodies have lost salt and water.

Alcohol consumption: Alcohol consumption during the previous 24 hours leads to dehydration and increased risk of heat stress.

Medication: Certain drugs may cause heat intolerance by reducing sweating or increasing urination. People who work in a hot environment will consult their physician or pharmacist before taking medications.

Lack of acclimatization: When exposed to heat for a few days, the body will adapt and become more efficient in dealing with raised environmental temperatures. This process is called acclimatization. Acclimatization usually takes 6 to 7 days.

Benefits include:

- Lower pulse rate and more stable blood pressure
- More efficient sweating (causing better evaporative cooling)
- Improved ability to maintain normal body temperatures

Acclimatization may be lost in as little as three days away from work. People returning to work after a holiday or long weekend – and their supervisors – will understand this. employees will be allowed to gradually re-acclimatize to work conditions.

Environmental Factors

Environmental factors such as ambient air temperature, air movement/circulation, radiant heat sources and relative humidity can all affect an individual's response to heat. The body exchanges heat with its surroundings mainly through radiation and sweat evaporation. The rate of evaporation is influenced by humidity and air movement. As such, GTG Automation, Inc. will place into effect specific measures/procedures to control the effects of these environmental factors that are considered contributing factors to heat-related illnesses.

Radiant Heat

Radiation is the transfer of heat from hot objects through air to the body. Working around heat sources such as kilns or furnaces will increase heat stress. Additionally, working in direct sunlight can substantially increase heat stress. A worker is far more comfortable working at 80° F under cloudy skies than working at 80° F under sunny skies.

Humidity

Humidity is the amount of moisture in the air. Heat loss by evaporation is hindered by high humidity but helped by low humidity. As humidity rises, sweat tends to evaporate less. As a result, body cooling decreases and body temperature increases.

Air Movement

Air movement affects the exchange of heat between the body and the environment. As long as the air temperature is less than the worker's skin temperature, increasing air speed can help labor stay cooler by increasing both the rate of evaporation and the heat exchange between the skin surface and the surrounding air.

JOB FACTORS

Clothing and Personal Protective Equipment (PPE)

Heat stress can be caused or aggravated by wearing PPE such as fire - or chemical -retardant clothing. Coated and non-woven materials used in protective garments block the evaporation of sweat and can lead to substantial heat stress. The more clothing worn or the heavier the clothing, the longer it takes evaporation to cool the skin. Remember that darker clothing absorbs more radiant heat than lighter-colored clothing.

Workload

The body generates more heat during heavy physical work. For example, construction labor shoveling sand or laying brick in hot weather generate a tremendous amount of heat and are at risk of developing heat stress without proper precautions. Heavy physical work requires careful evaluation even at temperatures as low as 75° F to prevent heat disorders. This is especially true for labor who are not acclimated to the heat.

CONTROLLING HEAT STRESS

Heat stress can be controlled through education, engineering, and work procedures. Controls will:

- **Protect Health:** Illness can be prevented or treated while symptoms are still mild
- **Improve Safety:** Labor are less liable to develop a heat-related illness and have an accident. Heat stress often creeps up without warning. Many heat-induced accidents are caused by sudden loss of consciousness
- **Increase Productivity:** Labor feel more comfortable and are likely to be more productive as a result

Engineering Controls

Engineering controls are the most effective means of preventing heat stress disorders and will be the first method of control. Engineering controls seek to provide a more comfortable workplace by using:

- Reflective shields to reduce radiant heat
- Fans and other means to increase airflow in work areas
- Mechanical devices to reduce the amount of physical work

Given the constantly changing nature of construction sites, engineering controls are not usually feasible. Proper work procedures are therefore required to prevent heat stress disorders.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to ensure no employee is exposed to hydrogen sulfide (H₂S) above the permissible exposure limit (PEL).

This policy is available to all employees who request it. Greg Griffin is the assigned supervisor responsible for ensuring the following engineering controls and work practices are enforced:

Greg Griffin will provide employees with information and training at the time of their initial assignment to a work area where H₂S is present. Training consists of a minimum of three and a half (3.5) hours of instructor-led classroom training (for all employees with the potential to be exposed above the OEL or the PEL) and will adhere to the ANSI/ASSE Z390.1-2017 Accepted Practices for Hydrogen Sulfide (H₂S) Training Programs. Training will address the characteristics and health effects of H₂S. If exposures are above the action level, employees will be provided with information and training at least annually thereafter. Necessary employee training will be documented to include: the identity of the employee trained; the signature and title of the employee trainer; and the date of the training. In addition, an annual refresher for all employees with the potential to be exposed above the OEL or the PEL is required and will also consist of a minimum of three and a half (3.5) hours of instructor-led classroom training.

Employees will be informed of all regulated areas and will be properly trained in entrance procedures, safety requirements and practices while in regulated areas.

REFERENCES

- 29 Code of Federal Regulations:
 - §1910.133—Eye and Face Protection
 - §1910.146—Permit-required Confined Spaces

CHARACTERISTICS OF HYDROGEN SULFIDE

H₂S is produced as a result of the microbial breakdown of organic materials in the absence of oxygen. It is a colorless, extremely poisonous gas that has the characteristic odor of rotten eggs. The sense of smell becomes rapidly fatigued and cannot be relied upon to warn of the continuous presence of H₂S. Large amounts of H₂S are obtained in the removal of sulfur from petroleum and the gas is commonly found during the drilling and production of crude oil and natural gas, plus in wastewater treatment and utility facilities and sewers.

Hydrogen sulfide is:

- Extremely toxic and 100 ppm is the Immediately Dangerous to Life and Health (IDLH) concentration
- Colorless
- Solubility in water at 68°F is 0.4% by weight
- Flammable Gas
- Incompatible and reacts with strong oxidizers, strong nitric acid and metals
- UEL (upper explosive [flammable] limit in air) is 44.0% by volume (at room temperature)
- LEL (lower explosive [flammable] limit in air) is 4.0% by volume (at room temperature)

Additional Considerations:

- Contact and exposure occur through inhalation, skin and/or eye contact
- Target organs are the eyes, respiratory system and central nervous system

- Health effects and symptoms include irritation of the eyes and respiratory system; apnea, coma, convulsions; conjunctivitis, eye pain, lacrimation (discharge of tears), photophobia (abnormal visual intolerance to light), corneal vesiculation (blisters); dizziness, headache, lassitude (weakness, exhaustion), irritability, insomnia; gastrointestinal disturbance
- Affects the nerve centers of the brain which control breathing

Potential Employee Exposure to Hydrogen Sulfide includes:

- Drilling Operations
- Recycled Drilling Mud
- Water from sour crude wells
- Blowouts
- Tank Gauging (tanks at producing, pipeline and refining operations)
- Field Maintenance
- Tank batteries and wells, etc.

RESPIRATORY PROTECTION REQUIREMENTS

The Respiratory Protection Program, in compliance with OSHA §1910.134 and respiratory protective equipment is provided at no cost for all employees with potential for exposure to H₂S. GTG Automation, Inc. will require employees with the potential to be exposed to hydrogen sulfide (H₂S) gas above the OEL or PEL to be trained in the elements of respiratory protection including medical evaluations, fit testing and selected respirator training.

The following National Institute of Occupational Safety and Health (NIOSH) respirator recommendations with their Assigned Protection Factor (APF) will be used under these hazardous conditions:

- H₂S Concentrations up to 100 ppm:
 - Any powered, air-purifying respirator with cartridge(s) providing protection against the compound of concern/ (APF = 50)
 - Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister protecting the compound of concern/ (APF = 10)
 - Any supplied air respirator/ (APF = 50)
 - Any self-contained breathing apparatus with a full facepiece
- Emergency or planned entry into unknown H₂S concentrations or IDLH conditions:
 - Any self-contained breathing apparatus that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode/ (APF = 10,000)
 - Any supplied air respirator that has a full facepiece and is operated in a pressure-demand or other positive-pressure mode in combination with an auxiliary self-contained positive-pressure breathing apparatus
 - Any air-purifying, full-facepiece respirator (gas mask) with a chin-style, front- or back-mounted canister protecting the compound of concern/Any appropriate escape-type, self-contained breathing apparatus/ (APF = 50)

Specific Requirements

- In the event of an emergency where H₂S is released at hazardous levels, employees not wearing sufficient personal protective equipment (PPE) for the situation will be immediately evacuated to a safe area until the hazard is contained.
- Adequate ventilation will be ensured in all enclosed work areas. Employees engaged in the maintenance of ventilation systems, including filter changes, are required to use proper PPE for the task.
- Regular monitoring of air quality in work areas will be provided to ensure that the PEL of H₂S is not being exceeded. Records of all monitoring tests will be made available at the Company office.
- Employees working at job sites where there is a potential for exposure to an H₂S hazardous atmosphere will be supplied with personal monitoring equipment which will be carried outside of clothing on the employee at all times when in the work area.
- The supplied monitors will be capable of sensing a minimum of 10 ppm of H₂S in the atmosphere; and will activate audible and visual alarms when the concentration of H₂S in the atmosphere reaches 10 ppm. When monitor alarms sound, employees will vacate the area and will not re-enter without proper respiratory protection.
- In the event that PEL of H₂S is exceeded within any facility where employees are contracted to work, all work will be stopped and employees evacuated until the facility's management can ensure that H₂S levels are brought down to an acceptable level for safe work.
- The management of any facility where GTG Automation, Inc. contracts to work will provide a list of all operations in the facility where H₂S is emitted. Facility management will provide a copy of the facility's contingency plan provisions.
- Special precautions will be taken when employees are working inside tanks or vessels. Employees will adhere to the GTG Automation, Inc. written Confined Space Program per §1910.146 and employees will be trained under §1910.146(g).
- The medical surveillance program for employees who potentially may be exposed to H₂S at or above the action level or PEL will be provided under the supervision of a licensed physician at no cost to the employee.
- Employees will wear proper PPE at all times while in work areas where H₂S is present. This PPE will include proper eye/face protection per §1910.133 where appropriate.
- All required signs and labels will be posted in areas of potential exposure to H₂S.
- All containers or materials containing H₂S will be appropriately labeled to indicate the contents and the hazards of the contents.
- SDS for H₂S and all hazardous materials at GTG Automation, Inc. are available to employees at the Company office upon request.
- The occupational exposure limit (OEL) or the PEL that the Company limits employee exposure to H₂S is 10 ppm) as an eight (8)-hour time-weighted average (TWA). The OEL followed by ANSI, API and NIOSH is 10 ppm as an eight (8)-hour TWA, as stated as an eight (8)-hour TWA.
- **NOTE:** The OSHA PEL for Construction is 10 ppm as an eight (8) hour TWA and the OEL followed by ANSI, API and NIOSH is 10 ppm as an eight (8) hour TWA. OSHA General industry standards do not offer a PEL for industry; instead, an accepted ceiling concentration (ACC) of 20 ppm is used.

HAZARDS OF HYDROGEN SULFIDE

Hazards of Hydrogen Sulfide (H₂S)

Hydrogen Sulfide (H₂S) presents a potential hazard to employees at the worksite. It usually occurs as an unwanted by-product and can result in employee exposure in many different industries or occupations. To ensure protection against exposure to H₂S, both employees and employers will be aware of its properties, how it affects the body and what to do in emergency situations. GTG Automation, Inc. will ensure that all employees who will be working at the jobsite will be properly trained in H₂S awareness and contingency procedures.

H₂S Characteristics

Hydrogen sulfide is a powerful and deadly gas that is colorless and smells like rotten eggs at low concentrations and has a sweet smell at high concentrations. However, employees will not rely on the smell as a warning as the gas quickly paralyzes the olfactory nerves which allow you to smell. The result will be instant death. Long exposure to low concentrations will also deaden the sense of smell.

H₂S is explosive - it will ignite and explode when subjected to a spark or ordinary flame - in any concentration from four (4) percent to 44% of the air. It is also soluble in water and oil, so it may flow for a considerable distance from its origin before escaping above ground or in an entirely unexpected place. Because the vapor (gas) is heavier than air, it may travel for a long way until ignited and then flash back towards the source. One of the products of burning H₂S is Sulfur Dioxide, also a toxic gas.

If the gas is burned, toxic products such as sulfur dioxide will be formed. Hydrogen sulfide is incompatible with oxidizing agents, such as nitric acid and chlorine trifluoride and may react violently or ignite spontaneously.

Sources of H₂S

H₂S is found widely in industry and few employees are warned of its dangers, or their exposure. It is formed by the decomposition of organic materials, so it is found in natural gas and oil, recycled drilling mud, water from sour crude wells, in mines, wells, fertilizers, sewers and cesspools. It is given off as a by-product in the manufacture of rayon, synthetic rubber, dyes and the tanning of leather.

Hydrogen sulfide is found in large amounts in natural gas and petroleum. Any employee involved in extracting gas and petroleum from the ground, or in storing, transporting, or processing gas is at risk from exposure to H₂S. Hydrogen sulfide exists in solution in crude oil and employees are exposed when the gas begins to "pass off" as it reaches the surface or comes into contact with air. This can occur at any point, including all stages of the refining operation and it is accelerated by heat or hot weather.

Fundamentally, employers and employees will be alert to the fact that working with a "closed system" does not always ensure safety. Operations involving the opening of valves or pumps on otherwise closed systems or working on such equipment that is not isolated or locked out are particular sources of danger. When a normally closed system is opened, the potential exists for releasing hazardous chemicals into the employees' breathing zones in unknown concentrations.

Health Effects on the Body

Hydrogen Sulfide is extremely toxic. When you breathe in H₂S, it goes directly through your lungs and into your bloodstream. To protect itself, your body "oxidizes" (breaks down) the H₂S as rapidly as possible into a harmless compound.

If you breathe in so much H₂S that your body cannot oxidize all of it, the H₂S builds up in the blood and you become poisoned. It may cause death instantaneously in high airborne concentrations. The nervous centers in your brain that control breathing may be paralyzed. Your lungs stop working and you are asphyxiated - just as though someone had come up and put their hands around your neck and strangled you.

A single breath of hydrogen sulfide at about 1000 ppm may paralyze the respiratory system and result in coma and death. An employee can be overcome by H₂S and lose consciousness in a few seconds; luckily if he is rescued in time and is given artificial respiration within a few minutes, the employee may recover. Either artificial mouth-to-mouth or an oxygen supply system of resuscitation will work if it is done in time, because, with an adequate source of oxygen and no further H₂S intake, the body will quickly break down the H₂S still in the blood.

Low levels may be extremely irritating to the lungs, nose, throat and eyes. Hydrogen Sulfide can be detected by smell at levels as low as 0.13 parts H₂S per million parts air (ppm). Odor cannot be used as a warning because the gas can deaden the sense of smell within two (2) to 15 minutes in exposures of approximately 100 ppm. Convulsions may also occur. Prolonged exposure at about 250 ppm H₂S may cause the lung tissue to swell and fill up with water (pulmonary edema). This effect may occur after the exposed employee recovers from the irritant effects of the gas. Exposures of 20 to 50 ppm hydrogen sulfide for one (1) hour may cause inflammation of the cornea and the delicate lining of the eye and eyelid (a condition called keratoconjunctivitis). Exposures for long periods at 50 ppm may cause severe irritation of the nose, throat and lungs. Employees exposed to lower concentrations of H₂S may develop headaches, eye disorders and chronic bronchitis.

Acute (Short-term) Effects

Gas is a silent threat – often invisible to the body's senses. Inhalation is the primary route of exposure to hydrogen sulfide. Though it may be easily smelled by some people at small concentrations, continuous exposure to even low levels of H₂S quickly weakens the sense of smell (olfactory desensitization). Exposure to high levels of the gas can deaden the sense of smell instantly. Although the scent of H₂S is characteristic, the smell is not a dependable indicator of H₂S gas presence or for indicating increasing concentrations of the gas.

H₂S irritates the mucous membranes of the body and the respiratory tract, among other things. Following exposure, short-term, or acute, symptoms may include headache, nausea, convulsions and eye and skin irritation. Injury to the central nervous system can be immediate and serious after exposure. At high concentrations, only a few breaths are needed to induce unconsciousness, coma, respiratory paralysis, seizures and even death.

Chronic (Long-term) Effects

Hydrogen Sulfide can also cause a wide range of sub-acute and chronic effects. At low concentrations of 10-100 ppm, headache, dizziness, nausea and vomiting may develop, together with irritation of the eyes and respiratory tract (the lungs and trachea and bronchi, or air pipes from the nose and mouth to the lungs). The eyes become red, sore, inflamed and sensitive to light. Respiratory system effects include cough, pain in the nose and throat and pain on breathing.

If exposure at low levels continues, the employee may develop a state of chronic poisoning. In addition to eye and respiratory tract irritation, there will be a slowed pulse rate, fatigue, insomnia, digestive disturbances and cold sweats. More dangerous, if exposure at the level of 100 ppm (which results in eye and respiratory tract irritation and drowsiness after 15 minutes) lasts for several hours, it may result in death within the next 48 hours. Symptoms of chronic exposures at low levels are conjunctivitis (eye infections), headache, attacks of dizziness, diarrhea and loss of weight.

Chronic H₂S intoxication is marked by headaches, eye disorders, chronic bronchitis and a grey-green line on the gums. Reports of nervous system disorders including paralysis, meningitis and neurological problems have been reported, but not confirmed.

A study of employees and community residents of a California refinery engaged in extracting sulfur from crude oil, which is rich in H₂S, complained of headaches, nausea, vomiting, depression, personality changes, nosebleeds and breathing difficulties. When compared to a non-exposed group of people, the exposed people showed abnormalities of color discrimination, eye-hand coordination, balance and mood disturbances.

Hydrogen Sulfide can penetrate the skin and cause toxicosis in people exposed to large concentrations over long periods. The speed of onset of acute H₂S poisoning and the potency of H₂S are almost the same as for cyanide gas. In rats, exposure to H₂S has caused teratogenic (biological monstrosities and malformations) effects.

Those having prolonged exposure to high enough levels of H₂S gas to cause unconsciousness may continue to experience headaches, reduced attention span and motor functions. Pulmonary effects of H₂S gas exposure may not be apparent for up to 72 hours following removal from the affected environment. Delayed pulmonary edema, a buildup of excess fluid in the lungs, may also occur following exposure to high concentrations.

H₂S does not accumulate in the body, but repeated/prolonged exposure to moderate levels can cause low blood pressure, headache, loss of appetite and weight loss. Prolonged exposure to low levels may cause painful skin rashes and irritated eyes. Repeated exposure over time to high levels of H₂S may cause convulsions, coma, brain and heart damage and even death.

Symptoms of H₂S exposure

H₂S is classified as a chemical asphyxiant, similar to carbon monoxide and cyanide gases. It inhibits cellular respiration and uptake of oxygen, causing biochemical suffocation. Exposure levels to H₂S and symptoms of that exposure are divided into different toxicity levels, shown in the chart below.

10 ppm	Beginning eye irritation
50-100 ppm	Slight conjunctivitis and respiratory tract irritation after 1-hour exposure
100 ppm	Coughing, eye irritation, loss of sense of smell after 2-15 minutes. Altered respiration, pain in the eyes and drowsiness after 15-30 minutes followed by throat irritation after one (1) hour. Several hours of exposure results in the gradual increase in the severity of these symptoms and death may occur within the next 48 hours.
200-300 ppm	Marked conjunctivitis and respiratory tract irritation after one (1) hour of exposure
500-700 ppm	Loss of consciousness and possibly death in 30 minutes to one (1) hour.
700-1000 ppm	Rapid unconsciousness, cessation of respiration and death.
1000-2000 ppm	Unconsciousness at once, with early cessation of respiration and death in a few minutes. Death may occur even if the individual is removed to fresh air at once.

Use and operation of H₂S monitoring systems and detection methods used on-site

Employees working at job sites where there is a potential for exposure to hazardous atmospheres will be supplied with personal monitoring equipment that will be carried outside of clothing on the employee at all times when in the work area. The monitors supplied will be capable of sensing H₂S in the atmosphere and will activate audible and visual alarms when the concentration of H₂S in the atmosphere exceeds 10 ppm or 20 ppm.

The acceptable ceiling concentration for H₂S exposure is 10 ppm and 50 ppm is the acceptable maximum peak above the acceptable ceiling concentration for an eight (8) hour shift with a one-time 10-minute exposure only if no other measured exposure exists.

Alternatively, stationary monitors may be installed. Personal or stationary monitors will be capable of sounding an audible alarm or warning. Greg Griffin will administer the monitor maintenance program for GTG Automation, Inc.. Monitors will be calibrated and maintained per the manufacturer's instructions.

Proper use and maintenance of PPE

See GTG Automation, Inc. Policy on respiratory protection. Employees working in areas where the possibility of exposure to toxic gases exists will be provided NIOSH-approved full-face SCBA respiratory equipment and trained in their use and maintenance according to the Company Respiratory Protection Program which is administered by Greg Griffin. Demonstrated proficiency in using PPE is required by the program.

Locations and use of safety equipment

Personal hazardous atmosphere detection monitors and respiratory protective equipment will be immediately available to each employee at all times in the work area. Safety equipment will be kept immediately available to all employees on the jobsite.

All employees of GTG Automation, Inc. will be notified of the location of safety equipment on each jobsite before commencement of work. Only employee trained in the proper use of any required safety equipment will be allowed on the jobsite.

Recognition and response to H₂S warnings at the workplace

GTG Automation, Inc. employees will be trained on site-specific emergency action plans to include evacuation procedures. Employees will be required to respond immediately to audio or visual

warnings issued either by personal monitoring equipment or established workplace general warning signals. Workplace site-specific contingency plans of the plant owner will be reviewed with employee and provisions of the plan followed. When a warning signal is sounded, employees will immediately put on SCBA respiratory protection, vacate the area and do not re-enter. Employees will notify or contact necessary employee and are not permitted to return to the work area until clearance is given for re-entry. Evacuation plans will be established for each worksite before the commencement of work. Greg Griffin, or the foreman in charge of the job site, will be responsible for supervision of evacuation procedures, checking for proper use of respiratory protection, ensuring all employees are cleared of the hazard area, notification of the facility management and assembly and headcount of evacuated employee at designated safe areas.

Proper rescue and first aid to be used in an H₂S exposure

First aid kit and oxygen will be kept in the supervisor's work vehicle and available to all employees. A litter for transport of incapacitated employees will be provided by GTG Automation, Inc. and kept on-site if one is not available from the facility.

In the event an employee is exposed to H₂S, the employee will immediately be evacuated to a safe briefing area, emergency medical services will be notified and oxygen will be administered, along with cardiopulmonary resuscitation (CPR) if required. Oxygen will be administered regardless of the condition of the victim to ensure a reduction of the absorption concentration of H₂S. If an employee is rendered unconscious due to H₂S exposure, assigned employee wearing proper SCBA will respond to perform rescue operations of the victim.

Locations of safe briefing areas

Safe briefing areas will be designated outside the work zone for each work location where the possibility of hazardous atmospheres exist. At least two (2) briefing areas will be designated for each worksite. Employees will be notified of these areas before the commencement of work. Greg Griffin will be responsible for evaluation and designation of safe briefing areas for GTG Automation, Inc..

Wind direction awareness and routes of egress

Wind direction will be monitored by Greg Griffin at the beginning of each shift to determine safe egress routes for employees in the event of an evacuation. Wind direction will be regularly checked and noted throughout the work shift for wind shift which will necessarily facilitate a change of egress routes for evacuation. Evacuation routes will be determined for each work area before commencement of work and routes will be clearly marked and posted in conspicuous areas in the workplace. In the event of an emergency evacuation, Greg Griffin will be responsible for determination and notification of the proper egress route to be used for employee safety.

Confined space and enclosed facility entry procedures

Whenever employees enter a confined space, such as a tank, strict work practices will be followed, including the Company permit entry system.

Greg Griffin will ensure that the GTG Automation, Inc. Confined Space Entry program is adhered to, that the air is continually monitored for the presence of H₂S and that an employee be stationed as a monitor outside of a confined space. Supplied air respirators, lifelines and rescue equipment will be immediately available.

See GTG Automation, Inc. Policy on Permit Required Confined Spaces. These procedures will be enforced in all confined work situations.

GAS DETECTORS/MONITORS

GTG Automation, Inc. will ensure each employee will use a portable gas detector as required in all areas where hydrogen sulfide may be present and the employees will be properly trained in the operation and maintenance of issued gas-detection equipment.

The gas monitor will be calibrated per the manufacturer's recommendations. Each monitor will contain a current calibration sticker on the monitor providing the date of calibration.

At the beginning of each day, a bump test is required to be completed on the monitor when in use per the requesting owner client and manufacturer's guidelines. This is to ensure the monitor and alarms are functioning correctly. Employees will be trained in how to bump-test issued gas-detection equipment as well as how to accurately calibrate issued gas-detection equipment. A full calibration is required if a monitor fails a bump test.

Bump Test: Briefly expose the portable detector to a known concentration of gas high enough to set off the alarm. Note the reading to ensure that it is correct. A bump test is not calibration, but a quick way to ensure that the most important functions of the instrument are intact.

Personal alarm monitors will be set to alarm initially at 10 ppm H₂S and each contractor will wear an H₂S personal alarm monitor when working in all potential H₂S areas.

[illegible]

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has adopted this policy for Injury/Illness Recordkeeping in accordance with OSHA regulations

REFERENCES

- §1904 – Injury / Illness Recordkeeping

RECORDS

It is the policy of GTG Automation, Inc. to retain records of work-related fatalities, injuries, and illnesses that is:

- Work-related
- New case
- Meets one of the general recording criteria of 29 CFR 1904.4(a)

It is the policy of GTG Automation, Inc. to enter each recordable injury or illness on an OSHA 300 Log and 301 incident report, or other equivalent form, within seven (7) calendar days of receiving information that a recordable injury or illness has occurred.

At the end of each calendar year Greg Griffin must examine the OSHA 300 Log and certify that, based on the knowledge of the process by which the information was recorded, that the annual summary is correct and complete. A designated company official must sign the OSHA 300A Summary and make it available for posting. (See §1904.32 (b)(3))

ANNUAL SUMMARY POSTING

GTG Automation, Inc. will post a copy of the annual summary in each facility. The summary must be posted in a conspicuous place or places where notices to employees are customarily posted. GTG Automation, Inc. will ensure that the posted annual summary is not altered, defaced, or covered by other material. The annual summary will be posted no later than February 1st of the year following the year covered by the records. The posting must be kept in place through April 30th.

GTG Automation, Inc. will save the OSHA 300 Log, the privacy case list (if one exists), the annual summary, and the OSHA 301 Incident Report Forms for five (5) years following the end of the calendar year that these records cover.

The decision tree for recording work-related injuries and illnesses on the next page shows the steps involved in how to decide whether an injury or illness is recordable.

GENERAL RECORDING CRITERIA

Basic Requirement

You must consider an injury or illness to meet the general recording criteria, and therefore to be recordable, if it results in any of the following: death, days away from work, restricted work or transfer to another job, medical treatment beyond first aid, or loss of consciousness. You must also consider a case to meet the general recording criteria if it involves a significant injury or illness diagnosed by a physician or other licensed health care professional, even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness.

Implementation

How do I decide if a case meets one or more of the general recording criteria?

A work-related injury or illness must be recorded if it results in one or more of the following:

- Death. See §1904.7 (b)(2)
- Days away from work. See §1904.7 (b)(3)
- Restricted work or transfer to another job. See §1904.7 (b)(4)
- Medical treatment beyond first aid. See §1904.7 (b)(5)
- Loss of consciousness. See §1904.7 (b)(6)
- A significant injury or illness diagnosed by a physician or other licensed health care professional. See §1904.7 (b)(7)

How do I record a work-related injury or illness that results in the employee's death?

You must record an injury or illness that results in death by entering a check mark on the OSHA 300 Log in the space for cases resulting in death. You must also report any work-related fatality to OSHA within eight (8) hours, as required by §1904.39.

How do I record a work-related injury or illness that results in days away from work?

When an injury or illness involves one or more days away from work, you must record the injury or illness on the OSHA 300 Log with a check mark in the space for cases involving days away and an entry of the number of calendar days away from work in the number of days column. If the employee is out for an extended period of time, you must enter an estimate of the days that the employee will be away and update the day count when the actual number of days is known.

- Do I count the day on which the injury occurred, or the illness began? No, you begin counting days away on the day after the injury occurred or the illness began
- How do I record an injury or illness when a physician or other licensed health care professional recommends that the worker stay at home, but the employee comes to work anyway?

You must record these injuries and illnesses on the OSHA 300 Log using the check box for cases with days away from work and enter the number of calendar days away recommended by the physician or other licensed health care professional. If a physician or other licensed health care professional recommends days away, you will encourage your employee to follow that recommendation. However, the days away must be recorded whether the injured or ill employee follows the physician or licensed health care professional's recommendation or not. If you receive recommendations from two or more physicians or other licensed health care professionals, you may decide as to which recommendation is the most authoritative, and record the case based upon that recommendation.

How do I record a work-related injury or illness that results in restricted work or job transfer?

When an injury or illness involves restricted work or job transfer but does not involve death or days away from work, you must record the injury or illness on the OSHA 300 Log by placing a check mark in the space for job transfer or restriction and an entry of the number of restricted or transferred days in the restricted workdays column.

- How do I decide if the injury or illness resulted in restricted work? Restricted work occurs when, as the result of a work-related injury or illness:
 - You keep the employee from performing one or more of the routine functions of his or her job, or from working the full workday that he or she would otherwise have been scheduled to work; or
 - A physician or other licensed health care professional recommends that the employee not perform one or more of the routine functions of his or her job, or not work the full workday that he or she would otherwise have been scheduled to work.
- What is meant by "routine functions"? For recordkeeping purposes, an employee's routine functions are those work activities the employee regularly performs at least once per week.
- Do I have to record restricted work or job transfer if it applies only to the day on which the injury occurred, or the illness began? No, you do not have to record restricted work or job transfers if you, or the physician or other licensed health care professional, impose the restriction or transfer only for the day on which the injury occurred, or the illness began.

If you, a physician, or other licensed health care professional recommends a work restriction, is the injury or illness automatically recordable as a "restricted work" case?

No, a recommended work restriction is recordable only if it affects one or more of the employee's routine job functions. To determine whether this is the case, you must evaluate the restriction in light of the routine functions of the injured or ill employee's job. If the restriction from you or the physician or other licensed health care professional keeps the employee from performing one or more of his or her routine job functions, or from working the full workday the injured or ill employee would otherwise have worked, the employee's work has been restricted and you must record the case.

How do I record a case where the worker works only for a partial work shift because of a work-related injury or illness?

A partial day of work is recorded as a day of job transfer or restriction for recordkeeping purposes, except for the day on which the injury occurred or the illness began.

If the injured or ill worker produces fewer goods or services than he or she would have produced prior to the injury or illness but otherwise performs all of the routine functions of his or her work, is the case considered a restricted work case?

No, the case is considered restricted work only if the worker does not perform all of the routine functions of his or her job or does not work the full shift that he or she would otherwise have worked.

How do I handle vague restrictions from a physician or other licensed health care professional, such as that the employee engages only in "light duty" or "take it easy for a week?"

If you are not clear about the physician or other licensed health care professional's recommendation, you may ask that person whether the employee can do all of his or her routine job functions and work all of his or her normally assigned work shift. If the answer to both of these questions is "Yes," then the case does not involve a work restriction and does not have to be recorded as such. If the answer to one or both of these questions is "No," the case involves restricted work and must be recorded as a restricted work case. If you are unable to obtain this additional information from the physician or other licensed health care professional who recommended the restriction, record the injury or illness as a case involving restricted work.

What do I do if a physician or other licensed health care professional recommends a job restriction meeting OSHA's definition, but the employee does all of his or her routine job functions anyway?

You must record the injury or illness on the OSHA 300 Log as a restricted work case. If a physician or other licensed health care professional recommends a job restriction, you will ensure that the employee complies with that restriction. If you receive recommendations from two or more physicians or other licensed health care professionals, you may decide as to which recommendation is the most authoritative, and record the case based upon that recommendation.

How do I decide if an injury or illness involved a transfer to another job?

If you assign an injured or ill employee to a job other than his or her regular job for part of the day, the case involves transfer to another job.

Note: This does not include the day on which the injury or illness occurred.

Are transfers to another job recorded in the same way as restricted work cases?

Yes, both job transfer and restricted work cases are recorded in the same box on the OSHA 300 Log. For example, if you assign, or a physician or other licensed health care professional recommends that you assign, an injured or ill worker to his or her routine job duties for part of the day and to another job for the rest of the day, the injury or illness involves a job transfer. You must record an injury or illness that involves a job transfer by placing a check in the box for job transfer.

How do I count days of job transfer or restriction?

You count days of job transfer or restriction in the same way you count days away from work. The only difference is that, if you permanently assign the injured or ill employee to a job that has been modified or permanently changed in a manner that eliminates the routine functions the employee was restricted from performing, you may stop the day count when the modification or change is made permanent. You must count at least one day of restricted work or job transfer for such cases.

How do I record an injury or illness that involves medical treatment beyond first aid?

If a work-related injury or illness results in medical treatment beyond first aid, you must record it on the OSHA 300 Log. If the injury or illness did not involve death, one or more days away from work, one or more days of restricted work, or one or more days of job transfer, you enter a check mark in the box for cases where the employee received medical treatment but remained at work and was not transferred or restricted.

What is the definition of medical treatment?

"Medical treatment" means the management and care of a patient to combat disease or disorder. For the purposes of Part 1904, medical treatment does not include:

Visits to a physician or other licensed health care professional solely for observation or counseling.

- The conduct of diagnostic procedures, such as x-rays and blood tests, including the administration of prescription medications used solely for diagnostic purposes (e.g., eye drops to dilate pupils); or
- "First aid" as defined below.

What is "first aid"?

For the purposes of Part 1904, "first aid" means the following:

- Using a non-prescription medication at nonprescription strength (for medications available in both prescription and non-prescription form, a recommendation by a physician or other licensed health care professional to use a non-prescription medication at prescription strength is considered medical treatment for recordkeeping purposes)
- Administering tetanus immunizations (other immunizations, such as Hepatitis B vaccine or rabies vaccine, are considered medical treatment)
- Cleaning, flushing or soaking wounds on the surface of the skin
- Using wound coverings such as bandages, Band-Aids, gauze pads, etc.; or using butterfly bandages or Steri-Strips (other wound closing devices such as sutures, staples, etc., are considered medical treatment)
- Using hot or cold therapy
- Using any non-rigid means of support, such as elastic bandages, wraps, non-rigid back belts, etc. (devices with rigid stays or other systems designed to immobilize parts of the body are considered medical treatment for recordkeeping purposes)

- Using temporary immobilization devices while transporting an accident victim (e.g., splints, slings, neck collars, back boards, etc.)
- Drilling of a fingernail or toenail to relieve pressure, or draining fluid from a blister
- Using eye patches
- Removing foreign bodies from the eye using only irrigation or a cotton swab
- Removing splinters or foreign material from areas other than the eye by irrigation, tweezers, cotton swabs or other simple means
- Using finger guards
- Using massages (physical therapy or chiropractic treatment are considered medical treatment for recordkeeping purposes).
- Drinking fluids for relief of heat stress

Are any other procedures included in first aid?

No, this is a complete list of all treatments considered first aid for Part 1904 purposes.

Does the professional status of the person providing the treatment have any effect on what is considered first aid or medical treatment?

No, OSHA considers the treatments listed above to be first aid regardless of the professional status of the person providing the treatment. Even when these treatments are provided by a physician or other licensed health care professional, they are considered first aid for the purposes of Part 1904. Similarly, OSHA considers treatment beyond first aid to be medical treatment even when it is provided by someone other than a physician or other licensed health care professional.

What if a physician or other licensed health care professional recommends medical treatment but the employee does not follow the recommendation?

If a physician or other licensed health care professional recommends medical treatment, you will encourage the injured or ill employee to follow that recommendation. However, you must record the case even if the injured or ill employee does not follow the physician or other licensed health care professional's recommendation.

Is every work-related injury or illness case involving a loss of consciousness recordable?

Yes, you must record a work-related injury or illness if the worker becomes unconscious, regardless of the length of time the employee remains unconscious.

What is a "significant" diagnosed injury or illness that is recordable under the general criteria even if it does not result in death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness?

Work-related cases involving cancer, chronic irreversible disease, a fractured or cracked bone, or a punctured eardrum must always be recorded under the general criteria at the time of diagnosis by a physician or other licensed health care professional.

Note to §1904.7: OSHA believes that most significant injuries and illnesses will result in one of the criteria listed in §1904.7 (a): death, days away from work, restricted work or job transfer, medical treatment beyond first aid, or loss of consciousness. However, there are some significant injuries, such as a punctured eardrum or a fractured toe or rib, for which neither medical treatment nor work restrictions may be recommended. In addition, there are some significant progressive diseases, such as byssinosis, silicosis, and some types of cancer, for which medical treatment or work restrictions may not be recommended at the time of diagnosis but are likely to be recommended as the disease progresses.

OSHA believes that cancer, chronic irreversible diseases, fractured or cracked bones, and punctured eardrums are generally considered significant injuries and illnesses, and must be recorded at the initial diagnosis even if medical treatment or work restrictions are not recommended, or are postponed, in a particular case.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to ensure no employee is exposed to hazards caused by improper or unsafe use of ladders and/or stairways. GTG Automation, Inc. will provide a training program for each employee using ladders and stairways. The program will enable each employee to recognize hazards related to ladders and stairways and will train each employee in the procedures to be followed to minimize these hazards.

REFERENCES

- §1926.1050 – Ladders and Stairways

RESPONSIBILITIES

Ladder and stairway safety is a responsibility shared between the Company and its employees.

Employer Responsibilities

- Providing and installing all stairway and ladder fall protection systems required by this subpart and will comply with all other pertinent requirements of this subpart before employees begin the work that necessitates the installation and use of stairways, ladders, and their respective fall protection systems
- Ensuring that visual safety inspections of ladders and stairways occur on regular basis
- Training personnel
- Responding quickly to eliminate workplace hazards
- Ensuring all equipment is kept in good repair
- Ensuring employees follow safe job procedures
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness

Safety Committee Responsibilities

- Assist in jobsite ladders and stairways as necessary
- Assist in training employees to recognize and control workplace hazards
- Monitor the workplace for hazards
- Encourage employees to report hazards
- Implement appropriate controls
- Ensure corrective action is taken promptly

Employee Responsibilities

- Assist in jobsite ladder and stairway inspections
- Follow safe job procedures
- Report hazards to a supervisor immediately

TRAINING

Greg Griffin will ensure each employee has been trained by a competent person in the following areas, as applicable: The nature of fall hazards in the work area; The correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used; the proper construction, use, placement, and care in handling of all stairways and ladders; the maximum intended load-carrying capacities of ladder; the standards contained in §1926.1050 – Ladders and Stairways.

Retraining will be provided for each employee as necessary so that the employee maintains the understanding and knowledge acquired through previous training required for OSHA compliance.

SAFE PRACTICES

A stairway or ladder will be at all access points with a break in elevation of 19 inches or more without a ramp, runway, sloped embankment, or personnel hoist.

- Employees will not use any spiral stairways that will not be a permanent part of the structure on which construction work is being performed
- A double-cleated ladder or two or more separate ladders will be provided when ladders are the only mean of access or exit from a working area for 25 or more employees, or when a ladder is to serve simultaneous two-way traffic
- When a building or structure has only one point of access between levels, that point of access will be kept clear to permit free passage of employees. When work must be performed or equipment must be used such that free passage at that point of access is restricted, a second point of access will be provided and used
- When a building or structure has two or more points of access between levels, at least one point of access will be kept clear to permit free passage of employees

Ladders

Greg Griffin will ensure the following requirements are adhered to concerning the use of all ladders:

- When portable ladders are used for access to an upper landing surface, the ladder side will extend at least 3 feet above the upper landing surface to which the ladder is used to gain access; or, when such an extension is not possible because of the ladder's length, then the ladder will be secured at its top to a rigid support that will not deflect, and a grasping device, such as a grabrail, will be provided to assist employees in mounting and dismounting the ladder. In no case will the extension be such that ladder deflection under a load would, by itself, cause the ladder to slip off its support
- Ladders will be maintained free of oil, grease, and other slipping hazards
- Ladders used by employees must meet OSHA/ANSI specifications
- Ladder rungs, cleats, and steps will be parallel, level, and uniformly spaced when the ladder is in position for use
- Ladders will not be loaded beyond the maximum intended load for which they were built or beyond their manufacturer's rated capacity. Ladders need to have the load capacity needed for the task

- Rungs, cleats, and steps of portable ladders (except as provided below) and fixed ladders (including individual-rung/step ladders) shall be spaced not less than 10 inches (25 cm) apart, nor more than 14 inches (36 cm) apart, as measured between center lines of the rungs, cleats, and steps
- Rungs, cleats, and steps of step stools shall be not less than 8 inches (20 cm) apart, nor more than 12 inches (31 cm) apart, as measured between center lines of the rungs, cleats, and steps
- Rungs, cleats, and steps of the base section of extension trestle ladders shall not be less than 8 inches (20 cm) nor more than 18 inches (46 cm) apart, as measured between center lines of the rungs, cleats, and steps
- The rung spacing on the extension section of the extension trestle ladder shall be not less than 6 inches (15 cm) nor more than 12 inches (31 cm), as measured between center lines of the rungs, cleats, and steps
- The minimum clear distance between the sides of individual-rung/step ladders and the minimum clear distance between the side rails of other fixed ladders shall be 16 inches (41 cm)
- The minimum clear distance between side rails for all portable ladders shall be 11 1/2 inches (29 cm)
- The rungs of individual-rung/step ladders shall be shaped such that employees' feet cannot slide off the end of the rungs
- The rungs and steps of portable metal ladders shall be corrugated, knurled, dimpled, coated with skid-resistant material, or otherwise treated to minimize slipping
- Ladders will be used only for the purpose for which they were designed
- Non-self-supporting ladders will be used at a 75 degree angle
- Wood job-made ladders with spliced side rails will be used at an angle such that the horizontal distance is one-eighth the working length of the ladder
- Fixed ladders will be used at a pitch no greater than 90 degrees from the horizontal
- Ladders will be used only on stable and level surfaces unless secured
- Ladders will not be used on slippery surfaces without slip-resistant feet unless secured. Slip-resistant feet will not be used as a substitute for care in placing, lashing, or holding a ladder that is used upon slippery surfaces, including flat metal or concrete surfaces that are constructed so they cannot be prevented from becoming slippery
- Ladders placed where they can be displaced by workplace activities or traffic, such as in passageways, doorways, or driveways, will be secured to prevent accidental displacement, or a barricade will be used to keep the activities or traffic away from the ladder
- The area around the top and bottom of ladders will be kept clear
- The top of a non-self-supporting ladder will be placed with the two rails supported equally unless it is equipped with a single support attachment
- Ladders will not be moved, shifted, or extended while occupied
- Ladders will have nonconductive side-rails if they are used where the employee or the ladder could contact exposed energized electrical equipment
- The top or top step of a stepladder will not be used as a step
- Cross-bracing on the rear section of stepladders will not be used for climbing unless the ladders are designed and provided with steps for climbing on both front and rear sections
- Ladders will be inspected by a competent person before initial use in each work shift, and more frequently as necessary, and after any occurrence that could affect their safe use to identify any visible defects that could cause employee injury.

- Portable ladders with structural defects will either be immediately marked in a manner that readily identifies them as defective, or be tagged with "DO NOT USE" or similar language, and will be withdrawn from service until repaired
- Fixed ladders with structural defects, such as broken or missing rungs, cleats, or steps, broken or split rails, or corroded components, will be withdrawn from service until repaired. The defective ladder will be withdrawn from service in the following manner: immediately tagged with "Do Not Use" or similar language; marked in a method that readily identifies it as defective; blocked from further use, such as with a plywood attachment that spans several rungs
- Before damaged or defective ladder may be returned to service, repairs will be made that restore the ladder to its original design specifications
- Single-rail ladders will not be used
- When ascending or descending a ladder, the user will face the ladder
- Each employee will use at least one hand to grasp the ladder when progressing up and/or down the ladder
- An employee will not carry any object or load that could cause the employee to lose balance and fall
- Extension ladders will be placed one unit away from the vertical surface for every four units high

Stairways

Greg Griffin will ensure the following requirements are applied to all stairways:

- Stairways that will not be a permanent part of the structure on which construction work is being performed will have landings of not less than 30 inches in the direction of travel and extend at least 22 inches in width at every 12 feet or less of vertical rise
- Stairs will be installed between 30 deg. and 50 deg. from horizontal
- Riser height and tread depth will be uniform within each flight of stairs, including any foundation structure used as one or more treads of the stairs. Variations in riser height or tread depth will not be over ¼-inch in any stairway system
- Where doors or gates open directly on a stairway, a platform will be provided, and the swing of the door will not reduce the effective width of the platform to less than 20 inches
- Metal pan landings and metal pan treads, when used, will be secured in place before filling with concrete or other material
- All parts of stairways will be free of hazardous projections, such as protruding nails
- Slippery conditions on stairways will be eliminated before the stairways are used to reach other levels
- Except during stairway construction, foot traffic is prohibited on stairways with pan stairs where the treads and/or landings are to be filled in with concrete or other material at a later date, unless the stairs are temporarily fitted with wood or other solid material at least to the top edge of each pan. Such temporary treads and landings will be replaced when worn below the level of the top edge of the pan
- Except during stairway construction, foot traffic is prohibited on skeleton metal stairs where permanent treads and/or landings are to be installed at a later date, unless the stairs are fitted with secured temporary treads and landings long enough to cover the entire tread and/or landing area

- Treads for temporary service will be made of wood or other solid material, and will be installed the full width and depth of the stair
- Stairways having four or more risers or rising more than 30 inches, will be equipped with: at least one handrail; one stair rail system along each unprotected side or edge
- Winding and spiral stairways will be equipped with a handrail offset sufficiently to prevent walking on those portions of the stairways where the tread width is less than 6 inches
- The height of stair rails will be as follows will be not less than 36 inches from the upper surface of the stair rail system to the surface of the tread, in line with the face of the riser at the forward edge of the tread
- Midrails, screens, mesh, intermediate vertical members, or equivalent intermediate structural members, will be provided between the top rail of the stair rail system and the stairway steps
 - Midrails will be located at a height midway between the top edge of the stair rail system and the stairway steps
 - Screens or mesh will extend from the top rail to the stairway step, and along the entire opening between top rail supports
 - When intermediate vertical members, such as balusters, are used between posts, they will be not more than 19 inches apart
 - Other structural members will be installed such that there are no openings in the stair rail system that are more than 19 inches wide
- Handrails and the top rails of stair rail systems will be capable of withstanding, without failure, a force of at least 200 pounds applied within 2 inches of the top edge, in any downward or outward direction, at any point along the top edge
- The height of handrails will be not more than 37 inches or less than 30 inches from the upper surface of the handrail to the surface of the tread
- When the top edge of a stair rail system also serves as a handrail, the height of the top edge will be not more than 37 inches or less than 36 inches
- Stair rail systems and handrails will be so surfaced as to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing
- Handrails will provide an adequate handhold for employees grasping them to avoid falling
- The ends of stair rail systems and handrails will be constructed so as not to constitute a projection hazard
- Handrails that will not be a permanent part of the structure being built will have a minimum clearance of 3 inches between the handrail and walls, stair rail systems, and other objects
- Unprotected sides and edges of stairway landings will be provided with guardrail systems

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to ensure no employee is exposed to lead at levels in excess of Permissible Exposure Limits (PEL), which for lead will be 50 micrograms per cubic meter ($50\mu\text{g}/\text{m}^3$) at 8 hour Time Weighted Average (TWA). If exposures are above the "Action Level," engineering controls, work practices, or Personal Protective Equipment (PPE) will be required to reduce exposure levels. Action Level means employee exposure, without regard to the use of respirators, to an airborne concentration of lead of 30 micrograms per cubic meter of air ($30\mu\text{g}/\text{m}^3$) averaged over an 8-hour period.

Greg Griffin is the assigned supervisor responsible for ensuring the following administrative controls, engineering controls, and work practices are enforced.

TRAINING

Greg Griffin will provide information and training for each employee who has potential exposure to lead that includes the following required elements:

- Provides a training program for, and assures the participation of, all employees who are subject to exposure to lead at or above the action level or for whom the possibility of skin or eye irritation exists
- Provide initial training prior to the time of initial job assignment
- The training program will be repeated annually for each employee
- Employee will be informed of Appendices A and B of the Lead Regulation
- All affected employees are required to attend training programs
- Employees will be informed of the specific nature of the operations which could result in exposure to lead above the action level
- Employees will be informed of the purpose, proper selection, fitting, use, and limitations of respirators
- Employees will be informed of the engineering controls being used
- The employees will be informed of the purpose and a description of the Medical Surveillance Program and the Medical Removal Program
- There could be adverse effects on reproductive systems

Greg Griffin will make readily available to all affected employees, a copy of the OSHA Lead standard and its appendices.

EXPOSURE MONITORING

- Exposure monitoring will be conducted to determine if any employee may be exposed to lead at or above the action level. Employee exposure is that which would occur if the employee were not using a respirator
- Measurements to determine exposure will be collected through personal monitoring
- Greg Griffin will collect full shift (for at least 7 continuous hours) personal samples including at least one sample for each shift, for each job classification, in each work area. Full shift personal samples will represent the monitored employee's daily lead exposure
- Greg Griffin will determine if any employee may be exposed to lead at the action level and will monitor employee exposures and base initial determinations on the monitoring results including: any information, observations, or calculations which would indicate employee exposure to lead; any previous measurements of airborne lead; any employee complaints of symptoms which may be attributable to lead exposure
- If the initial determination or subsequent air monitoring reveals employee exposure to be at or above the action level but below the permissible exposure limit the employer shall repeat air monitoring in accordance with this paragraph at least every 6 months.
 - The employer shall continue air monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee.
- If the initial monitoring reveals that employee exposure is above the permissible exposure limit, the monitoring will be repeated quarterly
- Additional monitoring will be done whenever there has been a production, process, control, or personnel change that may result in new or additional exposure to lead
- Each affected employee will be notified in writing within 5 working days after the receipt of monitoring results and the completion of corrective actions
- Whenever the results indicate that employee exposure exceeds the PEL, Greg Griffin will include in the written notice a statement that the PEL was exceeded and a description of the corrective action taken or to be taken to reduce exposure to or below the PEL
- GTG Automation, Inc. will use a method of monitoring and analysis which has an accuracy (to a confidence level of 95%) of not less than plus or minus 20 percent for airborne concentrations of lead equal to or greater than 30 $\mu\text{g}/\text{m}^3$
- Where any employee is exposed to lead above the PEL for more than 30 days per year, GTG Automation, Inc. will implement engineering and work practice controls (including administrative controls) to reduce employee exposure to lead. If such controls are not feasible, GTG Automation, Inc. will demonstrate and document the reasons
- Wherever the engineering and work practice controls which can be instituted are not sufficient to reduce employee exposure to or below the PEL, GTG Automation, Inc. will continue to use them to reduce exposures to the lowest feasible level and will supplement them by the use of respiratory protection

OBSERVATION OF MONITORING

Employee observation

The employer shall provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to lead conducted pursuant to paragraph (d) of this section.

Observation procedures

Whenever observation of the monitoring of employee exposure to lead requires entry into an area where the use of respirators, protective clothing or equipment is required, the employer shall provide the observer with and assure the use of such respirators, clothing and such equipment, and shall require the observer to comply with all other applicable safety and health procedures.

Without interfering with the monitoring, observers shall be entitled to:

- Receive an explanation of the measurement procedures;
- Observe all steps related to the monitoring of lead performed at the place of exposure; and
- Record the results obtained or receive copies of the results when returned by the laboratory.

SITE-SPECIFIC COMPLIANCE PLAN

GTG Automation, Inc. will provide a written Site-specific Compliance Program to reduce exposures to or below the PEL, and interim levels if applicable, solely by means of engineering and work practice controls. Written plans will include at least the following:

- Description of each operation in which lead is emitted
- Description of the specific means employed to achieve compliance, including engineering plans and studies used to determine methods selected for controlling exposure to lead
- A report of the technology considered in meeting the PEL
- Air monitoring data which documents the source of lead emissions
- A work practice program which includes items required

The Site-specific Compliance Program will be available at the worksite for examination and copying by any affected employee or OSHA. Program will be revised and updated at least every 6 months to reflect the current status.

When ventilation is used to control exposure, measurements which demonstrate the effectiveness, such as capture velocity, duct velocity, or static pressure will be made at least every 3 months. Measurements will be made within 5 days of any change in production, process, or control which might result in a change in employee exposure to lead.

If air from exhaust ventilation is recirculated into the workplace, Greg Griffin will assure that:

- The system has a high efficiency filters with reliable back-up filters
- Controls to monitor the concentration of lead in the return air and to bypass the recirculation system automatically if it fails are installed, operating, and maintained

- When administrative controls are used as a means of reducing employees TWA exposure to lead, GTG Automation, Inc. will establish and implement a job rotation schedule which includes:
 - Name or identification number of each affected employee
 - Duration and exposure levels at each job or workstation with and affected employee
 - Any other information that may be useful in assessing the reliability of administrative controls to reduce exposure to lead

RESPIRATORY PROTECTION PROGRAM

The Respiratory Protection Program and respiratory protective equipment is provided for all employees with potential for exposure to lead. All respiratory equipment will be National Institute of Occupational Safety and Health (NIOSH) certified, and is provided without cost to the employee. Respirators will be used during:

- Periods necessary to install or implement engineering or work-practice controls
- Work operations for which engineering and work-practice controls are not sufficient to reduce employee exposures to or below the PEL
- Periods when an employee requests a respirator

GTG Automation, Inc. provides a Respiratory Protection Program in accordance with §1910.134. If an employee has breathing difficulty during fit testing or respirator use, the employee will be provided with a medical examination to determine whether the employee can use a respirator while performing the required duty.

TABLE II - RESPIRATORY PROTECTION FOR LEAD AEROSOLS

Airborne concentration of lead or condition of use	Required respirator ³
Not in excess of 0.5 mg/m ³ (10 x PEL)	Half-mask, air-purifying respirator equipped with high efficiency filters. ^{2,3}
Not in excess of 2.5 mg/m ³ (50 x PEL)	Full facepiece, air-purifying respirator with high efficiency filters. ³
Not in excess of 50 mg/m ³ (1000 x PEL)	(1) Any powered, air-purifying respirator with high efficiency filters; ³ or
	(2) Half-mask supplied-air respirator operated in positive-pressure mode. ²
Not in excess of 100 mg/m ³ (2000 x PEL)	Supplied-air respirators with full facepiece, hood, helmet, or suit, operated in positive pressure mode.
Greater than 100 mg/m ³ , unknown concentration or firefighting	Full facepiece, self-contained breathing apparatus operated in positive-pressure mode.
¹ Respirators specified for high concentrations can be used at lower concentrations of lead. ² Full facepiece is required if the lead aerosols cause eye or skin irritation at the use of concentrations. ³ A high efficiency particulate filter means 99.97 percent efficient against 0.3 micron size particles.	

The appropriate respirator or combination of respirators will be selected from Table II. An employee may choose a NIOSH-certified powered, air purifying respirators (PAPR) at no extra cost to the employee. The respirator will be used during the time-period necessary to install or implement engineering or work practice controls.

PROTECTIVE CLOTHING AND PERSONAL PROTECTIVE EQUIPMENT

Protective work clothing and equipment will be provided at no cost to employees exposed to lead above the PEL. Employees will be required to use appropriate protective work clothing and equipment such as, but not limited to: coveralls or similar full-body work clothing; gloves, hats, and shoes or disposable shoe coverlets; face shields, vented goggles, or other PPE.

GTG Automation, Inc. will provide the protective clothing in a clean and dry condition at least weekly, and daily to employees whose exposure levels are over 200 µg/m³ of lead as an 8-hour TWA, as well as:

- Cleaning, laundering, or disposal of protective clothing and equipment as required
- Repair or replace required protective clothing and equipment to maintain effectiveness
- Ensure that all protective clothing is removed at the completion of a work shift only in change rooms provided for that purpose as prescribed
- Ensure that contaminated protective clothing that is to be cleaned, laundered, or disposed of, is placed in a closed container in the change-room which prevents dispersion of lead outside the container
- Ensure that the containers of contaminated protective clothing and equipment are labeled
- Prohibit the removal of lead from protective clothing or equipment by blowing, shaking, or any other means that disperses lead into the air

HOUSEKEEPING AND HYGIENE FACILITIES

- Housekeeping methods will be such that all surfaces in the workplace will be maintained as free as practicable of accumulations of lead, in a manner that minimizes the reentry of lead into the workplace
- GTG Automation, Inc. will provide decontamination, changing, and hygiene facilities for employees
- Greg Griffin will ensure that food or beverage is not consumed, tobacco not used, or cosmetics not applied except in change rooms, lunchrooms, and showers. Where employee airborne exposure to lead is above the PEL, GTG Automation, Inc. will provide:
 - Clean change rooms that are equipped with separate storage facilities for protective work clothing and equipment and for street clothes that prevent cross-contamination
 - Shower facilities at the end of the work shift for employees who are required to shower and ensure employees do not leave the workplace wearing any clothing or equipment worn during the work shift
 - Lunchroom facilities that have a temperature controlled, positive pressure, filtered air supply, and are readily accessible to employees. Employees are prohibited from entering lunchroom facilities with protective work clothing or equipment unless surface lead dust has been removed by vacuuming, down draft booth, or other cleaning method
 - An adequate number of lavatory facilities. Employees are required to wash their hands and face before eating, drinking, or smoking

MEDICAL SURVEILLANCE

GTG Automation, Inc. will provide a medical surveillance program, without cost to employees and at a reasonable time and place, for all employees who are or may be exposed above the action level for more than 30 days per year. All medical examinations and procedures are performed by or under the supervision of a licensed physician.

Biological monitoring is available according to the following schedule:

- Blood sampling and analysis for lead and zinc protoporphyrin levels to each employee at least every 6 months
- At least every two months for each employee whose last blood sampling and analysis indicated a blood lead level at or above 40 µg/100 g of whole blood. This frequency will continue until two consecutive blood samples and analyses indicate a blood lead level below 40 µg/100 g of whole blood
- A warning sign will be posted at each regulated work area that exceeds the PEL
- Signs will be illuminated and cleaned as necessary so that the legend is readily visible

GTG Automation, Inc. will maintain an accurate record of all monitoring that includes: the date(s), number, duration, location, and results of each of the samples taken, including a description of the sampling procedure used to determine exposure.

- A description of the sampling and analytical methods used and evidence of their accuracy
- Name, social security number, and job classification of the employee monitored and of all other employees whose exposure the measurement is intended to represent
- The type of respiratory protection worn, if any
- These monitoring records will be maintained for at least 40 years or for the duration of employment plus 20 years, whichever is longer

GTG Automation, Inc. will maintain an accurate record for each employee subject to medical surveillance. This record will include:

- The name, social number, and description of the duties of the employee
- A copy of the physician's written opinions
- Results of any airborne exposure monitoring done for that employee and the representative exposure levels supplied to the security physician
- Any employee medical complaints related to exposure to lead

GTG Automation, Inc. will keep, or assure that the examining physician keeps, a copy of the medical examination results, including medical and work history; a description of the laboratory procedures; a copy of the results of biological monitoring. These medical records will be maintained for at least 40 years, or for the duration of employment plus 20 years, whichever is longer.

GTG Automation, Inc. will maintain an accurate record for each employee removed from current exposure to lead. Each record will include:

- The name and social security number of the employee
- The date on each occasion that the employee was removed from current exposure to lead as well as the corresponding date on which the employee was returned to his or her former job status

- A brief explanation of how each removal was or is being accomplished
- A statement with respect to each removal indicating whether or not the reason for the removal was an elevated blood lead level
- Medical removal records will be maintained for at least the duration of an employee's employment

Environmental monitoring, medical removal, and medical records will be provided upon request to employees, designated representatives, and OSHA.

REMOVAL PERIOD

At least monthly during the removal period of each employee removed from exposure to lead due to an elevated blood lead level. Inform in writing any person who cleans or launders protective clothing or equipment of the potentially harmful effects of exposure to lead.

Follow-up blood sampling tests will be provided whenever the results of a blood lead level test indicate that an employee's blood lead level exceeds the levels for medical removal. This follow-up will be provided within two weeks after receiving the results of the first blood-sampling.

Accuracy of blood lead level sampling and analysis will have an accuracy within plus or minus 15 percent or 6 µg/100 ml, whichever is greater, and will be conducted by a laboratory licensed by the Center for Disease Control, (CDC) or that has received a satisfactory grade in blood lead proficiency testing from CDC in the prior twelve months.

Each employee whose blood lead level exceeds 40 µg/100 g will be notified in writing within five working days after the receipt of biological monitoring results. Medical examinations and consultations are available to affected employees on the following schedule:

- At least annually for each employee for whom a blood sampling test conducted at any time during the preceding 12 months indicated a blood lead level at or above 40 µg/100 g
- Prior to assignment for each employee being assigned for the first time to an area in which airborne concentrations of lead are at or above the action level
- As soon as possible, upon notification by an employee either that the employee has developed signs or symptoms commonly associated with lead intoxication, that the employee desires medical advice concerning the effects of current or past exposure to lead on the employee's ability to procreate a healthy child, or that the employee has demonstrated difficulty in breathing during a respirator fitting test or during use
- As medically appropriate for each employee, either removed from exposure to lead due to a risk of sustaining material impairment to health, or otherwise limited pursuant to a final medical determination

GTG Automation, Inc. will provide Medical Removal Protection benefits to any employee subject to Temporary Medical Removal.

All containers or materials containing lead will be appropriately labeled to indicate the contents and the hazards of the contents.

The Safety Data Sheet (SDS) for Lead and all hazardous materials are available to all employees at the company office.

LEAD ABATEMENT

Employee shall be informed of Appendices A & B of the regulation. All affected employees are required to attend initial and annual training programs. The employees should be informed of the specific nature of the operations which could result in exposure to lead above the action level, the purpose, proper selection, fitting, use, and limitation of respirators, engineering controls, purpose & a description of the medical surveillance program & the medical removal program.

No employee should be exposed to lead at concentrations greater than fifty micrograms per cubic meter of air averaged over an 8-hour period.

Full shift personal samples shall be representative of the employees regular, daily exposure to lead.

If the initial determination or subsequent air monitoring reveals employee exposure to be at or above the action level but below the permissible exposure limit the employer shall repeat air monitoring in accordance with this paragraph at least every 6 months. The employer shall continue air monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the employer may discontinue monitoring for that employee.

Affected employees shall be notified of the results of any monitoring performed within 15 working days, either individually in writing or by posting the results in an appropriate location that is accessible to affected employees. Whenever the results indicate that the representative employee exposure, without regard to respirators, exceeds the permissible exposure limit, in the written notice shall be included a statement that the permissible exposure limit was exceeded and a description of the corrective action taken or to be taken to reduce exposure to or below the permissible exposure limit.

The site specific compliance program should address means of engineering & work practice controls, air monitoring, a description of each operation in which lead is emitted, The written program must be revised & updated annually.

The respirator shall be used during the time period necessary to install or implement engineering or work practice controls, where engineering and work practice controls are insufficient, and in emergencies.

Gloves, hats, vented goggles, shoes or disposable shoe covers shall be provided. Protective clothing shall be cleaned and laundered at least weekly. Clothing shall also be properly disposed and repaired or replaced as necessary.

Medical examinations & procedures shall be performed by or under the supervision of a licensed physician. The medical surveillance is provided without cost to the employees.

The blood sampling & monitoring should be conducted every 6 months until two consecutive blood samples & analysis are acceptable. The sampling & monitoring should be performed at least monthly during the removal period. Any employee with elevated blood levels should be temporarily removed. Employees should be notified in writing within five days when lead levels are not acceptable. The standard requires temporary medical removal with Medical Removal Protection benefits.

Lunch room, hygiene, shower, and changing facilities must be provided when exposures are above the PEL.

Warning signs should be posted in the work area where the PEL is exceeded.

[illegible]

POLICY

GTG Automation, Inc. has implemented this policy to ensure employees are made aware of the potential hazards and locations of lead.

Greg Griffin is the assigned supervisor responsible for ensuring the following administrative controls, engineering controls, and work practices are enforced:

TRAINING AND GENERAL KNOWLEDGE

Lead awareness training is required for employees whose work activities may contact lead containing materials but do not disturb the material during their work activities. Lead awareness training will be conducted at the time of hire, during orientation, or prior to assignment of work in lead containing areas. It is required that annual refresher training be given to all employees whose work activities may contact lead containing materials but do not disturb the material during their work activities. Lead awareness training must be documented including the date of training, the employee names, and the person that conducted the training.

Awareness training will include the following:

- Where employees may find lead containing materials
- Workplace activities that may involve lead containing materials
- Lead and worker health
- Health effects of lead exposure

Possible Locations of Lead

- Leaded paints
- Leaded solders
- Pipes
- Batteries
- Circuit boards
- Cathode ray tubes
- Leaded glass
- Demolition and salvage materials

Lead in the Workplace

The following activities may involve lead containing materials:

- Lead production or smelting
- Brass, copper, and lead foundries
- Lead fishing-weight production
- Machining and grinding lead alloys
- Battery manufacturing and recycling
- Radiator manufacturing and repair
- Scrap metal handling

- Lead soldering
- Indoor firing ranges
- Ceramic glaze mixing

The following construction activities are of particular concern:

- Demolition of old structures
- Steel-bridge maintenance
- Thermal stripping or sanding/scraping of old paint
- Welding, burning, and torching of old painted metal
- Abrasive blasting or rivet busting of structures with lead paint
- Home renovation and remodeling
- Use of marine paints

Lead and Worker Health

Lead enters the body in several ways:

- Workers can inhale in lead dust, mist, or fumes
- Workers can ingest lead dust that gets on their hands, beards, or clothes, or that gets in or on food, drinks, or anything else they put in their mouths
- Lead gasoline can be absorbed through the skin

Once lead gets into the body, it stays there for a long time. Lead can build up in the body to dangerous levels over time.

Health Effects

Common symptoms of acute lead poisoning are:

- Loss of appetite
- Nausea
- Vomiting
- Stomach cramps
- Constipation
- Difficulty in sleeping
- Fatigue
- Moodiness
- Headache
- Joint or muscle aches
- Anemia

Too much lead in the body can damage the brain, nerves, kidneys, and blood cells. Lead can also affect the ability to conceive and bear a healthy child. If a pregnant woman is exposed to lead, it can harm her fetus. Men with lead exposure can have damaged sperm.

Overexposure to lead is common. Although many people with high lead levels do not feel sick or poisoned, their health may be seriously affected. The longer people have elevated lead levels, the greater the risk of health problems. Sometimes the damage is permanent.

SIGNS, LABELS, & ASSESSMENTS

It is a requirement of GTG Automation, Inc. that all employees must abide by any signs, labels, and assessment reports indicating the presence of lead containing materials.

Based on the assessments made the appropriate work practices must be followed to ensure the lead containing materials are not disturbed.

SAFE WORK PRACTICES

GTG Automation, Inc. employees working in areas that they may be exposed to lead containing materials will be instructed to not disturb those lead containing materials. Employees must also follow these safe practices:

- Use separate work clothes and shoes while at work, keep street clothes in a clean place
- Do not wear your work clothes and shoes or boots home
- If possible, shower at work before going home
- Launder work clothes at work if necessary and separately at home
- Wash your hands and face if contacting lead and before eating, drinking, or smoking
- Eat, drink, and smoke only in areas free of lead dust and fumes
- Ensure that you are not overexposed to lead in your workplace. This may include special ventilation equipment or the use of a properly fitted respirator
- Avoid stirring up lead-containing dust with dry sweeping or compressed air in favor of safer cleaning practices, wet cleaning and vacuuming using HEPA filters

MULTI-CONTRACTOR WORKSITES

If employees of GTG Automation, Inc. are working immediately adjacent to a lead abatement activity are exposed to lead due to the inadequate containment of such job. GTG Automation, Inc.'s employees will be either immediately removed from the area until the enclosure breach is repaired or perform an initial exposure assessment.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has adopted this Lockout/Tagout Program (also referred to as Hazardous Energy Control) to establish engineering controls and work practices to prevent the unintentional release of hazardous energy during maintenance and servicing of machinery and equipment. Controlling of hazardous energies does not just address electrical energy. Other energies include pressurized systems of either gas or liquid such as pneumatic or hydraulic systems; chemical; thermal; radiation; mechanical (such as under tension) and gravity. Control systems are required for all.

GTG Automation, Inc. requires that all employees involved in the maintenance activity must place individual locks and/or tags on each energy isolation device.

REFERENCES

- 29 CFR 1910.147 The Control of Hazardous Energy (Lockout/Tagout)
- NFPA 70e Handbook for Electrical Safety in the Workplace (Arc Flash protection)

EMPLOYER RESPONSIBILITIES

GTG Automation, Inc. will:

- Establish a program for affixing lockout or tagout devices to energy isolating devices and otherwise disable equipment to prevent unexpected release of energy
- Ensure the use of safe lockout/tagout procedures by authorized employees
- Provide all hardware for isolating, securing, or blocking equipment from energy sources
- Conduct and certify inspections of the lockout/tagout procedures at least annually
- Provide training to ensure the purpose and function of the lockout/tagout program are understood by employees and the knowledge and skills required for the safe application, use, and removal of the energy controls are acquired by authorized employees
- Ensure training includes limitations of tags in the energy control program (if applicable)
- Inform outside employers who may have employees engaged in activities involving hazardous energy about the lockout or tagout procedures
- Certify that employees complete, and repeat training as needed

EMPLOYEE RESPONSIBILITIES

Authorized employees (employees who perform maintenance or servicing on equipment that must be locked out or tagged out) are expected to:

- Participate in training related to lockout/tagout procedures
- Comply with all lockout/tagout procedures when maintaining or servicing equipment that requires such controls
- Only the authorized employees performing the servicing or maintenance will perform the lockout or tagout
- Review lockout/tagout procedure with inspector during periodic evaluation

Affected employees (employees who operate or use equipment where maintenance and servicing require lockout or tagout) must participate and comply with the following:

- Training on the purpose and use of the lockout/tagout procedure
- Training about the procedure and the prohibition to attempt to restart or reenergize equipment that has been locked out or tagged out

HAZARDS

The unintentional release of hazardous energy during maintenance and servicing of machinery and equipment can present numerous hazards to workers. These can include:

- Electrocution
- Arc Flash
- Being caught in or by equipment
- Crushing
- Amputations

SAFE PRACTICES

Intended Use of Procedure

This procedure establishes the minimum requirements for the lockout of energy-isolating devices on machines or equipment. Any main electrical power disconnect that controls a source of power or material flow must be controlled with a lockout device when employees are maintaining, cleaning, adjusting, or servicing machinery or equipment, if the disconnect is not in clear sight of the employee. Employees must also affix a "Do Not Start" tag to all operating controls.

The process stops, isolates from potentially hazardous energy sources, and locks out equipment before employees proceed with their work. It also prevents unexpected the start-up or energizing of the machine or equipment from causing injury.

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. Authorized employees must perform the lockout in accordance with this procedure. No employee will attempt to start, energize, or use a piece of locked out equipment.

Lockout / Tagout is a lifesaving process ONLY. If a piece of equipment, a machine, a system is not being used, or not operating properly and it is not to be used until repair or other work is completed, DO NOT USE LOTO. Use a "Red Tag" process for repair. Once it is being repaired or maintained then the LOTO procedure is required for lifesaving. Any equipment/ tools/ machines/ systems that are taken out of service for any non-use or discrepancies require a "Red Tag" NOT a LOTO procedure (until repair or maintenance).

These procedures do not apply when servicing or maintaining equipment during normal production operations unless:

- The activity involves removing guards or other safety devices
- An employee places him/herself in an area where work is being performed
- An employee places him/herself in a dangerous area during the normal operating cycle

Authorized Employees

Any employee whose job requires him or her to perform lockout/tagout to service or maintain a piece of equipment is an "authorized employee" and must comply with all expectations of authorized employees regarding safe lockout/tagout procedures. Other employees who use equipment that require lockout/tagout for maintenance and service, work in areas where such work is being performed, or will be affected by lockout/tagout procedures will require training regarding lockout/tagout procedures but are forbidden to perform the work of an authorized employee.

They may not implement lockout/tagout procedures without appropriate training authorized by management.

Lockout/Tagout Procedures

See Figure 1 for an outline of the lockout/tagout procedure.

Notify Employees

Before an authorized employee applies lockout or tagout devices, he or she must notify affected employees to prevent unexpected changes to work conditions that could introduce needless risk and to allow affected employees to clear areas that may be hazardous.

Prepare for Shutdown

Before any employee turns off any equipment, the authorized employee will be aware of the type and magnitude of the energy, the hazards of the energy and the means to control it.

Authorized personnel will review lockout/tagout procedures for the piece of equipment and all the possible hazardous energy sources to help ensure an understanding of the controls that are necessary to prevent an injury.

The authorized employee will be especially mindful of energy that can be stored or accumulated after a shutdown.

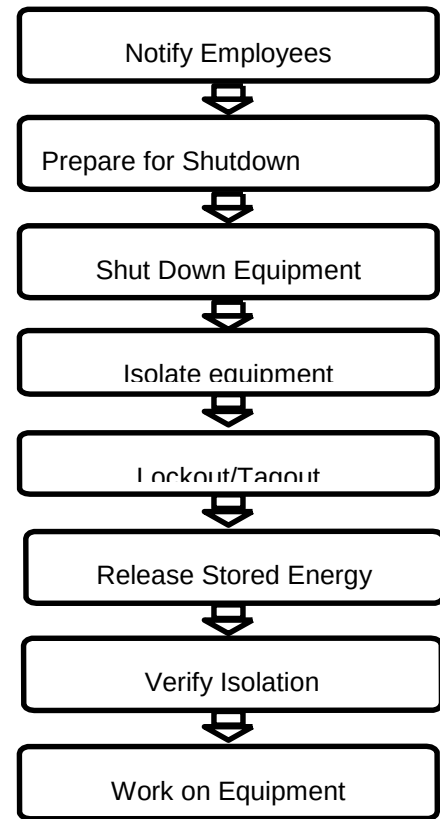


Figure 1

EQUIPMENT SHUTDOWN

Shutdown of machinery and equipment must occur in an orderly manner using the shutdown steps from the lockout/tagout procedure associated with each machine or piece of equipment.

Equipment Isolation

All energy isolation devices necessary to control energy to the equipment will be located and operated to completely de-energize the equipment and isolate it from energy sources. The authorized employee or team leader will verify operation of each energy isolation device.

- Disconnect or shut down engines or motors
- De-energize electrical circuits
- Eliminate the pressure from the line and lock out the valve holding back the activating substance in hydraulic or pneumatic systems
- Block machine parts against motion

Zero energy state is the point at which machinery or equipment has no energy flowing to or from it and as a result, does not have the potential to cause accidental physical harm or injury if handled in this state. Zero energy state is a safety standard set out by the Occupational Health and Safety Act (OSHA) as part of safety procedures to help protect workers from accidental injury or death. Zero energy state is not just turning off a machine and removing the keys. There can be no energy left for the machine to utilize, even if turned off at the time.

Lockout/Tagout

The authorized employee will affix a lockout and tagout device to each energy-isolating device. Lockout devices will hold the energy-isolating device in a “safe” position, and the authorized employee must affix tag-out devices to indicate the prohibition on moving energy isolating devices from a safe position. If it is possible to lock the device, but only tags are used, attach the tag where the lock would have been; otherwise, locate the tag as close as possible so that it is clear to anyone who might want to operate the equipment.

Locks and/or tags must identify the company employee that applied the locks and/or tags and Name of authorized person, time/date of LOTO; reason; cell phone number or a way to contact the authorized person

OSHA has stated that companies must have adequate lockout/tagout procedures for each specific machine or piece of equipment. These should be written procedures that are on site and readily available to employees. Training must be provided on lockout/tagout to both authorized and affected employees. Interlocks may not be used as lockout or as equivalent lockout protection.

Release of Stored Energy

Immediately after applying lockout or tagout devices, the authorized employee will ensure all potentially hazardous stored or residual energy is relieved, disconnected, restrained, and otherwise rendered safe.

- Discharge capacitors
- Block, clamp, secure in position, or totally relieve the compression or tension in applicable mechanisms
- Lower to the lowest position all suspended mechanisms or parts that normally cycle to a lower position, and clamp, block, or otherwise secure the mechanism or parts in position
- Vent fluids from pressure vessels, tanks, or accumulators — but never vent toxic, flammable, or explosive substances directly into the atmosphere

If stored energy can be re-accumulated, the authorized employee will verify that the energy is isolated until maintenance is complete, or the energy no longer exists.

Verify Isolation

The authorized employee will verify the machinery or equipment is actually isolated and de-energized before starting work on locked out or tagged out equipment.

A zero-energy state must be achieved and checked with a multimeter.

Steps for Release from Lockout/Tagout

See Figure 2 for an outline of the steps to release equipment from lockout/tagout.

Check Equipment

Make sure machinery or equipment is properly re-assembled. Inspect machinery or equipment to ensure removal of nonessential items.

Check Employees

Make sure all employees are safely outside danger zones. Notify affected employees about the removal of lockout/tagout devices and that energy is going to be re-applied. Verify controls are in neutral.

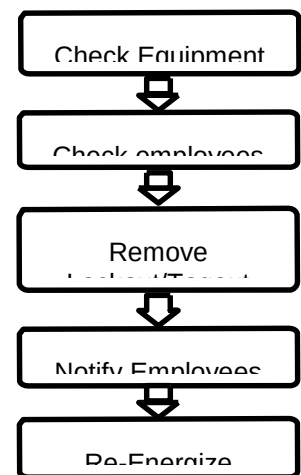


Figure 2

Remove Devices

Only the authorized employee who applied the lockout/tagout device may remove the device. If unavailable, follow the process detailed in 29 CFR 1910.147e (3). Re-energize the equipment.

Notify Employees

The authorized employee will notify all affected employees that the lockout or tagout devices have been removed and the equipment is back in service.

REQUIREMENTS

Employee Leaves Before Returning System to Service

If the authorized employee is not available to remove their lockout/tagout device, another authorized employee may begin the following suggested procedure:

1. Verify that authorized employee who applied the device is not on the facility
2. Make all reasonable efforts to inform them that their lockout or tagout device has been removed
3. Verify repair to equipment is complete
4. Inform affected employees
5. Ensure all tools or devices are removed from the equipment/machine
6. Ensure all guards are in place and function
7. Ensure no employee is in harm's way
8. Cut/remove lock and tag
9. Re-energize
10. Explain the reason for removal, document who gave authorization for removal, document that the Authorized person has been notified
11. Document all the above

Temporary Lockout/Tagout Removal

Whenever authorized employees remove lockout/tagout devices to test or position machines and equipment, or their components, the authorized employee will complete the following procedures in the sequence presented:

1. Clear the machine or equipment of tools and materials
2. Remove employees from danger zones
3. Remove lockout/tagout devices
4. Energize and proceed with testing or positioning
5. De-energize all systems and re-apply lockout/tagout devices

Outside Personnel

Employees of another company engaged in servicing or maintenance of equipment that requires lockout or tagout will follow lockout/tagout procedures that provide at least as much protection as GTG Automation, Inc.'s established procedures for that equipment. To ensure safety, management from our company and representatives from the outside employer will inform one another of their respective lockout or tagout procedures.

The owner also will ensure employees understand and comply with contracted personnel lockout/tagout procedures as appropriate.

Group Lockout/Tagout

When a group (or groups) of employees performs servicing, the group(s) will use a procedure that provides protection equivalent to the protection provided by the personal lockout or tagout device(s) (e.g., multiple groups of workers, shift changes, other contractors within the area, etc.). An authorized person must be in charge of all group lockout operations to ensure the proper procedures are followed.

Transfer of Control

Procedures during shift changes or changes to personnel will provide for an orderly transfer of lockout or tagout device protection and minimize exposure to hazards from the unexpected energizing or start-up of the machine or equipment, or the release of stored energy for both the oncoming and off-going personnel.

Control shall not be removed during transfer. Oncoming Authorized Person will meet with outgoing Authorized Person (if possible). Oncoming will place their lock and tag for control first. Outgoing Authorized will then remove their lock and tag.

Tag Out Only

If an energy isolating device is capable of being locked out, the employer's energy control program shall utilize lock out, unless the employer can demonstrate that the utilization of a tagout system will provide full employee protection. When a tagout device is used on an energy isolating device which is not capable of being locked out, the tagout device shall be attached at the same location that the lockout device would have been attached, and the employer shall demonstrate that the tagout program will provide a level of safety equivalent to that obtained by using a lockout program.

In demonstrating that a level of safety is achieved in the tagout program which is equivalent to the level of safety obtained by using a lockout program, the employer shall demonstrate full compliance with all tagout-related provisions of the standard together with such additional elements as are necessary to provide the equivalent safety available from the use of a lockout device. Additional means to be considered as part of the demonstration of full employee protection shall include the implementation of additional safety measures such as the removal of an isolating circuit element, blocking of a controlling switch, opening of an extra disconnecting device, or the removal of a valve handle to reduce the likelihood of inadvertent energization.

After January 2, 1990, whenever a major repair, renovation, or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machine or equipment shall be designed to accept a lockout device.

When Lockout/Tagout isn't Feasible

If there is no possible way to control the energy, nor hang a tag, the employer must document with a process that provides a level of protection to all involved. If the system must have work done while energized, the direction of NFPA 70e shall be followed for energized work.

LOTO Devices and Equipment

Employees will be provided with any protective hardware and materials (locks, tags, wedges, adapter pins, self-locking fasteners, etc.) for isolating, securing or blocking equipment from energy sources. If a device is altered, damaged or destroyed in a way that compromises its ability to protect the authorized employee, the authorized employee will inform a supervisor immediately and not attempt to use the device.

Whenever replacement or major repair, renovation or modification of a machine or equipment is performed, and whenever new machines or equipment are installed, energy isolating devices for such machine or equipment shall be designed to accept a lock out device.

Singularly Identified

Devices used in lockout and tagout procedures will not be used for any purpose other than for isolating, securing or blocking equipment from energy sources, and no devices other than those specified in the lockout/tagout procedure will be used to that end.

Durable

The devices used for lockout/tagout will be able to withstand the environmental and weather conditions present during use. Tagout devices need to remain legible and not deteriorate regardless of weather conditions or corrosive environments.

Standardized

At the worksite, devices used to isolate, secure or block equipment from energy sources will be consistent in color, shape or size. Tagout devices will have a standardized design.

Substantial

Lockout devices must have structural integrity to require excessive force or specialized tools to remove them. Tagout devices and their means of attachment need to prevent inadvertent removal. The means of attachment will not be reusable, and need to have an unlocking strength of at least 50 lbs. The general design and basic characteristics of tagout attachment means will be at least equivalent to a one-piece, all environment-tolerant nylon cable tie.

Identifiable

Any device used to isolate, secure or block equipment from energy sources will indicate the identity of the employee applying the device.

Risk Assessments, Periodic Inspections & Program Review

Greg Griffin, or designee, will conduct risk assessments and periodic inspections of the lockout/tagout procedure to ensure the employees are following procedure and meeting all applicable standards. An annual program review (audit) shall also be conducted. If Greg Griffin, or uses the inspected energy control procedure, another authorized employee who does not use the energy control procedure will perform the inspection. The inspector will review with each authorized employee that employee's responsibilities under the lockout/tagout procedure and correct any identified deviation or inadequacy in the procedure. Where tagout systems are used, the review will include a detail of the limitations of tags relative to locks in hazardous energy control.

GTG Automation, Inc. will conduct an annual inspection of the energy control procedure to ensure that the procedure and the requirements are being followed. This annual inspection will be

performed by an authorized company employee other than the ones(s) utilizing the energy control procedure being inspected. This inspection will be conducted to correct any deviations or inadequacies identified. Where lockout is used for energy control, this inspection shall include a review, between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected. Where tagout is used for energy control, this inspection shall include a review, between the inspector and each authorized and affected employee, of that employee's responsibilities under the energy control procedure being inspected.

Certification

Each periodic inspection must be certified. The certification will identify the following:

- The machine or equipment on which the Lockout/Tagout procedure was used
- The date of the inspection
- The employees included in the inspection
- The person performing the inspection

PPE

Due to the wide variety of machines and equipment that employees may be required to repair or maintain, the PPE needed for the task may vary. At a minimum, PPE will include:

- Hard hats (Class "E")
- Safety glasses or goggles
- Safety-toed electrically rated safety shoes or boots
- Work gloves (non-conducting or chemical resistant if needed)
- Respiratory and/or fall protection (depending on the type of work being performed and the location)

TRAINING

Every employee will be trained on lockout/tagout procedures as appropriate to the employee's duties at no cost to the employee during working hours.

All training material will be appropriate in content and vocabulary to the educational level, literacy and language of employees.

Training Components

Employees whose work operations are in an area where energy control procedures may be used must be trained in the following minimum elements:

- The purpose and function of the lockout/tagout program
- The prohibition of attempts to restart or reenergize locked out or tagged out equipment
- When tag-out systems are used, the following limitations of tags for hazardous energy control must be considered:
 - Tags are essentially warning devices affixed to energy isolating devices, and do not provide the physical restraint on those devices that is provided by a lock
 - When a tag is attached to an energy isolating means, it is not to be removed without authorization of the authorized person responsible for it, and it is never to be bypassed, ignored, or otherwise defeated
 - Tags must be legible and understandable by all authorized employees, affected employees, and all other employees whose work operations are or may be in the area, in order to be effective

- Tags and their means of attachment must be made of materials which will withstand the environmental conditions encountered in the workplace
- Tags may evoke a false sense of security, and their meaning needs to be understood as part of the overall energy control program
- Tags must be attached securely to energy isolating devices so that they cannot be inadvertently or accidentally detached during use
- The irregular removal of lock and tag process shall be part of training

Training for employees authorized to service and maintain equipment will include the following:

- The recognition of hazardous energy sources
- The type and magnitude of energy available in the workplace
- The methods and means necessary for energy isolation and control

Training Records

Training records will include the following information:

- The dates of the training sessions
- The contents or a summary of the training sessions
- The names and qualifications of persons conducting the training
- The names and job titles of all persons attending the training sessions

Employee training records will be retained for the length of their employment

Retraining

Retraining will reestablish proficiency and introduce new or different control measures whenever the following occur:

- A change in job assignment, equipment or process present a new hazard
- There is a change in the lockout/tagout procedures
- A periodic inspection reveals deviations from or inadequacies in employee knowledge or use of the lockout/tagout procedures

FORMS AND ATTACHMENTS

On the following pages, please find the following documents:

- Lockout/Tagout Procedure
- Lockout/Tagout Inspection Certification Form

These forms may be reproduced freely for the purposes of implementing and maintaining a safety and health program.

LOCKOUT/TAGOUT

Company:	Equipment
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This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It will be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources and locked out before employees perform any servicing or maintenance where the unexpected energizing or start-up of the machine or equipment or release of stored energy could cause injury.

1. Notify Employees

Notify all affected employees that servicing, or maintenance is required on a machine or equipment and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance. (Document name or job title of authorized and affected employees)

Authorized Employees	Affected Employees

2. Prepare for Shutdown

The authorized employee shall refer to the Company procedure to identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy and shall know the methods to control the energy.

Type(s) of Energy	Magnitude
☐ Mechanical	
☐ Potential	
☐ Electrical	
☐ Thermal	
☐ Chemical	

3. Equipment Shutdown

If the machine or equipment is operating, shut it down by the normal stopping procedure (depress the stop button, open switch, close valve, etc.).

Type of Operating Controls:

Location of Operating Controls:

Shutdown Procedure:

4. Equipment Isolation

Set the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s).

Type(s) of energy isolating device(s)	Location(s) of energy isolating device(s)

5. Lock out

the energy-isolating device(s) with assigned individual lock(s)

6. Release Stored Energy

Stored or residual energy (such as that in capacitors, springs, elevated/suspended machine members, hydraulic systems, etc.) must be dissipated or restrained by methods such as grounding, repositioning, blocking, bleeding down, etc.

Type(s) of Energy	Method(s) to Dissipate or Restrain
☐ Mechanical	
☐ Potential	
☐ Electrical	
☐ Thermal	
☐ Chemical	

7. Verify Isolation

Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s) or by testing to make certain the equipment will not operate. Caution: Return operating control(s) to neutral or "off" position after verifying the isolation of the equipment.

Method to Verify Isolation

8. The Machine or Equipment is now Locked Out.

Restoring Equipment to Service

When the servicing or maintenance is completed and the machine or equipment is ready to return to normal operating condition, the following steps will be taken:

1. **Check the machine or equipment** and the immediate area around the machine to ensure that nonessential items have been removed and that the machine or equipment components are operationally intact
2. **Check the work area** to ensure that all employees have been safely positioned or removed from the area
3. **Verify** that the controls are in neutral
4. **Remove the lockout devices** and reenergize the machine or equipment

Note: The removal of some forms of blocking may require re-energizing of the machine before safe removal.

5. **Notify affected employees** that the servicing or maintenance is completed, and the machine or equipment is ready for use

LOCKOUT/TAGOUT INSPECTION CERTIFICATION

I certify that _____ was inspected on this date using lockout/tagout procedures. The inspection was performed while working on _____.

Authorized Employee (Print)

Signature

Date

Inspector (Print)

Signature

Date

POLICY

GTG Automation, Inc. has adopted this policy to inform employees of the Manual Lifting Policy. This ensures the safety and health of the employees.

REFERENCE

- 1910.900 – Ergonomics

RESPONSIBILITIES

Manual lifting safety is a responsibility shared between the Company and its employees.

Employer Responsibilities

GTG Automation, Inc. is responsible for:

- Ensuring that manual equipment lifting/moving aids are available
- Ensuring each employee has been trained or instructed in ergonomic principles
- Responding quickly to eliminate workplace lifting hazards
- Ensuring all equipment is kept in good repair
- Ensuring employees follow safe job procedures
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness

Safety Committee Responsibilities

It is the responsibility of the safety committee to:

- Assist in lifting hazard assessments
- Assist in training employees to recognize and control workplace hazards
- Monitor the workplace for hazards
- Encourage employees to report hazards
- Implement appropriate controls
- Ensure corrective action is taken promptly

Employee Responsibilities

All employees are expected to:

- Inspect loads to be moved/lifted before task
- Follow safe job procedures
- Report hazards to a supervisor immediately

TRAINING

GTG Automation, Inc. will train affected company employees on the general principles of ergonomics, the hazards of improper lifting, proper lifting techniques, ways to avoid work-related musculoskeletal disorders (WMSDs), procedures for reporting hazardous conditions, procedures for early reporting of injuries, and job-specific training and controls.

Specifically, training will include:

- General principals of ergonomics
- Recognition of hazards and injuries
- Procedures for reporting hazardous conditions
- Methods and procedures for early reporting of injuries
- Job specific training will be given on safe lifting and work practices, hazards, and controls
- Appropriate personal protective equipment and lifting techniques
- Using handles or holders

SAFE PRACTICES

Hazard Assessment

GTG Automation, Inc. ensures that before manual lifting is performed, a hazard assessment will be conducted.

The assessment must consider:

- Proper Lifting Techniques When Lifting, Moving and/or Positioning Materials:
 - Wear appropriate Personal Protective Equipment (back brace etc.)
 - Get help with an oversized load (or use a cart etc.), or anything more than you can comfortably lift
 - “Push” rather than “Pull” when possible
 - Move in as close as possible to the load before lifting
 - Get close to the load, brace your back and lift with your legs
 - Materials that must be manually lifted will be placed at “power zone” height, about mid-thigh to mid-chest. Special care will be taken to ensure proper lifting principles are used. Maintain neutral and straight spine alignment whenever possible. Usually, bending at the knees, not the waist, helps maintain proper spine alignment
 - Place materials that are to be manually lifted at “power zone” height, about mid-thigh to mid-chest. Maintain neutral and straight spine alignment whenever possible. Usually, bending at the knees, not the waist, helps maintain proper spine alignment
 - Order supplies in smaller quantities and break downloads off-site. When possible, request that vendors and suppliers break downloads prior to delivery
 - Avoid twisting, especially when bending forward while lifting. Turn by moving the feet rather than twisting the torso
 - Keep your elbows close to your body and keep the load as close to your body as possible
 - Manual Lifting Equipment & Engineering Controls

Controls and Equipment

Equipment and other machinery can be used to lessen the physical strain and stress on employees. Where use of lifting equipment is impractical or not possible, two-man lifts must be used.

It is the policy of GTG Automation, Inc. to provide and enforce the use of manual lifting equipment such as:

- Dollies
- Hand trucks
- Lift assist devices
- Jacks
- Carts
- Hoists

Other engineering controls will be considered, such as:

- Conveyors
- Lift tables
- Workstation design

Investigation of Injuries

GTG Automation, Inc. will investigate musculoskeletal injuries caused by improper lifting and perform root causes analyses, as well as incorporate the injury findings into safe work procedures to prevent future injuries (i.e., implement corrective actions).

It is the policy of GTG Automation, Inc. to ensure that all injuries will be recorded and reported as required by 29 CFR Part 1904.

Periodic Evaluation

GTG Automation, Inc. will address periodic assessments of its effectiveness. It is the responsibility of GTG Automation, Inc. to evaluate work areas and employees' work techniques for proper prevention of injuries. GTG Automation, Inc. will provide formal training on how to recognize and avoid the following handling hazards:

- Dangers of lifting without proper technique
- Avoiding unnecessary physical strains and stress
- Proper use of equipment

New operations will be evaluated to engineer out hazards before work processes are implemented.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this written mobile equipment procedures policy to ensure the safety and health of employees on the jobsite.

REFERENCES

Applicable Mobile Equipment Owner/Operator Manuals

RESPONSIBILITIES

Safe mobile equipment maintenance and operation is a responsibility shared between the Company and its employees.

Employer Responsibilities

- Ensuring that safety inspections of the equipment occur on regular basis
- Ensuring that operators are trained and safely operate mobile equipment
- Responding quickly to eliminate workplace hazards
- Ensuring all equipment is kept in good repair
- Ensuring employees follow safe job procedures
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness

Safety Committee Responsibilities

- Assist in training as necessary
- Assist in training employees to recognize and control workplace hazards
- Monitor the workplace for hazards
- Encourage employees to report hazards
- Implement appropriate controls
- Ensure corrective action is taken promptly

Employee Responsibilities

- Only authorized employees will be allowed to operate mobile equipment. Authorization to operate mobile equipment will be issued to the employees who qualify under the appropriate training and proficiency testing
- Follow safe job procedures
- Report hazards to a supervisor immediately

TRAINING

Greg Griffin will ensure the following items are covered in operator training:

- Capabilities and limitations of the specific piece of mobile equipment
- Basic maintenance requirements
- Pre-trip inspection requirements
- Operating requirements of mobile equipment including safe loading and unloading
- Use of required personal protective equipment and apparel

Mobile equipment operators will be regularly evaluated on the operation of the mobile equipment they use and retrained as required by legislation and applicable standards.

DEFINITION

Mobile Equipment is a wheeled or tracked vehicle which is engine or motor powered, together with attached or towed equipment, but not a vehicle operated on fixed rails or tracks.

PROCEDURES

Inspections:

At the beginning of each shift, the operator will conduct a pre-shift inspection. The operator will inspect and check the assigned equipment, reporting to his/her supervisor any malfunction of the:

- Clutch
- Braking system
- Steering
- Lighting
- Control system
- Locking/tagging out the equipment if necessary

Operator Requirements:

- The operator will ensure unauthorized personnel will not be permitted to ride on the equipment unless it is equipped to accommodate riders safely
- The operator will ensure the warning signal alarm is operating when the equipment is backing up
- The operator will use the access points provided to get on or off the equipment. The operator will not jump to the ground
- No operator will operate the equipment without the protection of an enclosed cab, or the use of approved eye protection when the equipment does not have an enclosed cab
- The operator will fasten the seat belt and adjust them for a proper fit before starting the engine, and while the equipment is in use
- The operator will not use, attempt to use any vehicle in any manner, or for any purpose other than for which it was designated and intended for
- The operator will not load the equipment/vehicle beyond its established load limit, and will not move the load until the length; width or height of the load has been centered and secured for safe transport

Fueling Procedures:

Operators of a gasoline or diesel vehicle will shut off the engine before filling the fuel tank and will make sure that the nozzle of the filling hose makes contact with the filling neck of the fuel tank. No one will be permitted on the vehicle during fueling operations except as specifically designed.

There will be no smoking or open flames in the immediate area during the fueling operation.

SAFE PRACTICES

All equipment left unattended at night, adjacent to a highway in normal use, or adjacent to construction areas where work is in progress, shall have appropriate lights or reflectors, or barricades equipped with appropriate lights or reflectors, to identify the location of the equipment.

A safety tire rack, cage, or equivalent protection shall be provided and used when inflating, mounting, dismounting tires installed on split rims, or rims equipped with locking rings or similar devices.

Heavy machinery, equipment, or parts thereof, which are suspended or held aloft by use of slings, hoists, or jacks shall be substantially blocked or cribbed to prevent falling or shifting before employees are permitted to work under or between them. Bulldozer and scraper blades, end-loader buckets, dump bodies, and similar equipment, shall be either fully lowered or blocked when being repaired or when not in use. All controls shall be in a neutral position, with the motors stopped and brakes set, unless work being performed requires otherwise.

Whenever the equipment is parked, the parking brake shall be set. Equipment parked on inclines shall have the wheels chocked and the parking brake set.

The use, care and charging of all batteries shall conform to OSHA requirements.

All cab glass shall be safety glass, or equivalent, that introduces no visible distortion affecting the safe operation of any machine covered by this subpart.

Working near Power Lines

All equipment covered under this policy will comply with the following requirements when being moved near power lines or energized transmitters, unless the electrical distribution and transmission lines have been de-energized and visibly grounded at point of work or where insulating barriers, which are not a part of (or an attachment to) the equipment or machinery, have been erected to prevent physical contact with the lines:

- For lines rated 50 kV or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet
- For lines rated over 50 kV, minimum clearance between the lines and any part of the crane or load shall be 10 feet plus 0.4 inch for each 1 kV over 50 kV, or twice the length of the line insulator, but never less than 10 feet
- In transit with no load and boom lowered, the equipment clearance shall be a minimum of 4 feet for voltages less than 50 kV, and 10 feet for voltages over 50 kV, up to and including 345 kV, and 16 feet for voltages up to and including 750 kV
- A person shall be designated to observe clearance of the equipment and give timely warning for all operations where it is difficult for the operator to maintain the desired clearance by visual means

- Cage-type boom guards, insulating links, or proximity warning devices may be used on cranes, but the use of such devices shall not alter the requirements of any other regulation of this part even if such device is required by law or regulation
- Any overhead wire shall be considered to be an energized line unless and until the person owning such line or the electrical utility authorities indicate that it is not an energized line and it has been visibly grounded
- Prior to work near transmitter towers where an electrical charge can be induced in the equipment or materials being handled, the transmitter shall be de-energized or tests shall be made to determine if electrical charge is induced on the crane. The following precautions will be taken when necessary to dissipate induced voltages:
 - The equipment shall be provided with an electrical ground directly to the upper rotating structure supporting the boom
 - Ground jumper cables will be attached to materials being handled by boom equipment when electrical charge is induced while working near energized transmitters. Crews will be provided with nonconductive poles having large alligator clips or other similar protection to attach the ground cable to the load
- Combustible and flammable materials will be removed from the immediate area prior to operations

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to ensure best practices are followed when performing work on or near energized systems. The NFPA (National Fire Protection Association) Handbook for Electrical Safety in the Workplace which contains the 70E Standard for Electrical Safety will be followed when working (performing installation or maintenance) on or near energized electrical systems.

This chapter defines the procedures and safe practices to be followed by Qualified persons when performing energized electrical work. This includes working near high voltages, on live circuits, and anywhere arc flash hazards may be generated.

NFPA 70e defines an electrical Qualified person as one who has demonstrated skills and knowledge related to the construction and operation of electrical equipment and installations and has received safety training to identify and avoid the hazards involved. Qualified person training is defined in §1926.950(b)(2). A Qualified person will: perform job safety planning (assessments); identify electrical hazards; assess the associated risk (risk assessments); select the appropriate risk control methods, including PPE (personal protective equipment).

REFERENCES

- NFPA 70e Standard for Electrical Safety in the Workplace
- NFPA 70b Recommended Practice for Electrical Equipment Maintenance
- § 29 CFR 1910 Subpart I – Personal Protective Equipment
- § 29 CFR 1910.137 – Electrical Protective Devices
- § 29 CFR 1910.147-Controlling of Hazardous Energy (LOTO)
- § 29 CFR 1910.269 – Electric Power Generation, Transmission and Distribution
- § 29 CFR 1910.269 – App E – Protection from Flames and Electric Arcs
- § 29 CFR 1910 Subpart S – Electrical
- § 29 CFR 1926.97 Electric Protective Equipment
- § 29 CFR 1926 Subpart K – Electrical
- § 29 CFR 1926 Subpart V – Electric Power Transmission and Distribution
- § 29 CFR 1926 Subpart V App E – Protection from Flames and Electric Arcs
- § 29 CFR 1926.404 (b)(1)(ii) Ground Fault Circuit Interrupters
- § 29 CFR 1926.404 (b)(1)(iii) Assured Equipment Grounding Conductor Program
- ANSI Z535 Safety Signs and Labels
- ASTM 1505-16 Testing for Insulated and Insulating Hand Tools
- ANSI/ISA-61010-1-Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use

The IEEE 1584 (Institute of Electrical and Electronics Engineers); Standard for Arc Flash Calculations will be referred to for engineers to conduct potential incident energy calculations. Equipment will meet applicable standards set by the American National Standards Institute (ANSI) and the American Society for Testing and Materials (ASTM).

RESPONSIBILITIES

Employer

- Contract with a third-party Electrical Engineering organization to perform an Arc Flash Analysis on all electrical equipment. This includes service entry systems, motor control centers, variable frequency drives, power distribution units; transformers; auxiliary power units, etc. to determine the "Incident Energy" level which will determine the level of safety required. This includes PPE (personal protective equipment) as well as determining the restricted and limited approach boundaries. All this information may go on to the Warning Labels
- Responsible management and supervision must be familiar with the electrical hazards that their employees are exposed to, how to recognize them, the potential effects these hazards have on the employees, work practices for controlling exposure to those hazards. Whenever possible, de-energize and control energy by LOTO (lock out-tag out) on all electrical equipment prior to work
- Provide training on NFPA 70e for all that may be exposed to unplanned releases of stored electrical energy. Qualified person re-training will not exceed 3 years.
- Maintain required arc flash Warning labels so they are legible and not handwritten (these are generated from the Engineering Arc Flash Analysis)
- Provide appropriate and arc flash rated PPE
- Ensure that only electrical Qualified personnel perform work on or near high-voltage circuits, live circuits and anywhere there is a risk of an arc flash incident
- Alert contractors to known hazards covered by NFPA 70e.
- Provide adequate information about installation so contractors can make informed safety assessments. Report contractor employee safety violations to contractor
- JHA's (job hazard analysis) may be used for ANY electrical work OTHER than those with an arc flash risk. For energized work, ONLY the Energized Electrical Work Permit is required.
- Ensure employees are Qualified for assigned tasks with evaluation and regular training
- Ensure that Live Line tool safety inspections occur per requirements
- Train personnel in how to select, inspect, and use live line tools

Employee

- No employee is expected to undertake a job until trained and is authorized to perform the job
- No employees should undertake a job that appears to be unsafe
- If not Qualified, avoid energized electrical equipment.
- Employees are to report to a supervisor all unsafe conditions encountered during work
- Properly store and inspect PPE before using
- PPE shall be properly maintained and be used when and where required.
- Stay outside required arc flash and shock boundaries when electrical equipment is energized and not shielded

HAZARDS

An arc flash (or flashover) is the light and heat produced as part of an arc fault, a type of electrical explosion or discharge that results from a low impedance (low voltage/high current) connection through air to ground or another voltage phase in an electrical system. The Arc Flash is the hazardous release of energy from an electric arc. The arc is loud, hot and moves very fast.

As it burns up the air around it, this creates a pressure wave (caused by the rapid heating of air) that can knock a worker down and/ or rupture eardrums. Arc blast is the explosion created by an electric arc and the pressure wave. These occur any time electricity bridges the gap between an energized conductor and another material. It can be minor or major and is caused by a breakdown in insulation and immediately follows an event. A typical arc flash event is over in half a second. The incident energy is measured in calories per square centimeter (Cal/cm^2) - a measurement of heat (calories) in each space (a square centimeter). The potential incident energy level is used to set the category of Personal Protective Equipment (PPE)-rated clothing and the limited and restricted approach distance boundaries. The point at which PPE is required and arc flash boundary starts is $1.2 \text{ Cal}/\text{cm}^2$.

Electrical Arc Flash

An electric arc flash occurs during a fault, or short circuit condition, which passes through arc gap (air). The arc flash can be initiated through accidental contact, equipment which is underrated for the available short circuit current, contamination or tracking over insulated surfaces, deterioration, or corrosion of equipment and/or parts, as well as other causes. An arc flash event can expel large amounts of deadly energy. The arc causes an ionization of the air, and arc flash temperatures can become very hot. An arc flashover from an energy source is hotter (35,000 degrees Fahrenheit) than the surface of the sun (10,000 degrees Fahrenheit) and is moving at the speed of light.

Depending on the Incident Energy Level, the hazards associated with arc flashover can be catastrophic in nature. These can include burns: 1) electrical burn-occurs when sufficient electrical current flows through the body; 2) thermal burn-results from bare skin contacting a hot (energized) surface 3) arc flash burn- generated from the radiation of an arc flash event.

Electric Shock

The passage of electricity through the body is called shock. Effects can range from a tingling sensation to death (especially if path crosses the heart). A shock that may not be enough to cause injury can nonetheless startle a worker, causing an involuntary reaction that can result in serious injuries or death.

Working near overhead power lines presents the risk of electrical shock or burns, and can contribute to additional hazards such as fires, falls and even death. All employees are required to use safe practices when working near power lines and observe the established safe distance limits established by all applicable regulations. See "Working on or Near Overhead Power Lines" Chapter.

PROCEDURES (SAFE PRACTICES)

Hazard elimination shall always be the first consideration. All energized electrical componentry operating at 50 volts or greater shall have the energy put into an electrically safe condition. The first option for working on energized electrical equipment will be to turn it off, de-energize it, lock it out, verify a zero-energy state and hang an appropriate Tag before beginning work-See “Lock Out Tag Out” Chapter.

If this option is not feasible or by doing so would introduce additional hazards, then this condition shall be described/documented (with justification), why LOTO is not feasible in the Energized Electrical Work Permit.

All equipment will be treated as if it is energized until it is proven de-energized. This means wearing the appropriate PPE while verifying the equipment. Check multimeter to a known energy source first, then verify with multimeter.

Equipment Maintenance NFPA 70b

Maintained equipment is safe equipment. NFPA 70B provides a systemic approach to maintaining equipment at any age or location on the “service ready” scale. Electrical equipment maintenance shall follow manufacturers guidance. Manufacturers are now regulated to make direction, instruction, and recommendations easier to access and have greater readability.

NFPA 70b Detail includes:

- Common Maintenance Standards require power circuit breakers be calibrated on an interval required by the manufacturer or every 3 years.
- Breaker maintenance and calibration are critical to arc flash protection.
- All Electrical Maintenance, testing and inspections shall be documented and retained.

NFPA 70e

NFPA 70e requires an Electrical Safety Program to have:

- A site-specific written program
- Assessment of hazards and work practices
- Appropriate PPE available
- Training for employees
- Annual supervisory work practice inspections
- Annual Program Audit documented with retention of records

Arc Flash (Incident Energy) Analysis

A third-party Engineering study of electrical equipment to determine incident energy levels and safe work practices- specifically the shock/ arc flash boundaries and personal protective equipment, based on incident energy levels and other factors. The analysis provides information for the Arc Flash Labels.

The results of the Analysis shall be documented, reviewed with management, used for maintenance operations and training. Arc Flash and Shock Risk Assessments shall be developed and/or reviewed before beginning work.

Arc Flash Labels

GTG Automation, Inc. will ensure the proper label information is in a good readable condition on all equipment requiring a label. These include, but are not limited to service entry systems, motor control centers, non-residential switchboards, panelboards, industrial control panels and meter socket enclosures.

Labels shall contain:

- 1) An Arc Flash Label Header of “Warning” or “Danger” depending on incident energy level
- 2) Nominal System Voltage- a nominal value assigned to a circuit or system for the purpose of conveniently designating its voltage class. The actual voltage at which a circuit operates can vary from the nominal within a range that permits satisfactory operation of equipment. AND-
- 3) Arc Flash Boundary-Approach distance to an energized system before requiring PPE protection.

AND at least one of the following:

- 4) Incident Energy and corresponding working distance OR required PPE Category based on the incident energy. PPE categories range from 1 to 4- but not both.
- 5) Minimum arc rating-of clothing and PPE required
- 6) Site Specific PPE Level-Each hazard risk category requires a different level of PPE protection

Whenever there is access to opened enclosures containing exposed energized equipment that is not under the control of a Qualified Person, suitable temporary barriers or barricades shall be installed. These can be any one of the following:

- Barricades may be of a single placard, vertical type
- A solid orange, plastic cone designed to be moved or rearranged quickly
- Barricades may be equipped with flashers for use at night and are often used with temporary signs which give specific directions to be followed
- Orange “Warning”, or Red “Danger” Barricade Tape

Rated Equipment

Test instruments, equipment, and their accessories shall meet the requirements of 2012 ANSI/ISA-61010-1-Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use -Part 1 General Requirements, for rating and design requirements for voltage measurement and test instruments intended for use on electrical systems 1000 volts and below.

When test instruments are used for the testing for the absence of voltage on conductors or circuit parts operating at 50 volts or more, the operation of the test instrument shall be verified before and after an absence of voltage test is performed. Test instruments shall be verified to be in proper working order before and after an absence of voltage test is performed.

Shock and Arc Flash Boundaries and Risk Assessments

Identify the Energized Work Zone and barricade it. Shock (limited and restricted approach) boundaries and arc flash boundaries are established for when equipment is unguarded (open cabinet doors, dead fronts off) and energized. Qualified persons can cross these boundaries to perform tasks such as — testing, troubleshooting, and voltage measuring — if they follow the correct safety procedures, while unqualified persons must remain outside the boundaries. The boundaries start with the typically most removed to the most restricted:

1) Arc Flash Boundary- Typically the most removed from any point on an exposed, energized electrical conductor or circuit part. This space is where an unprotected worker could receive 2nd degree burns. No one should perform any work in the arc flash boundary without training and PPE. The safety related work practices include controlling the energy through lock out tag out. If energized and a hazard assessment has been conducted, wearing Category 1 PPE is required. Other safety related work practices shall be developed. These can include performing evaluations and anticipating unexpected events. All electrical parts are considered live until proven otherwise.

2) Limited Approach Boundary-closer to point of work-must be a Qualified person or escorted by a Qualified person. There are two “Shock Boundaries”. One is the Limited Approach Boundary, and the other is the Restricted Approach Boundary. To enter requires Category 2 PPE for all within the boundary. A Risk Assessment shall be performed for work in this boundary.

Only Qualified persons may complete tasks such as testing, troubleshooting and voltage measuring within the Limited Approach Boundary or the Restricted Approach Boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where an electrical hazard exists.

3) Restricted Approach Boundary- at energy source- -Safe work practices include all the above plus use of insulated tools, electrically tested rubber gloves with leather keepers and have a prepared EEWP (Energized Electrical Work Permit).

The arc boundaries shall be determined by Arc Flash Hazard Calculation as part of an Arc Flash Analysis developed by an RPE (Registered Professional Engineer). The arc flash boundaries are equipment dependent. Incident Energy and Arc Flash Boundaries may be calculated, and boundaries may be determined if you know: voltage; available fault current; fault clearing time and minimum working distances and other parameters, use the below tables:

As an example, these are in the 2021 NFPA 70e:

- Table 130.4(E)(a): Shock protection approach boundaries for alternating current
- Table 130.4(E)(b): Shock protection approach boundaries for direct current
- Table 130.7(C)(15)(a): Arc flash PPE categories for alternating current systems
- Table 130.7(C)(15)(b): Arc flash PPE Categories for direct current systems

The limited approach shock boundary requires Qualified workers to be trained according to the Training section and be Qualified to do testing, troubleshooting, and measure voltage.

The arc flash boundary begins where incident energy equals 1.2 cal/cm^2 . The boundary can be determined by the Arc Flash Analysis. Inside the boundary, exposed skin is not allowed; PPE must be arc flash rated; and workers need to be electrically isolated from conductive equipment or materials.

To the extent that other safety-related conditions at the worksite permit, each employee will work in a position from which a slip or shock will not bring the employee's body into contact with exposed, uninsulated, energized parts.

Established shock and arc flash limited, and restricted approach boundaries will be observed for uncovered and energized electrical equipment.

Risk Assessments are part of the larger EEWP and should contain event severity, frequency, probability, and avoidance to determine the level of safe practices employed. The Risk Assessment must be completed by a Qualified employee before work is started and account for hazards at the limited approach and arc flash boundaries. Arc flash risk assessments include determining appropriate safety related work practices, the arc flash boundary requirements, and the PPE required to minimize the risk of electric shock. Assessments must be documented, and equipment field marked with a label. These assessments must be reviewed prior to beginning work

An Arc Flash Risk Assessment and/or a Shock Risk Assessment shall be performed prior to work being done within the Limited Approach Boundary, to determine the safe practices to be employed and document the procedure required.

The first option for working on energized electrical equipment will be to de-energize it, lock it out, verify its de-energized state and hang a tag. All equipment will be treated as if it is energized until it is proven de-energized. This means wearing the appropriate PPE while verifying the equipment. Preferred verification of a de-energized state shall be determined by use of a multi-meter.

Energized Electrical Work Permits (EEWP)

Work on energized electrical conductors or circuit parts that are not placed in an electrically safe work condition, shall be considered energized electrical work, and shall be performed by written permit only.

No matter the type or simplicity of the task, there is no such thing as "routine" work where electrical safety is involved. NFPA 70e does not prohibit issuing an EEWP for simple, repetitive, or non-electrical tasks. When work is performed as defined and permitted by 2021 NFPA 70e Article 110.4 an EEWP shall be required and documented under any of the following conditions:

- When work is performed within the Restricted Approach Boundary
- When the employee interacts with the equipment when conductors or circuit parts are not exposed but an increased likelihood of injury from an exposure to an arc flash hazard exists

Electrical work shall be permitted without an EEWP if a Qualified Person is provided with and uses appropriate safe work practices and PPE under the following conditions only:

- Testing, troubleshooting or voltage measuring
- Thermography, ultrasound, or visual inspections if the Restricted Approach Boundary is not crossed
- Access to and egress from an area with energized electrical equipment if no electrical work is performed and the Restricted Approach Boundary is not crossed
- General housekeeping and miscellaneous non-electrical tasks if the Restricted Approach Boundary is not crossed.

Only Qualified employees can work on energized equipment. An energized work permit shall be completed prior to starting all work on energized equipment. Work that does not require an energized work permit is controlled energy, voltage or current testing, electrical troubleshooting, infrared thermography, and visual inspections where the plane of the cover will not be breached, nor dead fronts removed. Once the Work Permit is completed, keep it on file for your records.

Elements of an Energized Electrical Work Permit include:

- Description of the circuit and equipment to be worked on
- Description of the work to be performed
- Justification on why the work must be performed in an energized condition.
- Description of the safe work practices to be followed
- Results from the Shock Risk Assessment:
 - Voltage to which personnel will be exposed

Limited approach boundary or Restricted approach boundary

- Personal and other protective equipment required by the Standard to safely perform the assigned task and to protect against the shock hazard

Results From the Arc-Flash Risk Assessment

- Available incident energy at the working distance or arc flash PPE category
- Personal and other protective equipment required by the Standard to protect against the arc flash hazard

Arc Flash Boundary

- Means employed to restrict the access of unqualified persons from the work area
- Evidence of completion of a job briefing. A job briefing should be held before starting each job and include all employees involved. The briefing should cover hazards associated with the job, work procedures involved, special precautions, energy source controls, PPE requirements, and the information on the energized electrical work permit, if required. Additional job briefings shall be held if changes that might affect the safety of employees occur during work.
- Energized work approval (authorizing or responsible management, safety officer, or owner, etc.) signature(s)

Auditing Field Work

An audit must be performed every year (min) to ensure the requirements in the written program are being performed by the employees. The written program, including training must be updated if auditing determines that employees are not following it or if another issue is identified with potential hazardous exposure.

Alerting Techniques

Alerting techniques include safety signs, tape, tags, barricades, and attendants. Safety signs must meet the requirements of ANSI Z535. 2021 NFPA Table 130.7(E) provides further direction. Barricades must be used in conjunction with safety signs and never by themselves. Any technique used must not increase the potential for employee injury.

Safety signs, symbols, tags, tape, barricades, and attendants are alerting techniques and must not be used in any way that could increase the potential for employee injury.

Barricades must be used with safety signs and not by themselves. They must be placed immediately outside the limited approach boundary. Barricades and signage shall not be conductive. Warning or Danger tape may also be used.

Attendants shall be stationed where signs and barricades do not provide sufficient warning and protection from electrical hazards. The attendant's primary duty is keeping unqualified employees outside the hazardous work area and will remain at area while there is potential for employees to be exposed to electrical hazards.

Opened enclosures and exposed energized equipment not under the control of a Qualified person will have suitable temporary barriers installed by a Qualified person. After the work is completed, the Qualified person is responsible for removing temporary protective equipment and reinstalling all permanent barriers and equipment.

Conductive Articles

When working on or near exposed energized conductors or parts of equipment conductive measuring tapes or similar measuring devices will not be used. Conductive fish tapes will not be used in raceways entering enclosures containing exposed energized parts unless such parts are isolated by suitable barriers. The following are conductive and should never be in the Arc Flash Boundary- 1.2Cal/cm². Cell phones are not acceptable nor ANY electronic powered device. Additionally:

- Jewelry-necklaces, bracelets, rings, watches or metal watchbands
- Clothing not covered by PPE with any exposed metal (snaps, zippers) or metalized aprons or with conductive thread
- Metal pens (or plastic pens with a metal clips)
- Keys and key rings
- Metal hardhats.

Safe Work Processes for Energized Equipment

- Perform Energized Electrical Work Permit process prior to performing any work.
- Always wear arc rated PPE
- Always wear VR (Voltage Rated) gloves and use VR rated blankets. Use insulated tools.
- Establish worker safety boundaries from the Arc Flash Analysis
- All test instruments, equipment and their accessories shall be rated for circuits and equipment to which they will be connected. Test instruments, equipment, and their accessories shall meet the requirements of ANSI/ISA-61010-1-Safety Requirements for Electrical Equipment for Measurement, Control, and Laboratory Use -Part 1 General Requirements, for rating and design requirements for voltage measurement and test instruments intended for use on electrical systems 1000 Volts and below.
- When feasible, always create an electrically safe work condition
- Always use GFCI (ground fault circuit interrupters) with cord connected tools and extension cords

Employees shall not enter spaces containing electrical hazards unless illumination is if enables the employees to perform the work safely. Where lack of illumination or an obstruction precludes observation of the work to be performed, employees shall not perform any task within the Limited Approach Boundary of energized electrical conductors or circuit parts operating at 50 volts or more or where any electrical hazard exists.

No employees in training will be assigned to work alone without direction from a Qualified employee.

During the time work is being done on any exposed, energized conductors or exposed energized parts of equipment, a Qualified electrical worker, and an employee in training, will be in proximity at each work location. Additionally, they will act primarily as an observer for the purpose of preventing an incident and/ or to render immediate assistance in the event of an incident.

When energizing or de-energizing by way of a knife switch on a maintenance service disconnect box, follow the safe process to avoid being struck by an arc:

- Wear the proper PPE level
- Stand to the side of the box (typically to the right as that is the side the knife switch is on)- NEVER directly in front of it, NOR reach across it.
- Turn your head away so that the back of your head is facing the box.
- Close your eyes
- Take a deep breath and hold it
- Use your left hand to move the knife switch

Remember- when you pull down the knife switch, the only thing you know for sure that you have done is MOVED THE HANDLE. Never assume any state of energy without getting your meter on it. Always check phase to phase and phase to ground.

Only Qualified employees will work on energized conductors or equipment connected to energized high-voltage systems. Except for the following:

- Replacing fuses
- Operating switches
- Operations such as LOTO (lock out-tag out) that do not require the employee to contact energized high-voltage conductors or energized parts of equipment

Protection from Electrical Shock:

- Create an electrically safe work condition
- Eliminate contact with exposed, energized surfaces
- Use insulated tools
- GFCI
- Properly installed equipment (per Electrical Code)
- Properly maintained equipment (per NFPA 70b)

Circuit Breaker, Battery, and Capacitor Safety

Circuit Breakers

In the 2021 NFPA 70e there are new circuit breaker and battery safety direction:

- Once installation or maintenance activities are complete, prior to re-energizing the system, the operators are required to wear their appropriate arc rated PPE for re-energization.
- Fault interrupting circuit breakers that are near their interrupting ratings shall be inspected and tested per the manufacturer's instruction.
- PPE selection should consider all the hazards, depending on the task.

Batteries

- Battery power, specifically lithium, is addressed in the 2021. Exposure to battery energy shall not exceed 50 volts AC and 5 milliamperes, and 100 volts DC without protection and controls.
- Batteries can also generate hazards such as shock, arc flash, thermal as well as chemical risks.
- Today, lithium batteries can be packed in cells that can exceed 100 volts, up to 1000 volts. At this level of energy, shock and arc flash can create serious hazards. The heat release from a cell failure can damage other cells releasing additional heat in a thermal runaway reaction. High energy density, such as the cells of lithium batteries, creates vulnerability to these kinds of reactions.

Arc Flash Risk Assessment for Battery Work

NFPA 70E 2021, Article 320 "Safety Requirements Related to Batteries and Battery Rooms" requires that an arc flash risk assessment be conducted prior to work on a battery system over 100 volts to identify any chemical, thermal, electrical shock, or arc flash hazards. Further, an Assessment of the risks associated with the work to be performed. Lower voltage can still result in a bodily shock caused by a spark. Newer, higher industrial voltages can cause an arc flash explosion, necessitating the Risk Assessment.

Capacitor Safety

NFPA 70E 2021, Article 360 has been added to address safety related work requirements when working with capacitors. The article covers specific personal safety measures that must be completed by workers when working with or de-energizing capacitors.

Live Line/Insulated Tool Selection and Use

The tools selected for use must be appropriate for the work being performed. Live line tools used by GTG Automation, Inc. will be designed and constructed to withstand the following minimum tests:

- 100,000 volts per foot of length for five minutes if the tool is made of fiberglass reinforced plastic
- 75,000 volts per foot of length for three minutes if the tool is made of wood
- Any other tests that GTG Automation, Inc. can demonstrate are equivalent

Care and Maintenance of Live Line and Insulated Tools

All live line tools must be wiped clean and visually inspected for any defects prior to use. Inspections must be completed daily and prior to use to ensure that the tools are in good working order. Ensure there are no nicks or cuts in the insulation.

GTG Automation, Inc. will remove live line tools which are used for employee protection periodically, at a minimum of once every two years. Once removed from service, they will be given a thorough examination, cleaning, and testing. If the examination determines that repairs are needed, they will be marked as such and repaired or replaced before returning to service. After examination, cleaning, and repair, the live line tools will be tested and must pass testing before being put back into service. GTG Automation, Inc. will replace live line tools that do not meet testing criteria or are deemed unfeasible to repair.

Insulated Tools must meet requirements of ASTM F1505-16 Testing for Insulated and Insulating Hand Tools:

- Note the triangle within the triangle logo on grips and/ or
- Note the “1000 V” mark
- The best practice insulated tool has a 2-color insulation indicator (if you see yellow, the tool must come out of service).

Care of Insulated Tools:

- Do not place tools where they can be damaged or contaminated
- Wipe and dry tools that get wet, as soon as possible
- Remove damaged tools from service immediately
- Store tools properly to prevent damage-DO NOT just throw them in a toolbox where they will knock around with other loose tools, this may damage the insulation (one little cut in the insulation will allow the arc in).
- Per 2016 NFPA 70e Article 250.2(B) insulated tools shall be removed from service and its protective capabilities (insulation) tested every three (3) years.

Tools found to be defective or in a state of disrepair will be immediately removed from service and tagged as unsafe for use. Defective tools will be sent in for repairs, and will be either repaired to manufacturer’s specifications, or, if it is not feasible to repair them, destroyed and replaced. Tools may be returned to service once they have been repaired to good working standard, tested, and meet manufacturer’s specifications.

FOR RESCUE PURPOSES ONLY- have a dielectric rescue hook nearby when more than one person is working on energized systems.

Communicating Procedures and Hazards

The host and contract employer will communicate work rules and procedures so that employees of all employers are protected from electrical hazards by practicing similar safety processes.

All employees will know how to safely work with the elements of the host employer’s installation, especially: nominal voltage of lines and equipment, maximum switching of transient voltages, hazardous induced voltages, protective grounds, equipment grounding conductors, circuits of equipment, electric supply and communication lines, and fire-protective signaling circuits.

The host employer will communicate to other employers known conditions, electrical hazards, and installation information that is — known by the host employer, requested by the contract employer, and related to protecting the contract employer's responsibilities, specifically the need for hazard assessments. Such as: the condition of poles, environmental condition, arc hazard incident heat energy estimates, unique conditions posed by the contract employer's work, and worker violations noticed by the host employer.

The contract employer shall advise the host employer of:

- Any unique hazards presented by the contract employer's work.
- Any unanticipated hazards found during the contract employer's work that the host employer did not mention
- The measures the contractor took to correct any hazards reported by the host employer to prevent such hazards from recurring in the future.

GFCI & AEGCP

A ground fault occurs when there is a break in the low-resistance grounding path from a piece of equipment. The electrical current may then take an alternate path to the ground through the user, resulting in a serious injury or a fatality. The GFCI (ground fault circuit interrupter) is a fast-acting circuit breaker designed to shut off electric power in the event of a ground-fault in as little as 1/40th of a second. It works by comparing the amount of current going to and returning from equipment along the circuit conductors. When the amount going differs from the amount returning by ~ 5 milliamperes, the GFCI interrupts the current. GFCI is rated to trip quickly enough to prevent an electrical incident. If it is properly installed and maintained, this will happen as soon as you plug in. If the grounding conductor is not intact or of low impedance, the GFCI may not trip until a person provides a path. In this case the person will receive a shock, but the GFCI will trip so quickly that the shock will not be harmful. GFCI will not protect from line contact hazards, however it protects against the most common form of electrical shock, the ground fault. It also protects against fires, overheating and destruction of wire insulation. There are multiple types of GFCI.

GFCI shall be available whenever possible and if not possible, an Assured Equipment Grounding Conductor Program (AEGCP) will be followed.

An assured equipment grounding conductor program (AEGCP) is a method of protection for personnel against ground-fault current flow through the body. The basic concept of the AEGCP is that conductive surfaces which may become energized due to line-to-ground faults and with which personnel may come in contact be properly grounded. Thus, if properly grounded and a line-to-ground fault occurs, the low impedance path would allow resulting current flow to be large enough to be detected and removed by the circuit protective device. This would then de-energize the conductive surface subject to contact by personnel, removing the shock hazard.

GFCI/ AEGCP Installation

Equipment grounding conductors will be installed as follows:

- All 120-volt, single-phase, 15- and 20-ampere receptacles will be of the grounding type and their contacts will be grounded by connection to the equipment-grounding conductor of the circuit supplying the receptacles in accordance with the applicable requirements of the National Electrical Code. Additionally:

- All 120-volt cord sets (extension cords) will have an equipment-grounding conductor that will be connected to the grounding contacts of the connector on each end of the cord.
- The exposed noncurrent-carrying metal parts of 120-volt cord and plug connected tools and equipment that are likely to become energized will be grounded in accordance with the applicable requirements of the National Electrical Code.

GFCI/ AEGCP Inspections and Tests

Each day, before use, employees are required to visually inspect each extension cord, or other device, and any equipment connected by cord and plug, for external defects, such as deformed or missing pins or insulation damage, and for signs of possible internal damage. Cord sets, devices, and receptacles that are fixed and not exposed to damage are exempt from this inspection. Employees are prohibited from using damaged or defective equipment. Any equipment found to be damaged or defective will be immediately red tagged "DO NOT USE" and removed from service.

Inspections and tests performed as required by this program will be recorded as to the identity of each receptacle, cord set, and cord and plug connected equipment that passed the test and will indicate the last date tested or interval for which it was tested. This record will be kept by means of logs, color-coding, or other effective means and will be maintained until replaced by a more current record. These records will be made available at the jobsite for inspection by OSHA and any affected employees.

GFCI/ AEGCP Testing Schedule

All required tests must be performed by a Qualified person:

- Before first use
- Before equipment is returned to service following any repairs
- Before equipment is used after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over)
- At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage will be tested at intervals not exceeding six months

GFCI/ AEGCP Test Records

- A log will be kept on the jobsite of all tests performed. These records will be kept until replaced by a newer record. The log will include:
 - Pass/Fail record of each receptacle, cord set, and cord- and plug-connected equipment that was tested
 - Date of testing or test intervals
 - The equipment will be marked with the test date, or a color-coded tape will delineate the most recent test, for example
 - WINTER- White
 - SPRING - Green
 - SUMMER- Red
 - FALL- Orange

REQUIREMENTS

Overhead Power Lines

Overhead power lines are not insulated and are typically energized with high voltage. Protective measures will be provided before starting work under or near overhead lines, such as de-energizing and grounding the power lines. See chapter on working on or near overhead power lines.

Employees in vehicles or lifts, any mechanical equipment that can be elevated near energized lines will always keep a minimum 10 ft. clearance.

A Qualified person working near energized overhead lines may not approach or take a conductive object without an approved insulating handle closer than five feet. An unqualified worker may not approach an energized overhead line or take a conductive object within 10 feet for voltages 50kV or below. For voltages over 50kV, the distance is 10 feet, plus 4 inches for every 10kV over 50kV.

Warning signs will be placed in areas where equipment is working around or near overhead power lines. The warning signs will be posted and maintained in plain view of the operator and driver on each of the following that may be in use: crane, derrick, power shovel, drilling rig, hay loader, hay stacker, pile driver or similar apparatus.

A durable warning sign legible at twelve feet (12ft) reading "Unlawful to Operate This Equipment within Ten Feet (10ft) Of High-Voltage Lines of 50,000 Volts or Less."

Confined Spaces

All potential electrical energy sources shall be controlled for a Permit Required Confined Space entry by Lock Out, Tag Out. ONLY if the employer can justify by demonstration that it is infeasible or creates an unsafe condition to control the energy, will all safeguard such as arc flash PPE or shock protection VR rated blankets be applied.

Portable Ladders

Portable ladders will have nonconductive side rails if they are used where the employee or the ladder could contact exposed energized parts.

PERSONAL PROTECTIVE EQUIPMENT

GTG Automation, Inc. will provide necessary PPE, protective clothing and equipment that meets the requirements in Table 130.7(C)(14). PPE requirements in the table apply to many kinds of PPE: arc rated apparel, insulating aprons, general eye and face protection, arc rated face protection, fall protection, testing methods and specifications for footwear, glove and sleeve testing and care, hard hats, arc rated rainwear, visual inspections of rubber protective products and sleeves. The related standards for each kind of PPE are found in their ASTM or ANSI document in the table.

Wear undergarment layers of clothing that are non-melting such as cotton (there is Arc Rated underwear as well as suspenders and brassieres). Employees who may be exposed to flames or electric arcs will wear an outer flame-resistant layer and not wear any clothing that could melt onto their skin or ignite and continue to burn when exposed to flames or the possible heat energy. PPE cannot completely protect from the shock wave of an Arc nor the heat transfer. Clothing under PPE shall be 100% Cotton. PPE in an arc environment is tested to a Standard. Look at your PPE for these. See all PPE with its testing Standard below:

Subject	Document	Document Number
Apparel-Arc Rated	Standard Performance Specification for Flame Resistant and Arc Rated Textile Materials for Wearing Apparel for Use by Electrical Workers exposed to Momentary Electric Arc and Related Thermal Hazards Standard Guide for Industrial Laundering of Flame, Thermal and Arc Resistant Clothing Standard Guide for Home Laundering of Flame, Thermal and Arc Resistant Clothing	ASTM F1506 ASTM F1449 ASTM F2757
Aprons Insulating	Standard Specification for Electrically Insulating Aprons	ASTM F2677
Eye and Face Protection-General	Eye and Face Protection-General Occupational and Educational Professional Eye and Face Protection Devices	ANSI/ISEA Z87.1
Face-Arc Rated	Standard Test Method For Determining the Arc Rating and Standard Specification for Personal Eye or Face Protective Products	ASTM F2178
Fall Protection	Standard Specification for Personal Climbing Equipment	ASTM F887
Footwear-Dielectric Specification	Standard Specification for Dielectric Footwear	ASTM F1117
Footwear-Dielectric Test Method Footwear-Standard Performance Specification Footwear-Standard Test Method	Standard Test Method for Determining Dielectric Strength of Dielectric Footwear	ASTM F1116
	Standard Specification for Performance Requirements for Protective (Safety) Toe Cap Standard Test Methods for Foot Protections	ASTM F2413 ASTM F2412
Gloves-Arc Rated Gloves Leather Protectors Gloves Rubber Insulating	Standard Test Method for determining Arc Ratings of Hand Protective Products Developed and used for Electrical Arc Flash Protection; Standard Spec for Leather Protectors for Rubber Insulating Gloves	ASTM F2675/F2675M
Gloves and Sleeves-In Service Care	Standard Specification for In-Service Care of Insulating Gloves and Sleeves	ASTM F496
Head Protection- Hard Hats	Industrial Head Protection	ANSI/ISEA Z89.1
Rain Wear-Arc Rated	Specification for Arc and Flame-Resistant Rainwear	ASTM F1891
Rubber Protective Products-Visual Inspection	Standard Guide for Visual Inspection of Electrical Protective Rubber Products	ASTM F1236
Sleeves-Insulating	Standards Specification for Rubber Insulating Sleeves	ASTM D1051

Arc Flash PPE and Other Protective Equipment

Maintenance and care of PPE shall follow the manufacturers instruction and guidance. Manufacturers are now regulated to make direction, instruction, and recommendations easier to access and have greater readability.

PPE is an important component of arc flash safety. PPE such as nonconductive head, eye, and hearing protection as well as arc rated clothing is required wherever there is a possible exposure to an arc flash. Additionally, insulating blankets and non-melting footwear.

In the 2021 NFPA 70e a few changes have been made in reference to PPE:

High Visibility Vests are now allowable providing they are an arc rated category 1 or 4 cal/cm².

Arc Flash Safe footwear can no longer be just leather. Other types of footwear materials are now allowable providing they have been tested to perform without ignition, melting or dripping occurring at the estimated incident energy level or the minimum arc rating for the coordinating arc flash PPE category (per ASTM F2412-18a Standard Test Methods for Foot Protection).

The Balaclava is no longer referred to as a hood or sock. Now defined as an arc rated head protective fabric for head and neck protection except for a small face opening.

Arc flash protective clothing must cover all body parts and ignitable clothing within the boundary and allow movement and visibility. To maintain the Arc and Flame resistance, the laundering of PPE clothing must follow the ASTM F1449-20 guidelines.

Hair and beard shall be covered by a balaclava. Face shields and hoods must have a satisfactory arc rating (AR), and eye protection must be worn under face shields/hoods. Hearing protection must be worn. Rubber is preferred over foam for ear plugs.

Hands require three layers of protection- a cotton knit "string" glove to absorb perspiration; an arc rated, and tested voltage rated insulating glove and the leather "keepers". Minimum PPE:

- VR Gloves
- Class "E" Hard Hats
- EH (electrical hazard) and DI (dielectric rated) footwear
- Rated Insulated Tools
- Insulated Barriers
- VR (voltage rated) garments

Electrical Hazard-rated equipment includes:

- Insulated blankets (to prevent contact with energized surfaces)
- Knee Pads
- Insulated Hand Tools
- All insulating PPE must be inspected before each day's use and immediately following any incident that can reasonably be suspected of having caused damage. Insulating gloves shall be given an air test, along with the inspection. One small hole will allow the arc in.

The PPE arc flash rating must meet the required category for that boundary. Any work that involves PPE at or above 40 cal/cm² is considered too dangerous to be completed energized and the equipment must be de-energized. Adequate PPE must still be worn while verifying de-energization.

Unless they are documented in an arc flash risk assessment by a Registered Professional Engineer, the arc flash PPE requirements will be determined by the following tables in the NFPA 70E:

- Table 130.7(C)(15)(a) Arc Flash Hazard PPE Categories for Alternating Currents
- Table 130.7(C)(15)(b) Arc Flash Hazard PPE Categories for Direct Currents
- Table 130.7(C)(15)(c) Personal Protective Equipment (PPE)

PPE Category	Cal/cm ²
1	1.2 – 4
2	5 – 8
3	9 – 25
4	26 - 40

Shock PPE

Rubber insulating gloves are rated for the voltage exposure and require laboratory testing and certification no more than one year before they are first used, and then retested electrically every six months- this requires 2 pairs-as one is in test. Rubber insulating gloves provide the shock protection and leather protectors provide the arc flash protection. When within the arc flash and electric shock boundaries the gloves must be paired with leather protectors (keepers).

Gloves and other shock PPE need to be properly stored and maintained. They must be inspected by a Qualified user prior to use and tested after any incident.

A word about inspection of these gloves prior to use- Never assume that there are no breaches in the glove. Check these prior to use EVERYTIME.

Gloves must also be inspected immediately following any incident that may have caused damage. OSHA also requires that insulating gloves be given an air test along with the inspection.

The air testing method is described in ASTM F496-14a Standard Specification for In-Service Care of Insulating Gloves and Sleeves (<http://www.astm.org/Standards/F496.htm>). The glove is filled with air, either manually or with a powered inflator, and then checked for leakage. The leakage is detected by listening for escaping air or by holding the glove against the tester's cheek to feel for air that is escaping.

In accordance with ASTM F496-14a, gloves and sleeves should be expanded no more than 1.5 times their normal size for Type I, and 1.25 times normal for Type II during the air test. The procedure should then be repeated with the glove turned inside out.

Maximum Test Intervals for Rubber Insulating PPE- Such tests include: 1) Blankets-before first issue/every 12 months thereafter, 2) Gloves-before first issue and every 6 months, 3) Sleeves before first issue and every 12 months. Covers and Line hose shall be testing if insulating value is suspect.

Arc Flash PPE by Category:

Arc Flash PPE category 1) Arc Rated Clothing, Minimum Arc Rating of 4 cal/cm². Arc Rated long sleeve shirt and pants or arc rated coverall; Arc Rated face shield or Arc Rated flash suit hood; Arc Rated jacket, parka, arc rated high visibility wear, rainwear, or hard hat liner. Protective Equipment: Hard hat; Safety glasses or goggles; Hearing protection (inserts); Heavy duty gloves; Leather (or arc rated) footwear

Arc Flash PPE category 2) Arc Rated Clothing, Minimum Arc Rating of 8 cal/cm². Arc Rated long sleeve shirt and pants or arc rated coverall; Arc Rated flash suit hood or arc rated face shield with arc rated balaclava; Arc Rated jacket, arc rated high visibility wear, parka, rainwear, or hard hat liner. Protective Equipment: Hard hat; Safety glasses or goggles; Hearing protection (inserts); Heavy duty gloves; Leather footwear

Arc Flash PPE category 3) Arc Rated Clothing selected so that the system Arc Rating Meets the Required Minimum Arc Rating of 25 cal/cm². Arc Rated long sleeve shirt, pants or arc rated coverall; Arc Rated flash suit jacket and arc rated flash suit pants, Arc Rated Flash Suit Hood; Arc Rated gloves; Arc Rated: jacket, parka, arc rated high visibility wear, rainwear, or hardhat liner. Protective Equipment: Hard hat; Safety glasses or goggles; Hearing protection (inserts); Leather footwear

Arc Flash PPE category 4) Arc Rated Clothing selected so that the system Arc Rating Meets the Required Minimum Arc Rating of 40 cal/cm². Arc Rated long sleeve shirt, pants; arc rated coverall; Arc Rated flash suit jacket and arc rated flash suit pants, Arc Rated Flash Suit Hood; Arc Rated gloves; Arc Rated: jacket, parka, arc rated high visibility wear, rainwear, or hardhat liner. Protective Equipment: Hard hat; Safety glasses or goggles; Hearing protection (inserts); Leather footwear.

Test Equipment and Tools

Test equipment – multi-meters, electrical leads, proximity testers – will be rated for the circuits and equipment they are to be connected too. Always use a multimeter to determine an energized or non-energized state.

A word about the use of multi-meters-USE THEM. Never guess on the state of energy. Never test for the presence of energy any other way (flipping the switch, use of a “tick”, touching a surface). When testing for the presence of energy on a three-phase system, you MUST check ground to ground and phase to phase on each buss/phase. To check they are working properly, test equipment will also be checked against a known voltage source to ensure it is working before and after determining a de-energized state. In addition, a second method will be used (ONLY as a backup) listen to transformer, check lights, try equipment to confirm de-energization.

Calibration and Testing: analog equipment – six months; digital equipment – 12 months; torque wrenches – 12 months; insulated tools – 36months; live line tools-24 months. Safety grounds will be checked before each use and installed with hot sticks while wearing PPE.

Shock protective tools and equipment will be inspected before every use, looking for damage to the insulation that prevents it from working correctly, or could add to the risk. Electrical and safety equipment will meet the ANSI and ASTM standards.

TRAINING

Employees shall be annually NFPA 70e/ Arc Flash trained in safety-related work practices and procedural requirements as necessary to provide protection from the electrical hazards associated with energized electrical equipment. Employees shall be trained to identify and understand the relationship between electrical hazards and possible injury.

NFPA 70e training for electrical safety can be performed in the classroom, OJT, or both. Additionally, training may be performed by interactive web-based training.

Employees who work near electrical equipment that may need controlling require training in LOTO (Affected persons) those who control energy (hang locks and tags) require LOTO training (Authorized persons). Those who are exposed to energized electrical hazards require Controlling of Hazardous Energy training as well as NFPA 70e training at a minimum of every 3 years. The NFPA 70E training shall be conducted in a classroom setting with a Qualified person training.

NFPA 70e Programs require annual (at a minimum) auditing. At least once a year, each employee will be reviewed and documented through observation, training, supervision, and inspections, that they are a Qualified employee and are working safely. A Qualified person demonstrates the necessary skills and knowledge related to the task and have received safety training so they can recognize and avoid the hazards. The minimum training elements listed in the NFPA 70E are:

- Capable of distinguishing exposed energized electrical conductors and circuit parts of electrical equipment
- The approach distances specified in the NFPA 70E (Section 130.5) and corresponding voltages to which the Qualified person will be exposed
- Determine nominal voltage of exposed energized electrical conductors and the use of appropriate test equipment
- The decision-making process necessary to determine the degree and extent of the hazard and the personal protective equipment and job planning necessary to perform the task safely
- Making the decisions on safety: perform the job safety planning (Risk Assessments and EEWP); identify electrical hazards; assess the associated risk; select the most appropriate method to control the hazards and write an Energized Electrical Work Permit.

Retraining

GTG Automation, Inc. will retrain workers, not to exceed, every three years. Retraining also may be required:

- If the supervision or annual inspections indicate that the employee is not complying with the safety-related work practices
- If new technology, new types of equipment, or changes in procedures necessitate the use of safety-related work practices that are different from those that the employee would normally use
- The employee needs to review tasks that are performed less often than once a year
- If he or she must employ safety-related work practices that are not normally used during his or her regular job duties.
- The employee's job duties change

Recordkeeping

Documentation shall be made when the employee demonstrates proficiency, be maintained for the duration of the employee's employment, and contain the content of the training, each employee's name, and date of training. As a Best Practice, 3-year retention of training records.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to ensure no employee is exposed to noise that exceeds the action levels. Greg Griffin is the designated supervisor for ensuring the following engineering controls and work practices will be enforced:

Hearing protectors are available upon request from Greg Griffin at no cost to all employees exposed to an 8-hr. time-weighted average of 85 decibels. Hearing protection will be replaced, as necessary. Each employee will be properly trained in the use, care, and fitting of hearing protectors. Greg Griffin will ensure that hearing protectors are worn. Employees will be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors.

GTG Automation, Inc. will provide a continuing effective hearing conservation program when employees are exposed to sound levels greater than 85 dBs on an 8-hour time-weighted average basis.

When information indicates that employee exposure may equal/exceed the 8-hour time-weighted avg. of 85 decibels, Greg Griffin will implement a monitoring program to identify employees to be tested.

TRAINING

Upon initial assignment, all employees will be trained about being exposed to noise at or above an 8-hour time weighted average of 85 decibels. The hazards presented by excessive noise levels in the workplace, and the use and care of hearing protection devices. Training will be repeated annually for each employee and updated to reflect changes in personal protective equipment (PPE) and work processes or requirements. Greg Griffin will ensure the participation of all employees and make copies of the noise exposure procedures available to affected employees and will also post a copy in the workplace and allow OSHA access to records.

HEARING PROTECTION

Hearing protectors are available upon request from Greg Griffin at no cost to all employees exposed to an 8-hr. time-weighted average of 85 decibels. Hearing protection will be replaced, as necessary.

Each employee will be properly trained in the use, care, and fitting of hearing protectors. Greg Griffin will ensure that hearing protectors are worn.

Employees will be given the opportunity to select their hearing protectors from a variety of suitable hearing protectors.

Greg Griffin will ensure that hearing protectors are worn when required to do so by the company and/or the host employer, also:

- By an employee who is required by paragraph (b)(1) of this section to wear personal protective equipment; and
- By any employee who is exposed to an 8-hour time-weighted average of 85 decibels or greater, and who:
 - Has not yet had a baseline audiogram established pursuant to paragraph (g)(5)(ii); or
 - Has experienced a standard threshold shift

AUDIO MONITORING

Audio monitoring will be implemented if it is believed noise levels in work areas are approaching or exceed action level limits. If monitoring results indicate exposures equaling or exceeding safe limits, an employee will be included in a hearing conservation program.

All continuous, intermittent, and impulsive sound levels from 80 decibels to 130 decibels shall be integrated into the noise measurements. Instruments used to measure employee noise exposure shall be calibrated to ensure measurement accuracy.

Monitoring shall be repeated whenever a change in production, process, equipment or controls increases noise exposures to the extent that:

- Additional employees may be exposed at or above the action level; or
- The attenuation provided by hearing protectors being used by employees may be rendered inadequate to meet the requirements

Employee notification. The employer shall notify each employee exposed at or above an 8-hour time-weighted average of 85 decibels of the results of the monitoring.

Observation of monitoring. The employer shall provide affected employees or their representatives with an opportunity to observe any noise measurements conducted pursuant to this section.

When employees are subjected to sound exceeding those listed in the below table, feasible administrative or engineering controls shall be utilized. If such controls fail to reduce sound levels within the levels of table, personal protective equipment shall be provided and used to reduce sound levels within the levels of the table overleaf.

DURATION OF EXPOSURE	SOUND LEVEL
8 hours	90 decibels
6 hours	92 decibels
4 hours	95 decibels
3 hours	97 decibels
2 hours	100 decibels
1.5 hours	102 decibels
1 hour	105 decibels
30 minutes	110 decibels
15 minutes	115 decibels

Methods of Control

All monitoring results shall be reviewed by the site safety representative. Upon receiving results that indicate noise levels to be above the action level, the site safety representative shall determine which of the following control methods shall be utilized to reduce or eliminate the hazard:

- Greg Griffin shall first determine if any means of engineering the problem out are possible. Some of these means may include such things as eliminating the job all together, shortening the length of the job, or installing barriers to reduce noise levels
- If engineering controls are not feasible, then administrative controls shall be taken into consideration. This type of control would include such activity as using job rotation
- Only when it is not feasible for management to implement a type of engineering or administrative control will PPE be used as the primary control method

AUDIOMETRIC TESTING

Greg Griffin will maintain an audiometric testing program by making audiometric testing available to all employees whose exposures equal or exceed an 8-hr. time-weighted avg. 85 decibels. The program is provided at no cost to employees.

Within 6 months of an employee's first exposure at or above the action level, GTG Automation, Inc. shall establish a valid baseline audiogram against which future audiograms can be compared. When a mobile van is used, the baseline shall be established within 1 year.

Testing to establish a baseline audiogram will be preceded by at least 14 hours without exposure to workplace noise. Hearing protection may be used to meet the requirement. Employees will also be notified to avoid high levels of noise.

At least annually after obtaining the baseline audiogram, Greg Griffin will obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee shall be informed of this fact in writing, within 21 days of the determination.

If a standard threshold shift occurs, use of hearing protection shall be re-evaluated and/or refitted and if necessary, a medical evaluation may be required. The following procedures will be implemented:

- Employees not using hearing protectors will be fitted with hearing protectors, trained in their use and care, and required to use them
- Employees already using hearing protectors will be refitted and retrained in the use of hearing protectors and provided with hearing protectors offering greater attenuation if necessary
- Employees will be referred for a clinical audiological evaluation or an ontological examination, as appropriate, if additional testing is necessary or if it is suspected that a medical pathology of the ear is caused or aggravated by the wearing of hearing protectors
- Employees will be informed of the need for an ontological examination if a medical pathology of the ear that is unrelated to the use of hearing protectors is suspected

- Audiometric evaluation and testing conducted by a licensed physician using the guidelines contained in §1910.95 (g) and is available to all employees whose work requirements equals or exceeds an 8 hr. time-weighted average 85 decibels on a regular basis at no cost to the employee.
- Proctored hearing protector attenuation will be evaluated for the specific noise environments in which the protector will be used. The methods used for measuring attenuation will be one of the four methods described in CCR Title 8, Section 5098, Appendix E
- Hearing protectors must attenuate the noise level to an 8-hour TWA of 90 dBA or less
- For employees who have experienced a standard threshold shift, the attenuation must reduce the sound level to an 8-hour TWA of 85 dBA or less
- Re-evaluation of hearing protectors will be done whenever a workplace noise level increase renders the hearing protector's attenuation inadequate
- Workplaces in which the noise level exceeds 85 dBA will have signs posted. Signs will read "Hearing Protectors Required"

Hearing protection is available at no cost to all employees upon request from the jobsite foreman or company office.

RECORDKEEPING

GTG Automation, Inc. will keep all records collected by this policy, and specifically maintain noise exposure measurement records for at least two years and audiometric test records for the entire length of each employee's employment.

These records will also be transferred to any successor employer if GTG Automation, Inc. ceases to do business

[illegible]

POLICY

GTG Automation, Inc. has adopted this policy to inform employees of the written Pandemic Preparedness Policy. This ensures the safety and health of the employees.

GTG Automation, Inc. will provide and encourage the use of the following items to prevent the spread of disease in the workplace: handwashing facilities, hand sanitizers, tissues, no touch trash cans, hand soap, and disposable towels.

EMPLOYER RESPONSIBILITIES

Greg Griffin is responsible for developing a worksite specific pandemic disease plan and coordinating with the workplace which includes contacting local health department and health care providers in advance and developing and implementing protocols for response to ill individuals.

HAZARDS

- Increased risk of infectious pathogens “spilling over” from animals to humans
- Development of antimicrobial resistance
- Spread of infectious diseases through global travel and trade
- Acts of bioterrorism
- Weak public health infrastructures
- Illness and Death

PROCEDURES (SAFE WORK PRACTICES)

Work at Home and Stay at Home

GTG Automation, Inc. will develop flexible work policies.

All workers are encouraged to stay at home when ill, when having to care for ill family members, or when caring for children when schools close, without fear of reprisal.

Tele-commuting and other work at home strategies will be developed based on an individual basis.

Business Continuity Plans

In the event that a large percentage of personnel become ill, GTG Automation, Inc. will develop a strategy for continuation of work operations.

Business continuity plans will be prepared so that if significant absenteeism or changes in business practices are required, business operations can be effectively maintained.

Immunizations

GTG Automation, Inc. encourages all employees to obtain appropriate immunizations to help avoid disease. Granting time off work to obtain the vaccine will be considered when vaccines become available in the community.

Internal Communication Procedures

To ensure proper internal communication GTG Automation, Inc. will develop the following:

- Key contacts
- A chain of communications
- Contact numbers for employees
- Processes for tracking business
- Employee status

External Customer Communications

To ensure effective external/customer communications GTG Automation, Inc. has developed a procedure to notify key contacts including both customers and suppliers in the event an outbreak has impacted the company's ability to perform services. The procedure will include notification to customer and suppliers when operations resume.

Social Distancing

In the event that an outbreak or increased level of disease is in progress it is the determination of GTG Automation, Inc. to limit large or crowded gatherings of personnel.

Social Distancing including the space between employee work areas and decreasing the possibility of contact will be considered.

Routine Cleaning

It is the policy of GTG Automation, Inc. to do periodic routine cleaning.

All areas that are likely to have frequent hand contact are cleaned routinely and when visibly soiled. Work surfaces are also cleaned frequently using normal cleaning products. Examples of areas to be cleaned are desktops, keyboards, lunch tables, doorknobs, faucets, handrails water fountain, etc.

Ways to plan, emergency communication test and lessons learned like the following:

The Plan and Emergency Communications strategies shall be tested in some manner (for example a Tabletop Exercise) periodically, for example annually to ensure that they are effective. Following a pandemic event, the person responsible for implementation of the plan should identify learning opportunities and take action to implement any corrective actions based on the lessons learned.

TRAINING

GTG Automation, Inc. will provide periodic training on illness prevention, how to avoid the spread of disease, and company policies concerning illness. Employees will be trained on the following: health issues; initial disease symptoms; preventing the spread of the disease; and when it's appropriate to return to work.

Communicating information with non-English speaking employees or those with disabilities must be considered.

[illegible]

POLICY

GTG Automation, Inc. has implemented this safety program to ensure the protection of personnel from hazards on the job which may be safeguarded against by the proper use of Personal Protective Equipment (PPE).

Greg Griffin is the supervisor responsible for ensuring the following work practices are enforced.

PPE will be provided at no cost for all work required by GTG Automation, Inc. and employees are required by company policy to use only proper company PPE at all times when required on the job or on company property. Failure to use PPE will result in disciplinary action against the violating employee.

- Greg Griffin will ensure that if employee-owned PPE is used, GTG Automation, Inc. is responsible that it will be adequate for the application, properly maintained, and kept in sanitary condition
- PPE will be issued and fitted to each affected employee individually. Employees must demonstrate proficiency in donning and doffing equipment, and proper techniques of cleaning and maintaining their respective equipment
- Defective or damaged PPE will NOT be used. Defective or damaged PPE will be immediately tagged "OUT OF SERVICE", removed from service, and replaced with serviceable equipment. PPE will be inspected by the individual employee at the beginning of each work shift
- PPE must be used, stored, and maintained in a sanitary condition. All PPE must be cleaned and/or disinfected and stored according to manufacturer's recommendations

TRAINING

Greg Griffin will ensure all employees are properly trained in the recognition and assessment of hazards, the proper selection and use of PPE required for the hazard and how to control the hazards.

PPE training will include when it is necessary; what is necessary; how to don, doff, adjust, and wear PPE; the limitations, proper care, maintenance, useful life and disposal of PPE.

Retraining of employees is required when the workplace changes, making the earlier training obsolete; the type of PPE changes; or when the employee demonstrates lack of use, improper use, or insufficient skill or understanding.

Employees will be trained on initial hiring to use, maintain, clean and disinfect, store, and service PPE properly. Employees will receive refresher training on PPE at least annually, or as work requirements, changing job assignments, changing equipment, or environment warrants it. Any employee who demonstrates a lack of knowledge or understanding of any aspect of PPE use or maintenance will be re-trained. An employee must verify his/her understanding of training content as a condition of employment.

All training will be documented and will include the employee's name, the dates of training, and the certification subject.

HAZARD ASSESSMENT

Greg Griffin will perform a hazard assessment of each jobsite prior to commencement of work to ascertain if hazards are present or likely to be encountered, what engineering controls may be implemented to minimize hazards, and what PPE is necessary for the performance of the job. The hazard assessment will include the certifier's name, signature, date(s), and identification of assessment documents. Affected employees will be notified of hazards, engineering controls needed, and PPE required.

GENERAL REQUIREMENTS

PPE devices will be relied on as the final protection against hazards, used in conjunction with guards, engineering controls, and sound manufacturing practices. It is necessary to consider certain general guidelines for assessing the foot, head, eye and face, and hand hazard situations that exist in an occupational operation or process, and to match the protective devices to the particular hazard. It is the responsibility of Greg Griffin to exercise common sense and appropriate expertise to accomplish these tasks.

After completion of a Hazard Identification and Risk Assessment, the general procedure for selection of protective equipment is to:

- Become familiar with the potential hazards and the type of protective equipment that is available, and what it can do, i.e., splash protection, impact protection, etc.
- compare the hazards associated with the environment, i.e., impact velocities, masses, projectile shape, radiation intensities, with the capabilities of the available protective equipment
- select the protective equipment which ensures a level of protection greater than the minimum required to protect employees from the hazards
- fit the user with the protective device and give instructions on care and use of the PPE. It is very important that end users be made aware of all warning labels for and limitations of their PPE

PERSONAL WORK CLOTHING

The minimum work clothing acceptable is long pants, good work shoes or boots, and a shirt that completely covers the worker's shoulders (minimum 4-inch sleeves) and provides adequate protection against such hazards as concrete splash, abrasions to the skin, oil or grease spills, and slag from welding or cutting.

Welders will be cautioned against wearing any type of highly flammable clothing, such as polyesters, double-knits, etc. Wool and specially treated cotton are two natural fibers that are fire-resistant and comfortable. Heat-resistant material, such as leather, is used to protect against dry heat, flames, and molten material. Fire-resistant clothing also protects from high workplace temperature and electrical operations.

For the most part, construction workers will wear clothing that is reasonably snug, particularly about the neck, wrists, and ankles. Employees will not wear loose clothing, rings, watches, necklaces or long hair, all of which may catch in power driven equipment.

Rubber and rubberized fabrics, neoprene, and plastics protect against some acids and chemicals. Disposable chemical suits are used to protect against dusty materials and materials that splash. For materials that have are extremely toxic, a fully encapsulated suit may be necessary.

Arc rated clothing will be worn during work activities that have been identified to present an arc flash potential. The clothing will be rated for the arc flash potential of the task. Such clothing may include long sleeved FR shirts, FR pants, face shield, and appropriate class rubber gloves. The employee will not wear synthetic fiber clothing under Fire Resistant clothing. Refer to the Electrical Safety and Arc Flash policy for clothing required for arc flash potential posed by the task and equipment.

EYE AND FACE PROTECTION

To prevent possible eye and face injuries suitable eye protection will be worn. Potential eye and face injuries occur from flying objects, liquid chemicals, acids or caustic liquids, molten metal, chemical gases or vapors, and light radiation. Eye protection will provide adequate protection, be reasonably comfortable, fit snugly, be durable, capable of being disinfected and cleaned, kept sanitary and in good repair. When selecting eye and face protection consider what kind and degree of hazard is present.

Eye or face protection will comply with American National Standards Institute (ANSI) Z87.1. If you have questions about eye or face protection, ask your supervisor or refer to the manufacture instructions.

FOOT & LEG PROTECTION

Most foot injuries occur from employees not wearing protective footwear. The typical foot injury is caused from objects falling fewer than 4 feet. For protection from falling or rolling objects, sharp objects, molten metal, hot surfaces, and slippery surfaces, employees will use appropriate foot guards, steel toe safety shoes, steel toe safety boots, metatarsal guards and leggings. Leggings protect the lower leg and feet from molten metal and welding sparks.

Leather work shoes/boots are required, and safety shoes are recommended for use by all employees. Safety shoes will be sturdy, have an impact resistant toe, and have puncture resistant soles. Protective footwear will comply with ANSI Z41.

When working with wet concrete, workers will wear rubber boots.

Shoes and boots will be kept in good repair, and those with worn heels of thin or worn soles will not be permitted. In addition, the wearing of sneakers, sandals, or shoes that have been slit or have holes cut in them, will not be permitted.

HAND & ARM PROTECTION

Arm and hand protection are used to prevent skin contact and absorption with potentially harmful materials, to prevent burns, and electrical shock. Where needed, workers will wear work gloves in good condition, which are suited to the type of work involved. Some of the factors considered when gloves were selected are the toxic properties of chemicals handled by employees, the degree of dexterity required, duration, frequency, degree of exposure to the hazards, and physical stress that will be applied. The company relies on the manufacturers' standard test procedures for hand and arm protection performance characteristics.

Employees who are required to operate or work around drill presses, power saws, and similar rotating machinery will not wear gloves.

Special type gloves such as neoprene or rubber to handle chemicals will be issued to those employees who have a need for them. Welders will wear gloves during settling operations.

HEAD PROTECTION (HARD HATS)

Employees will wear protective helmets when working in areas where there is a potential for injury to the head from falling objects. Protective helmets designed to reduce electrical shock hazard will be worn by each such affected employee when near exposed electrical conductors which could contact the head.

All employees that wear company issued hard hats will wear them at all times when working on construction projects or areas of an existing facility, which has been designated as a "Hard Hat Area." This includes visitors, subcontractors, engineers, inspectors, and anyone else who has authorization to be on the project site.

Head protection will be worn properly with the *brim in front*. Hard hats which have been altered by drilling or cutting will not be permitted, nor will those hat which have been altered by the addition of any items on the outside of the hat other than safety, or site stickers. When it is necessary to use additional personal protective equipment, which will be attached to the hard hat, only those hard hats designed for this purpose may be used.

Protective hard hats will meet ANSI requirements Personal Protection-Protective Headgear for Industrial Workers Z89.1. Electrical workers will wear hard hats that are rated for the voltage of the equipment where work is being performed.

RESPIRATORY PROTECTION

Company issued respiratory protective devices, appropriate for the hazard, will be used where airborne contaminants, such as fibers, dust, smoke, vapors, and mists exist and may exceed acceptable levels. Respiratory protective devices will be used in accordance with NIOSH requirements.

HEARING PROTECTION

Hearing protection will be worn in areas that exceed 85 dBA. Refer to 28, Occupational Noise Exposure Program.

FULL BODY HARNESS AND LANYARDS

Harnesses with lanyards in use, will be worn by all employees who are working at elevated levels which are not protected by standard handrails, or when working from suspended scaffolds. Employees are required to wear and use full body harnesses to protect them from falling when they are exposed to falls from heights of six feet or more. If they are working on powered platforms or over machinery, moving equipment or objects posing an impalement hazard, or in the case of entering a confined space, with an attended lifeline, 100% full protection is required. This might include the need for two lanyards per belt. All harnesses and lanyards will be inspected, and each inspection documented with the harness serial number. Inspections will be performed by supervision. Quick release belts will only be used when working over bodies of water. Lanyards will have locking snaps that require two actions to open. Refer to the Fall Protection Program for complete requirements.

FLOTATION VESTS

US Coast Guard approved flotation vests will be worn by all employees when working on barges, floating pipelines or plants, or on structures extending over water, that are not protected by adequate standard handrails. In addition, any employee who is working over the side of a vessel or structure, which is extended over water, or, in any area where a drowning hazard exists, will wear an approved flotation vest.

TRAFFIC VESTS

Employees will wear, as a minimum, an ANSI Class II fluorescent orange or lime traffic safety vest when working within 15 feet of a roadway or in a parking lot. Vests will also be used when directing traffic on a construction site.

ELECTRICAL PROTECTION

- Employees working in areas where there are potential electrical hazards will be provided with, and use, electrical protective equipment that is appropriate for the specific parts of the body to be protected and for the work to be performed.
- Equipment will be maintained in a safe, reliable condition and will be periodically inspected and/or tested. If the insulating capability of protective equipment may be subject to damage during use, the insulating material shall be protected. (For example: An outer covering of leather used for the protection of rubber insulating material.)
- Employees will wear nonconductive head protection wherever there is a danger of head injury from electric shock or burns due to contact with exposed energized parts.
- Employees will wear protective equipment for the eyes or face wherever there is danger of injury to the eyes or face from electric arcs or flashes or from flying objects resulting from electrical explosion.
- Each employee will use insulated tools or handling equipment if they might contact conductors or parts. If the insulating capability of insulated tools or handling equipment is subject to damage, the insulating material must be protected. Ropes and handlines used near exposed energized parts must be nonconductive.
- Protective shields, protective barriers, or insulating materials will be used to protect each employee from shock, burns, or other electrically related injuries while that employee is working near exposed energized parts.

When normally enclosed live parts are exposed for maintenance or repair, they must be guarded to protect unqualified persons from contact with the live parts. Greg Griffin utilizes alerting techniques used to warn and protect employees from hazards which could cause injury due to electric shock, burns or failure of electric equipment parts. (Alerting techniques can take the form of safety signs and tags, barricades & attendants.)

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy to prevent or minimize the consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals, and to ensure no employee is exposed to toxic or hazardous material at levels above the permissible exposure limits.

REFERENCES

- §1910.119 – Process Safety Management of Highly Hazardous Chemicals
- §1910.1200 – Hazard Communication Standard

RESPONSIBILITIES

Employer Responsibilities

- Developing a written plan of action to implement employee participation required by PSM
- Consulting with employees and their representatives on the conduct and development of the process hazard analysis (PHA) and on the development of the other elements of process management
- Training each employee presently involved in operating a process or a newly assigned process in an overview of the process and in its operating procedures
- Responding quickly to eliminate workplace hazards
- Ensuring all equipment is kept in good repair
- Ensuring employees follow safe job procedures
- Reviewing process hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness
- Teach employees about the hazards of their jobs, specifically any: potential fire, explosions, or toxic release

Safety Committee Responsibilities

- Assist in process hazard analyses as necessary
- Assist in training employees to recognize and control workplace hazards
- Monitor the workplace for hazards
- Encourage employees to report hazards
- Implement appropriate controls
- Ensure corrective action is taken promptly

Employee Responsibilities

- Assist in process hazard analyses
- Follow safe job procedures
- Report hazards to a supervisor immediately

TRAINING

Employees will be told that the purpose of PSM is to prevent or minimize consequences of catastrophic releases of toxic, reactive, flammable, or explosive chemicals in various industries such as refineries, etc. Each employee will be trained in the overview of the process and its operating procedures for every process they are involved in or newly assigned to. The training will emphasize the process's specific safety and health hazards, emergency operations, shutdown, and other applicable safe work practices.

GTG Automation, Inc. will document the identity of the employee (permanent or contract), the date of training, and the means used to verify that the employee understood the training.

Hazard communication will cover known workplace hazards, including how to avoid and abate them. GTG Automation, Inc. employees are required to abide by all company safety policies, procedures, and their supervisor's instruction. Contract employees must be advised of all hazards to which they may be exposed in the workplace.

PROCEDURES

Process safety information

Greg Griffin will compile all written process safety information before conducting any PHA. The compilation will be completed under the same schedule required for the PHA. The PHA will include information on: the hazards of the chemicals used or produced by the process; the technology of the process; the equipment in the process.

Safety Data Sheets (SDS) meeting the Hazard Communication Standard requirements may be used to comply with information on the hazards requirement to the extent they contain the required information.

Process hazard analysis

Prior to starting work, Greg Griffin will perform a job hazard assessment (PHA) of the worksite. Immediately upon completion of the hazard assessment, Greg Griffin will make their customer, employer, or owner of the host facility / jobsite aware of any hazards identified and unique hazards presented by work being performed by GTG Automation, Inc..

The PHA will focus on equipment, instrumentation, utilities, human actions (routine and non-routine), and external factors that might impact the process. The PHA team will determine and document the priority order for conducting PHAs that includes such considerations as the extent of the process hazards, the number of potentially affected employees, the age of the process, and the operating history of the process.

Standard operating practices (SOPs)

Operating procedures describe tasks to be performed, data to be recorded, operating conditions to be maintained, samples to be collected, and safety and health precautions to be taken. The procedures will be accurate, understandable to employees, and revised periodically to ensure that they reflect current operations. Greg Griffin will use the process safety information package as a resource to better ensure that the operating procedures and practices are consistent with the known hazards of the chemicals in the process and that the operating parameters are accurate.

SOPs will be written so that an experienced operator not familiar with a particular process unit could run the unit with minimal supervision or help from other operators, or the least experienced operator released for unsupervised work could run the unit.

GTG Automation, Inc. employees will abide by employers safety work practices during operations such as lockout/tagout, confined space entry, opening process equipment or piping and controls over entrance to facility.

Pre-start-up safety review

The initial start-up procedures and normal operating procedures need to be fully evaluated by Greg Griffin and the work team as part of the pre-start-up review to ensure a safe transfer into the normal operating mode for meeting the process parameters. Piping and instrument diagrams (P&IDs) are to be completed along with having the operating procedures in place and the operating staff trained to run the process before start-up. Any incident investigation recommendations, compliance audits, or PHA recommendations need to be reviewed as well to see what impacts they may have on the process before beginning the start-up.

Mechanical integrity program

Greg Griffin will establish and implement written procedures to maintain the ongoing integrity of process equipment. Elements of a mechanical integrity program include the identification and categorization of equipment and instrumentation, inspections and tests, testing and inspection frequencies, development of maintenance procedures, training of maintenance personnel, the establishment of criteria for acceptable test results, documentation of test and inspection results, and documentation of manufacturer recommendations as to meantime to failure for equipment and instrumentation.

Hot work permit

A permit must be issued by Greg Griffin for hot work operations conducted on or near a covered process. Contractors shall not perform hot work until a hot work permit is obtained from the hiring client. The permit must document that the fire prevention and protection rules for welding, cutting, and brazing have been implemented before beginning. It must also indicate the authorized dates and identify the object to be worked on. The permit will be kept on file until completion of the hot work operations.

Management of change

Greg Griffin will prepare written procedures to manage changes (except for “replacements in kind”) to process chemicals, technology, equipment, operating procedures, and facilities that affect a covered process. Changes in documents, such as P&IDs, raw materials, operating procedures, mechanical integrity programs, electrical classifications, etc., need to be noted so that these revisions can be changes need to be kept in an accessible location to ensure that design changes are available to operating made permanent when the drawings and procedure manuals are updated. Copies of process personnel as well as to PHA team members when a PHA is being done or one is being updated.

Employees involved in operating a process and maintenance whose job tasks will be affected by a change in the process shall be informed of, and trained in, the change prior to start-up of the process or affected part of the process.

The following items will be included in the management of change proposal:

- Technical basis for the change
- Impact of the change on health and safety
- Modifications to operating procedures
- Necessary time period for the change
- Authorization requirements for the proposed change

Incident investigation

Incident investigation is the process of identifying the underlying causes of incidents and implementing steps to prevent similar events from occurring. The intent of an incident investigation is for employers to learn from past experiences and thus avoid repeating past mistakes. The incidents for which OSHA expects employers to become aware and to investigate are the types of that result in or could reasonably have resulted in a catastrophic release. Some of the events are sometimes referred to as “near misses,” meaning that a §1910.119 – consequence did not occur but could have.

Incidents which have resulted in or could reasonably have resulted in a catastrophic release of highly hazardous chemical in the workplace shall be investigated within 48 hours of the incident.

All workers are required to report incidents and near misses to their supervisors. All incidents and near misses will also be immediately reported to the host employer.

A report will be prepared at the conclusion of the investigation. The employer will establish a system to promptly address and resolve the incident report findings and recommendations. The report will be reviewed with all affected personnel and retained for five years.

Emergency planning and response

Address what actions employees are to take when there is an unwanted release of highly hazardous chemicals. Greg Griffin will select how many different emergency preparedness procedures or lines of defense are needed and then develop the necessary plans and procedures, appropriately train employees in their emergency duties and responsibilities, and then implement these lines of defense.

COMPLIANCE AUDIT

Greg Griffin or an assembled trained team of people will audit the PSM system and program. A small process or plant may need only one knowledgeable person to conduct an audit. The audit is to include an evaluation of the design and effectiveness of the PSM system and a field inspection of the safety and health conditions and practices to verify that the employer's systems are effectively implemented. The audit will be conducted or lead by a person knowledgeable in audit techniques and impartial toward the facility or area being audited. The essential elements of an audit program include planning, staffing, conducting the audit, evaluation and corrective action, follow-up, and documentation.

TRADE SECRETS

GTG Automation, Inc. employees are instructed in the confidentiality of trade secret information, and the disciplinary action which will be a consequence of violation of confidentiality.

CONTRACTORS

When GTG Automation, Inc. is the contractor:

- GTG Automation, Inc. employees will abide by employers safety work practices during operations such as lockout/tagout, confined space entry, opening process equipment or piping and controls over entrance to facility.
- GTG Automation, Inc. employees will not perform hot work until a hot work permit is obtained from GTG Automation, Inc.'s employer and/or the owner of the host facility / jobsite. The permit will document that provisions of §1910.252(a) have been met.
- GTG Automation, Inc. will respect the confidentiality of trade secret information when the process safety information is released to them.
- GTG Automation, Inc. will tell the employer of any hazards it found or created in the course of the work.

GTG Automation, Inc. will develop a written procedure for managing contractors that perform maintenance or repair, turnaround, major renovation, or specialty work on or adjacent to a covered process. Such procedures will not apply to contractors providing incidental services that do not influence process safety, such as janitorial, food and drink, laundry, delivery, or other supply services. Ensure that each contract employee is trained in the work practices necessary to safely perform his or her job

Greg Griffin will ensure each contract employee is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the process and the applicable provisions of the Emergency Action Plan.

[illegible]

POLICY

GTG Automation, Inc. has implemented this policy to ensure that no employee is exposed to airborne hazards in the workplace exceeding Permissible Exposure Limits (PEL), or oxygen deficient atmospheres. GTG Automation, Inc. will provide respirators which are applicable and suitable for the purpose intended when such equipment is necessary to protect the health of our employees. Specifically when workers may be exposed to harmful vapors and oxygen deficient atmospheres. This Respiratory Protection Program provides training, medical evaluations, and respirators at no cost to our employees.

Greg Griffin is the supervisor responsible for ensuring the following training, administrative controls, engineering controls, and safe work practices are enforced:

Greg Griffin is responsible for administering the Respiratory Protection Program its recordkeeping and periodic evaluation. The evaluation will be based on results of the air quality monitoring program, medical evaluations, changing work environment, equipment changes, work requirements, and employee responses. Respiratory equipment will be National Institute of Occupational Safety and Health (NIOSH) certified only, and selection will be made by As designated by Company Officials, based on identified and potential hazards, estimated exposures, and contamination information.

In any workplace where respirators are necessary to protect the health of our employees, GTG Automation, Inc. has established and implemented this written Respiratory Protection Program with worksite-specific procedures. This program will be updated as necessary to reflect any changes in workplace conditions that affect respirator use.

The Respiratory Protection Program includes the following elements:

- Procedures for selecting respirators for use in the workplace
- Medical evaluations of employees required to use respirators
- Fit testing procedures for tight-fitting respirators
- Procedures for proper use of respirators in routine and reasonably foreseeable emergency situations
- Procedures and schedules for cleaning, disinfecting, storing, inspecting, repairing, discarding, and otherwise maintaining respirators
- Procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators
- Training of employees in the respiratory hazards to which they are potentially exposed during routine and emergency situations
- Training of employees in the proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance
- Procedures for regularly evaluating the effectiveness of the program

TRAINING

Greg Griffin will ensure that effective training is initially provided to all employees who are required to use respirators. The training will be comprehensive, conducted in a manner that is understandable to our employees, and recur annually or more often if necessary. Before being allowed or required to wear breathing protection, each of our employees will be able to demonstrate knowledge of at least the following:

- Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator
- What the limitations and capabilities of the respirator are
- How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions
- How to inspect, put on and remove, use, and check the seals of the respirator
- Procedures for cleaning, maintenance, and storage of respirators
- How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators
- The general requirements of §1910.134 – Respiratory Protection

Retraining will be administered annually or when the following situations occur:

- Changes in the workplace or the type of respirator render previous training obsolete
- Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill
- Any other situation arises in which retraining appears necessary to ensure safe respirator use

GTG Automation, Inc. allows employees to wear respirators on a voluntary basis when not required by OSHA. When a filtering face piece respirator is all that is used, the employee must be provided a copy of Appendix D. A filtering facepiece respirator is defined in 29 CFR 1910.134(b) as “a negative pressure particulate respirator with a filter as an integral part of the facepiece or with the entire facepiece composed of the filtering medium. For all other voluntary users, the respiratory protection program that covers medical fitness and proper maintenance procedures will be implemented.

EVALUATION AND MONITORING

Workplace evaluations will be conducted as necessary to ensure that the provisions of the current Respiratory Protection Program are being effectively carried out and that it continues to be effective.

Employees required to use respirators will be regularly consulted to assess their views on program effectiveness and to identify any problems. Any problems that are identified during this assessment will be corrected. Factors to be assessed include, but are not limited to:

- Respirator fit, including the ability to use the respirator without interfering with effective workplace performance
- Appropriate respirator selection for the hazards to which the employee is exposed
- Proper respirator use under the workplace conditions the employee encounters
- Proper respirator maintenance

Greg Griffin will ensure that all filters, cartridges and canisters used in the workplace are labeled and color coded with the NIOSH approval label and that the label remains legible and is not removed.

Proper respiratory equipment, replacement elements, and any parts or equipment necessary for the proper functioning of the respiratory equipment will be available to employees at no cost.

RESPIRATOR SELECTION, CARE AND MAINTENANCE

All respiratory protection equipment will be maintained, cleaned, stored, and serviced per manufacturer's recommendations. Job foremen will supervise and ensure proper methods are used.

Respirator selection will be based on the hazards that the worker is exposed. Only NIOSH-certified respirators will be provided. Hazard evaluation is based on the estimate of exposures, type of contaminant, physical form, and chemical state. For no exposure estimate or data, the exposures will be addressed as immediately Dangerous to Life and Health (IDLH) and NIOSH-approved respirators for full-faced, pressure demand 30 minute SCBA, or SAR with auxiliary air supply will be provided. Respirator brands and models will be listed below.

Respirator Models and Brand used by this Company		
Brand	Model	I.D. Number

GTG Automation, Inc. will provide each respirator user with a respirator that is clean, sanitary, and in good working order. Greg Griffin will ensure that respirators are cleaned and disinfected using the procedures in Appendix B-2 of §1910.134, or procedures recommended by the respirator manufacturer, provided that such procedures are of equivalent effectiveness. The respirators will be cleaned and disinfected at the following intervals:

- Respirators issued for the exclusive use of an employee will be cleaned and disinfected as often as necessary to be maintained in a sanitary condition
- Respirators issued to more than one employee will be cleaned and disinfected before being worn by different individuals
- Respirators maintained for emergency use will be cleaned and disinfected after each use
- Respirators used in fit testing and training will be cleaned and disinfected after each use

Greg Griffin will ensure that respirators are stored as follows:

- All respirators will be stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they will be packed or stored to prevent deformation of the facepiece and exhalation valve
- In addition to the above requirements, emergency respirators will be: kept accessible to the work area and stored in compartments or covers that are clearly marked as emergency respirators

Stored in accordance with any applicable manufacturer instructions.

Greg Griffin will ensure respirators are inspected as follows:

- All respirators used in routine situations will be inspected before each use and during cleaning
- All respirators maintained for use in emergency situations will be inspected at least monthly and in accordance with the manufacturer's recommendations, and will be checked for proper function before and after each use
- Emergency escape-only respirators will be inspected before being carried into the workplace for use

Greg Griffin will ensure respirator inspections include the following:

- A check of respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the facepiece, head straps, valves, connecting tube, and cartridges, canisters or filters
- A check of elastomeric parts for pliability and signs of deterioration

In addition to the requirements above, self-contained breathing apparatus will be inspected monthly. Air and oxygen cylinders will be maintained in a fully charged state and will be recharged when the pressure falls to 90% of the manufacturer's recommended pressure level. Greg Griffin will determine that the regulator and warning devices function properly.

For respirators maintained for emergency use, Greg Griffin will:

- Certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator
- Provide this information on a tag or label that is attached to the storage compartment for the respirator, is kept with the respirator, or is included in inspection reports stored as paper or electronic files. This information will be maintained until replaced following a subsequent certification

Greg Griffin will ensure that respirators that fail an inspection, or are otherwise found to be defective, are removed from service and are discarded, repaired, or adjusted in accordance with the following procedures:

- Repairs or adjustments to respirators will be made only by persons appropriately trained to perform such operations and will use only the respirator manufacturer's NIOSH-approved parts designed for the respirator
- Repairs will be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed
- Reducing and admission valves, regulators, and alarms will be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer

MEDICAL EVALUATION AND FIT TESTING

A medical examination for employees required to use respiratory equipment is required before use of the equipment, and will be provided at no cost to the employee. The medical questionnaire provided in Appendix C is mandatory for employees required to use respiratory protection.

GTG Automation, Inc. will provide a medical evaluation to determine the employee's ability to use a respirator, before the employee is fit tested or required to use the respirator in the workplace. GTG Automation, Inc. may discontinue an employee's medical evaluations when the employee is no longer required to use a respirator.

Periodic monitoring of the air quality in work areas will be performed to determine if, or where respiratory equipment will be required.

Greg Griffin will maintain appropriate surveillance, and ensure employees leave the area to wash, change cartridges, or if they detect break-through or resistance.

Medical evaluation procedures will include:

GTG Automation, Inc. will identify a physician or other licensed health care professional (PLHCP) to perform medical evaluations using a medical questionnaire or an initial medical examination that obtains the same information as the medical questionnaire.

The medical evaluation will obtain the information requested by the questionnaire in Sections 1 and 2, Part A of Appendix C of §1910.134.

Follow-up medical examination

GTG Automation, Inc. will ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C or whose initial medical examination demonstrates the need for a follow-up medical examination

The follow-up medical examination will include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

Administration of the medical questionnaire and examinations will include:

- The medical questionnaire and examinations will be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire will be administered in a manner that ensures that the employee understands its content
- GTG Automation, Inc. will provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP

The following supplemental information will be provided to the PLHCP before the PLHCP makes a recommendation concerning an employee's ability to use a respirator:

- The type and weight of the respirator to be used by the employee
- The duration and frequency of respirator use (including use for rescue and escape)
- The expected physical work effort
- Additional protective clothing and equipment to be worn
- Temperature and humidity extremes that may be encountered

GTG Automation, Inc. will provide the PLHCP with a copy of the written respiratory protection program and a copy of §1910.134.

Fit Testing

Fit testing of the equipment to individual employees will follow OSHA guidelines listed in §1910.134 (f)(1-8) and is required before use of the equipment.

GTG Automation, Inc. will ensure employees pass OSHA-accepted qualitative fit test (QLFT) or quantitative fit test (QNFT) of tight-fitting facepieces before initial use, if a different respirator is used, and annually. SARs are required to be fit tested as well. (Refer to the Appendices).

Facial hair, glasses, etc. which might affect the seal of the respirator facepiece are prohibited, and seal will be checked each time equipment is donned.

If employees are required to work in Immediately Dangerous to Life or Health (IDLH) atmospheres, the following procedures and controls will be in place:

- At least one employee is located outside the IDLH atmosphere
- Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere
- The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue
- Greg Griffin is notified before personnel enter the IDLH atmosphere, or before employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue
- Employee(s) located outside the IDLH atmospheres will be equipped with:
 - Pressure demand or other positive pressure SCBA
 - Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres

SAR and SCBA equipment will only be filled by certified refilling facilities using grade D or better air. Oxygen will not be used in compressed air units and all cylinders will meet DOT requirements. Compressor will be located in a "clean" atmosphere, with in-line purification, and tagged to indicate date of change-out. A carbon monoxide monitor will be in place and set to alarm at 10 PPM or monitored frequently. All line fittings will be incompatible for non-respirable gases and containers.

Where possible, ventilation will be required for all enclosed work areas to ensure that airborne hazards do not exceed permissible limits. The least hazardous or toxic materials which will allow the job required to be accomplished will be used in the performance of work.

GTG Automation, Inc. will maintain written records and information regarding medical evaluations, fit testing, and the Respiratory Protection Program. These records will promote employee involvement in the respirator program, assist in auditing the adequacy of the program, and provide a record for OSHA compliance. Records will be retained at the main office and be made available upon request to affected employees and to OSHA. Written records include the following:

- Required medical evaluations will be retained and made available in accordance with §1910.1020
- Qualitative and quantitative fit tests administered to an employee including: the name or identification of the employee tested; type of fit test performed; specific make, model, style, and size of respirator tested; date of test.
- The pass/fail results for qualitative fit tests or the fit factor and strip chart recording or other recording of the test results for quantitative fit tests
- Fit test records will be retained for respirator users until the next fit test is administered

RESPIRATORY PROTECTION PROGRAM**EMPLOYEE ACKNOWLEDGMENT**

By my signature below, I acknowledge that I have received instruction and have read the GTG Automation, Inc. Respiratory Protection Program. I have been given the opportunity to ask questions and have received answers, instruction, and clarification to my questions. I understand the contents of and agree to follow GTG Automation, Inc. company policy regarding this Respiratory Protection Program.

Respiratory Protection Program received on (Date)			
Employee Name (Print)			
Employee Signature		Date	
Employee Social Security Number (Print)			
Trainer Name (Print)			
Trainer Signature		Date	

cc: Employee file

INFORMATION FOR EMPLOYEES USING RESPIRATORS

When Not Required Under 29 CFR 1910.134		
To the employer: The statement below must be read by all employees using respirators not required under the Respiratory Protection Standard		
To the employee: Can you read? Yes ☐ No ☐		
Your employer is required to have you read the statement below if you are using respirators not required under the Respiratory Protection Regulation. Ensure you keep a copy of this form for your personal records.		
EMPLOYEE INFORMATION		
Employee Name:	Work Location:	
Facility:	ID/Clock Number:	
Job Title:	Dept./Phone:	
CERTIFICATION: I certify that I have read and understand the below Respiratory Protection Statement as required by the Occupational Safety and Health Administration (OSHA).		
Employee Signature:		Date:
OSHA RESPIRATORY PROTECTION STATEMENT		
To The Respirator User: Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.		
You Should Do The Following: 1. Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirators limitations. 2. Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you. 3. Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.		
Keep track of your respirator so that you do not mistakenly use someone else's respirator.		
FORM RETENTION INFORMATION		ATTACHMENTS
Retention File:	Location:	*Yes ☐ No ☐
Date Filed:	Filed By:	*See Following Pages ☐

Respirator Cleaning Record

OWNER INFORMATION	
Owner's Name (if individually issued):	
Company Name:	Department:
Employee ID # (if applicable):	Work Phone:
RESPIRATOR INFORMATION	
Type of Respirator:	
Manufacturer:	Model #:
Size #:	Respirator ID #:
Date of Inspection:	Time:
CLEANING REQUIREMENTS FOR TIGHT FITTING RESPIRATORS	
Estimated Frequency (Check all that apply): ☐ Hourly ☐ Twice each Shift ☐ Daily ☐ Weekly ☐ Monthly ☐ Before Use ☐ After Use	
COMPONENT	CLEANING REQUIREMENTS
Cartridge Holder:	
Cartridge Threads/Fittings:	
Cartridge/Canister:	
Cartridge Filter:	
Connections:	
Elastomeric Parts Deteriorating?:	
Elastomeric Parts Pliable?:	
Exhalation Valve Assembly:	
Facepiece:	
Gaskets:	
Harness Assembly:	
Headbands:	
Hose Assembly:	
Inhalation Valve:	
Nose Cup Valves:	
Speaking Diaphragm:	
Respirator Cleaning Procedures (Mandatory) These procedures are provided for employee use when cleaning respirators. They are general in nature, and the employee as an alternative may use the cleaning recommendations provided by the manufacturer of the respirators, provided such procedures are as effective as those listed in 29 CFR 1910.134 Appendix B-2. Equivalent effectiveness simply means that the procedures used must accomplish the objectives set forth below. Procedures for Cleaning Respirators: A. Remove filters, cartridges, or canisters. Disassemble facepieces by removing speaking diaphragms, demand and pressure - demand valve assemblies, hoses, or any components recommended by the manufacturer. Discard or repair any defective parts. B. Wash components in warm (110 deg. F maximum) water with a mild detergent or with a cleaner recommended by the manufacturer. A stiff bristle (not wire) brush may be used to facilitate the removal of dirt. C. Rinse components thoroughly in clean, warm (110 deg. F maximum), preferably running water. Drain. D. When the cleaner used does not contain a disinfecting agent, respirator components should be immersed for two minutes in one of the following: 1. Hypochlorite solution (50 ppm of chlorine) made by adding approximately one milliliter of laundry bleach to one liter of water at 110 deg. F. 2. Aqueous solution of iodine (50 ppm iodine) made by adding approximately 0.8 milliliters of tincture of iodine (6-8 grams ammonium and/or potassium iodide/100 cc of 45% alcohol) to one liter of water at 110 deg. F. 3. Other commercially available cleansers of equivalent disinfectant quality when used as directed, if their use is recommended or approved by the respirator manufacturer. E. Rinse components thoroughly in clean, warm (110 deg. F maximum), preferably running water. Drain. The importance of thorough rinsing cannot be overemphasized. Detergents or disinfectants that dry on facepieces may result in dermatitis. In addition, some disinfectants may cause deterioration of rubber or corrosion of metal parts if not completely removed. F. Components should be hand-dried with a clean lint-free cloth or air-dried. G. Reassemble facepiece, replacing filters, cartridges, and canisters where necessary. H. Test the respirator to ensure that all components work properly.	
Inspector's Name:	Title:
Signature:	Date:
FORM RETENTION INFORMATION	ATTACHMENTS
Retention File Location:	*Yes ☐ No ☐
Date Filed Filed By:	*See Following Pages ☐

Respirator Inspection Record

OWNER INFORMATION		
Owner's Name (if individually issued):		
Company Name:	Department:	
Employee ID # (if applicable):	Work Phone:	
RESPIRATOR INFORMATION		
Type of Respirator:		
Manufacturer:	Model #:	
Size #:	Respirator ID #:	
Date of Inspection:	Time:	
INSPECTION CRITERIA		
Estimated Frequency (Check all that apply):		
☐ Hourly ☐ Twice each Shift ☐ Daily ☐ Weekly ☐ Monthly ☐ Before Use ☐ After Use		
This inspection is being conducted PRIOR to use.		Initials:
This inspection is being conducted AFTER use.		Initials:
COMPONENT:	DEFECTS FOUND:	CORRECTIVE ACTION TAKEN:
Cartridge Holder:		
Cartridge Threads/Fittings:		
Cartridge/Canister:		
Cartridge Filter:		
Connections:		
Elastomeric Parts Deteriorating?:		
Elastomeric Parts Pliable?:		
Exhalation Valve Assembly:		
Facepiece:		
Gaskets:		
Harness Assembly:		
Headbands:		
Hose Assembly:		
Inhalation Valve:		
Nose Cup Valves:		
Speaking Diaphragm:		
Other:		
Comments:		
Inspector's Name: Title:		
Signature:		Date:
FORM RETENTION INFORMATION		ATTACHMENTS
Retention File: Location:		*Yes ☐ No ☐
Date Filed: Filed By:		*See Following Pages ☐

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

This policy applies to rigging and slings used in conjunction with other material handling equipment for the movement of material by hoisting. The types of rigging and slings covered are those made from alloy steel chain, wire rope, metal mesh, natural or synthetic fiber rope, and synthetic web.

REFERENCES

- §1926.251 – Rigging Equipment for Material Handling
- §1926.1400 – Cranes and Derricks

RESPONSIBILITIES

GTG Automation, Inc. will enforce, the following work practices and procedures to assure that no employee will be exposed to hazards during rigging and hoisting operations.

Greg Griffin is the Competent Person in authority over all rigging and hoisting operations. Greg Griffin will ensure all safety measures and systems are in place, all safety procedures are adhered to, and ensure regular inspections of the operational site and rigging equipment are made.

Employees are responsible for: inspecting ropes, slings, and hoisting devices before each use and when necessary; removing damaged goods for inspection and permanent removal from service; perform pre-shift visual inspection of curves.

TRAINING

GTG Automation, Inc. will only train and utilize qualified riggers. GTG Automation, Inc.'s qualified rigger training combines classroom and exams with hands-on training. The training program will include familiarization with rigging hardware, slings and the rigging basics, along with the procedures and precautions of lifting loads and lift planning safety.

GTG Automation, Inc. employees need to demonstrate proper inspection, use, selection and maintenance of loose gear such as slings, shackles and hooks. Rigging hardware can include: sheaves and blocks; hooks and latches; rings, links and swivels; shackles; turnbuckles; spreader and equalizer beams; cable drops; pad eyes, eyebolts, and other points of attachment.

Sling training includes the sling configuration, angle, and rated load. Types of slings can include: chain, wire rope, metal mesh, natural fiber rope, synthetic fiber rope, or synthetic web.

GTG Automation, Inc. employees need to know the procedures and precautions of: load control and taglines; lift planning including load weight and center of gravity; sling inspection and criteria for rejecting damaged slings; unbinding loads; proper personnel transfer and of course sling handling and storage.

Basic rigging aspects like pinch points and body position, PPE, signals and communication and load stability are also part of the training.

DEFINITIONS

Angle of loading – is the inclination of a leg or branch of a sling measured from the horizontal or vertical plane, provided that an angle of loading of five degrees or less from the vertical may be considered a vertical angle of loading.

Basket hitch – is a sling configuration whereby the sling is passed under the load and has both ends, end attachments, eyes or handles on the hook or a single master link.

Braided wire rope – is a wire rope formed by plaiting component wire ropes.

Bridle wire rope sling – is a sling composed of multiple wire rope legs with the top ends gathered in a fitting that goes over the lifting hook.

Cable laid endless sling-mechanical joint – is a wire rope sling made endless by joining the ends of a single length of cable laid rope with one or more metallic fittings.

Cable laid grommet-hand tucked – is an endless wire rope sling made from one length of rope wrapped six times around a core formed by hand tucking the ends of the rope inside the six wraps.

Cable laid rope – wire rope with six wire ropes wrapped around a fiber or wire rope core.

Cable laid rope sling-mechanical joint – is a wire rope sling made from a cable laid rope with eyes fabricated by pressing or swaging one or more metal sleeves over the rope junction.

Choker hitch – is a sling configuration with one end of the sling passing under the load and through an end attachment, handle or eye on the other end of the sling.

Coating – is an elastomer or other suitable material applied to a sling or to a sling component to impart desirable properties.

Cross rod – is a wire used to join spirals of metal mesh to form a complete fabric.

Female handle (choker) – handle with a handle eye and a slot that permits passage of a male handle thereby allowing the use of a metal mesh sling in a choker hitch.

Handle – is a terminal fitting to which metal mesh fabric is attached.

Handle eye — is an opening in a handle of a metal mesh sling shaped to accept a hook, shackle or other lifting device.

Hitch –The sling is fastened to an object or load, either directly to it or around it.

Link — is a single ring of a chain.

Male handle (triangle) – is a handle with a handle eye.

Master coupling link – is an alloy steel welded coupling link used as an intermediate link to join alloy steel chain to master links.

Master link or gathering ring – is a forged or welded steel link used to support all members (legs) of an alloy steel chain sling or wire rope sling.

Mechanical coupling link – is a non-welded, mechanically closed steel link used to attach master links, hooks, etc., to alloy steel chain.

Proof load – is the load applied in performance of a proof test.

Proof test – is a nondestructive tension test performed by the sling manufacturer or an equivalent entity to verify construction and workmanship of a sling.

Rated capacity or working load limit – is the maximum working load permitted by the provisions of this section.

Reach – is the effective length of an alloy steel chain sling measured from the top bearing surface of the upper terminal component to the bottom bearing surface of the lower terminal component.

Spiral – a single transverse coil that is the basic element from which metal mesh is fabricated.

Strand laid endless sling-mechanical joint – is a wire rope sling made endless from one length of rope with the ends joined by one or more metallic fittings.

Strand laid grommet-hand tucked – is an endless wire rope sling made from one length of strand wrapped six times around a core formed by hand tucking the ends of the strand inside the six wraps.

Strand laid rope – is a wire rope made with strands (usually six or eight) wrapped around a fiber core, wire strand core, or independent wire rope core (IWRC).

Vertical hitch – is a method of supporting a load by a single, vertical part or leg of the sling.

TYPES OF SLINGS

- Alloy Steel Chain Slings
- Wire Rope Slings
- Metal Mesh Slings
- Natural and Synthetic Fiber Rope Slings
- Synthetic Web Slings
- Synthetic Round Slings

SAFE PRACTICES

Improper rigging of a load or a rigging failure can expose riggers and other workers nearby to a variety of potential hazards. Riggers have been injured or killed when loads have slipped from the rigging, or when the rigging has failed. Therefore all loads must be safely rigged, including adequate welds on pad eyes (page C-8) prior to a lift.

The following are topics that should be discussed with workers prior to beginning rigging operations:

- Hazards associated with rigging operations
- Role and responsibility of each rigger's assigned task
- Establishing a goal for the day
- Weight of material and equipment being hoisted
- Identifying the various shapes on the surface of equipment being hoisted
- Lifting limitations of gear and hoisting devices
- Communication used by all personnel
- Disconnecting techniques used to complete the task

NOTE: A planning meeting will be held with the operator and the other workers who will be in the area of the equipment or load to review the location of the power line(s) and the steps that will be implemented to prevent encroachment or electrocution.

Rigging Equipment

Rigging equipment will not be loaded in excess of its recommended safe working load, as prescribed for the specific equipment and load rating identification will be attached to the rigging apparatus or equipment. Employers must not use Chains, Wire ropes, Synthetic or metal Web slings, shackles or any other lifting attachments without permanently affixed and legible identification markings prescribed by the manufacturer.

- Rigging equipment, when not in use or when found to be defective, will be removed from the immediate work area so as not to present a hazard to employees
- Tag lines will be used unless their use creates an unsafe condition
- Hooks with self-closing safety latches or their equivalent will be used to prevent components from slipping out of the hook

Working under Suspended Loads

All employees shall be kept clear of loads about to be lifted and of suspended loads. Routes for suspended loads will be pre-planned to ensure that no employee is required to work directly below a suspended load except for:

- Employees engaged in the initial connection of the steel
- Employees necessary for the hooking or unhooking of the load

When working under suspended loads, the following criteria will be met:

- Materials being hoisted will be rigged to prevent unintentional displacement
- Hooks with self-closing safety latches or their equivalent will be used to prevent components from slipping out of the hook
- All loads will be rigged by a qualified rigger

General Safety Considerations

- Lifting equipment with missing or illegible labels shall be removed from service
- Wire rope U-bolt clips are the correct size and spaced properly
- Slings and other detachable rigging hardware shall be stored in an area where they will not be subjected to mechanical damage, corrosive action, moisture, extreme temperatures, sunlight (primarily synthetic materials), or kinking
- Alloy steel chain slings will have permanently affixed, durable identification stating the size, grade, rated capacity, and reach
- The use of makeshift links or other fasteners formed from bolts or rods is prohibited
- Slings must be of original length without the use of knots, bolts, or other devices to shorten them
- If a basket hitch is used, the load must be balanced to prevent slippage
- Slings will be padded or otherwise protected from sharp edges of their loads
- The repair of fiber rope slings is prohibited

[illegible]

POLICY

GTG Automation, Inc. is committed to providing a safe and hazard free workplace and has adopted this policy for Hazard Identification & Risk Assessment from industry standards and best available practices.

RESPONSIBILITIES

Greg Griffin is the assigned Company Supervisor responsible for ensuring the following procedures, practices, and rules are implemented and enforced. Greg Griffin will administrate and review regularly scheduled Job Hazard Assessments (JHA) of all jobsites and facilities for hazards on a weekly or as needed basis that will also include spot-checks and random inspections.

TRAINING

The GTG Automation, Inc. Hazard Identification & Risk Assessment Program will ensure employees will be trained in the hazard identification process, including the proper use and care of personal protective equipment (PPE). Affected employees will also be trained in the processes utilized to identify hazards and the hierarchies of controls used to control hazards, engineering, administrative, and personal protective equipment controls.

PROCEDURES

Assessment/inspections will be documented for review by the Company Safety Committee. Hazard assessments include inspection of the area as well as safe work practices. Hazard assessments will be appropriately documented using the appropriate form found at the end of this section.

Hazards shall be assessed and corrected in a timely manner.

Proper information will be collected, organized and reviewed to determine what types of hazards or potential hazards, and who may be exposed to those hazards. This information may include:

- Operating manuals for equipment and machinery
- Previous Incident Investigations or inspection reports
- Safety Data Sheets (SDS)
- Results of JHA

During the course of an inspection, when a job hazard is identified it is immediately corrected if possible. If the hazard is not immediately correctable, all appropriate personnel are notified, and the hazard is clearly identified by signs, barricades, or other warnings. Hazard/risk assessments will be done, at a minimum, prior to beginning work. In addition, a risk assessment will be conducted whenever changes occur to processes, equipment or facilities.

GTG Automation, Inc. employees and/or subcontractors are actively involved in the hazard identification process and hazards are reviewed with all employees affected by the process.

The hazard identification process is used for routine and non-routine activities as well as new process, changes in operation, products, or services as applicable.

Greg Griffin will identify risks and hazards based on hazard assessments and reports. Hazards will be addressed and mitigated. This will be accomplished by dedicated assignment, appropriate documentation of completion, and controls – including mitigations implemented during execution of work.

The GTG Automation, Inc. Safety Committee will review all Hazard Assessments in order to avoid creating new hazards derived from the corrective measures.

What is a Job Hazard?

A Job hazard is the potential for harm. In practical terms, a job hazard is often associated with a condition or activity that, if left uncontrolled, can result in an injury or illness. Identifying job hazards and eliminating or controlling them as early as possible will help prevent injuries and illnesses.

A Job Hazard Assessment/JHA (also known as a Job Safety Analysis/JSA)

A Job Hazard Assessment is a technique that focuses on job tasks as a way to identify hazards before they occur – including weather hazards and conditions. It focuses on the relationship between the worker, the task, the tools, and the work environment. Ideally, after identifying uncontrolled hazards, steps will be taken to eliminate or reduce them to an acceptable risk level.

A Job Hazard Assessment must be conducted daily before each job task is started. The location of the worksite is also noted on the Job Hazard Assessment. The location of the worksite is also noted on the Job Hazard Assessment. The name of the supervisor and supervisory approval is also addressed and on the Job Hazard Assessment / JSA. Specifically, supervisors are indicated in the Job Hazard Assessment / JSA, as well as the requirements for supervisory approval. In addition, the Job Hazard Assessment will state the nature of the work activity being performed. The Job Hazard Assessment will be developed, reviewed and signed by the work crew, and any visitors to the site. The Job Hazard Assessment will be updated (red-lined) based upon additional hazards being discovered and corresponding changes when applicable. The Job Hazard Assessment will clearly define individual responsibilities. The Job Hazard Assessment will clearly define individual responsibilities, as well as clearly identify task-specific requirements including personnel, equipment/tools, process controls, permits, etc., and are addressed on the JSA.

A specific means of communication will be identified and addressed in the Job Hazard Assessment. The company's upper management will conduct a quality review of the Job Hazard Assessments on at least a quarterly basis. In addition, employees will receive adequate Job Hazard Assessment training.

The Importance of a Job Hazard Assessment

Many workers are injured and killed at the workplace every day in the United States. Safety and health add value to business, your job, and your life. Workplace injuries and illnesses can be prevented by looking at workplace operations, establishing proper job procedures, and ensuring that all employees are trained properly. One of the best ways to determine and establish proper work procedures is to conduct a Job Hazard Assessment.

The Value of a Job Hazard Assessment

Supervisors can use the findings of a Job Hazard Assessment to eliminate and prevent hazards in their workplaces. This is likely to result in fewer worker injuries and illnesses; safer, more effective work methods; reduced Workers' Compensation costs, and increased worker productivity. The assessment also can be a valuable tool for training new employees in the steps required to perform their jobs safely.

For a Job Hazard Assessment to be effective, managers and supervisors must demonstrate their commitment to safety and health and follow through to correct any uncontrolled hazards identified. Otherwise, management will lose credibility and employees may hesitate to go to supervisors when dangerous conditions threaten them.

Jobs Appropriate for Hazard Assessment

Job Hazard Identification & Risk Assessment will be conducted on jobs in our workplace. Each hazard will be evaluated by considering the severity of potential outcomes, the likelihood that an event or exposure will occur, and the number of workers potentially exposed in order to prioritize hazards so those with the greatest risk are addressed first. Hazards are classified/prioritized and addressed based on the risk associated with the task. Priority will go to the following job types:

- Jobs with the highest injury or illness rates
- Jobs with the potential to cause severe or disabling injuries or illness, even if there is no history of previous accidents
- Jobs in which one simple human error could lead to a severe accident or injury
- New jobs or ones with changes in processes and procedures
- Jobs complex enough to require written instructions

Where to Begin

Involve employees and subcontractors. It is very important to involve employees and subcontractors in the hazard assessment process. They have a unique understanding of the job, and this knowledge is invaluable for finding hazards. Involving employees will help minimize oversights, ensure a quality assessment, and get workers to “buy in” to the solutions because they will share ownership in their safety and health program.

Review accident history. Review with employees our workplace’s history of accidents and occupational illnesses that needed treatment, losses that required repair or replacement, and any “near misses” – events in which an accident or loss did not occur but could have. These events are indicators that the existing hazard controls (if any) may not be adequate and deserve more scrutiny.

Conduct a preliminary job review. Discuss with employees and subs the hazards they know exist in their current work and surroundings. Brainstorm with them for ideas to eliminate or control those hazards.

If any hazards exist that pose an immediate danger to an employee’s life or health, take immediate action to protect the worker. Any problems that can be corrected easily will be corrected as soon as possible. Do not wait to complete your Job Hazard Assessment. This demonstrates our commitment to safety and health and enables us to focus on the hazards and jobs that need more study because of their complexity. For those hazards determined to present unacceptable risks, evaluate types of hazard controls.

List, rank, and set priorities for hazardous jobs. List jobs with hazards that present unacceptable risks, based on those most likely to occur, and with the most severe consequences. These jobs are first priority for assessment.

Planned Job Steps

Outline the steps or tasks. Nearly every job can be broken down into job tasks or steps. When beginning a Job Hazard Assessment, watch the employee perform the job and list each step as the worker takes it. Be sure to record enough information to describe each job action without getting overly detailed. Avoid making the breakdown of steps so detailed that it becomes unnecessarily long or so broad that it does not include basic steps. It is valuable to get input from other workers who have performed the same job. Later, review the job steps with the employee to make sure something was not omitted. Point out that the job itself is being evaluated, not the employee’s job performance. Include the employee in all phases of the assessment – from reviewing the job steps and procedures to discussing uncontrolled hazards and recommended solutions.

Sometimes, in conducting a Job Hazard Assessment, it may be helpful to photograph or videotape the worker performing the job. These visual records can be handy references when doing a more detailed assessment of the work.

Identifying Workplace Hazards

A Job Hazard Assessment is an exercise in detective work. The goal is to discover the following: what can go wrong; the consequences; how it could arise; contributing factors; likelihood that it will occur. To prevent future occurrences, the root cause of the hazard needs to be investigated and identified. Workplace incidents include:

- Injuries
- Illnesses
- Near misses
- Stop work interventions

To make our Job Hazard Assessment useful, document the answers to these questions in a consistent manner. Describing a hazard in this way helps to ensure that our efforts to eliminate the hazard and implement hazard controls help target the most important contributors to the hazard.

Good hazard scenarios describe:

- Where is it happening? (environment)
- Who or what it is happening to? (exposure)
- What precipitates the hazard? (trigger)
- The outcome that would occur will it happen? (consequence)
- Any other contributing factors

Rarely is a hazard a simple case of one singular cause resulting in one singular effect. More frequently, many contributing factors tend to line up in a certain way to create the hazard.

Here is an example of a hazard scenario:

In the metal shop (environment), while clearing a snag (trigger), a worker's hand (exposure) comes into contact with a rotating pulley. It pulls his hand into the machine and quickly severs his fingers (consequences).

To perform a Job Hazard Assessment, you would ask:

- What can go wrong? The worker's hand could come into contact with a rotating object that "catches" it and pulls it into the machine
- What are the consequences? The worker could receive a severe injury and lose fingers and hands
- How could it happen? The accident could happen as a result of the worker trying to clear a snag during operations or as part of a maintenance activity while the pulley is operating. Obviously, this hazard scenario could not occur if the pulley is not rotating
- What are other contributing factors? This hazard occurs very quickly. It does not give the worker much opportunity to recover or prevent it once his hand comes into contact with the pulley. This is an important factor, because it helps determine the severity and likelihood of an accident when selecting appropriate hazard controls. Unfortunately, experience has shown that training is not very effective in hazard control when triggering events happen quickly because humans can react only so quickly

How to Correct or Prevent Hazards

After reviewing the list of hazards with the employee, consider what control methods will eliminate or reduce them. The most effective controls are engineering controls that physically change a machine or work environment to prevent employee exposure to the hazard. The more reliable or less likely a hazard control can be circumvented, the better. If this is not feasible, administrative controls may be appropriate.

This may involve changing how employees do their jobs. Discuss recommendations with all employees who perform the job and consider their responses carefully. If it is planned to introduce new or modified job procedures, be sure they understand what they are required to do and the reasons for the changes.

Before Starting a Job Hazard Assessment

The job procedures discussed are for illustration only and do not necessarily include all the steps, hazards, and protections that apply. When conducting a job safety assessment, be sure to consult OSHA standards. Compliance with these standards is mandatory, and by incorporating their requirements into the Job Hazard Assessment, we can be sure that our Safety & Health Program meets Federal Standards.

Review the Job Hazard Assessment

Periodically reviewing the Job Hazard Assessment ensures that it remains current and continues to help reduce workplace accidents and injuries. Even if the job has not changed, it is possible that during the review process you will identify hazards that were not identified in the initial assessment. It is particularly important to review the Job Hazard Assessment if an illness or injury occurs on a specific job.

Based on the circumstances, it may be determined that changes are needed in the job procedure to prevent similar incidents in the future. If an employee's failure to follow proper job procedures results in a "close call or near miss," discuss the situation with all employees who perform the job and remind them of proper procedures. Any time a Job Hazard Assessment is revised, it is important to train all employees affected by the changes in the new job methods, procedures, or protective measures adopted.

When to Hire a Professional

If our employees are involved in many different or complex processes, we may need professional help conducting a Job Hazard Assessment. Even if we receive outside help, it is important that our employees remain involved in the process of identifying and correcting hazards because they are at the workplace every day and most likely to encounter these hazards. New circumstances and a recombination of existing circumstances may cause old hazards to reappear and new hazards to appear. In addition, we and our employees must be ready and able to implement whatever hazard elimination or control measures a professional consultant recommends.

Hazard Control Measures

Information obtained from a Job Hazard Assessment is useless unless hazard control measures recommended in the assessment are incorporated into the tasks. Managers and supervisors must recognize that not all hazard controls are equal. Some are more effective than others at reducing the risk.

The order of precedence and effectiveness of hazard control is the following: engineering controls; administrative controls; personal protective equipment.

Engineering controls include the following:

- Elimination/minimization of the hazard – Designing the facility, equipment, or process to remove the hazard, or substituting processes, equipment, materials, or other factors to lessen the hazard
- Enclosure of the hazard using enclosed cabs, enclosures for noisy equipment, or other means
- Isolation of the hazard with interlocks, machine guards, blast shields, welding curtains, or other means
- Removal or redirection of the hazard such as with local and exhaust ventilation

Administrative controls include the following:

- Written operating procedures, work permits, and safe work practices
- Developing and implementing a continuous improvement process for lessons learned
- Exposure time limitations (used most commonly to control temperature extremes and ergonomic hazards)
- Monitoring the use of highly hazardous materials
- Alarms, signs, and warnings
- The “Buddy” system
- Training

Emergency Procedures

Emergency procedures will be clearly defined on the Job Hazard Assessment for the task, such as nearest hospital with directors, first aid personnel, drivers of vehicles to transport injured, doctor and phone numbers for ambulance, police, fire, etc. Also, emergency procedures for work site preparations for egress and muster points will be clearly defined on the JSA for the task.

Personal Protective Equipment (PPE)

Protective equipment such as respirators, hearing protection, protective clothing, safety glasses, and hardhats is acceptable as a control method in the following circumstances:

- When engineering controls are not feasible or do not totally eliminate the hazard
- While engineering controls are being developed
- When safe work practices do not provide sufficient additional protection
- During emergencies when engineering controls may not be feasible

Use of one hazard control method over another higher in the control precedence may be appropriate for providing interim protection until the hazard is abated permanently. In reality, if the hazard cannot be eliminated entirely, the adopted control measures will likely be a combination of all three items instituted simultaneously.

MULTI-EMPLOYER WORKPLACES / SIMULTANEOUS OPERATIONS (SIMOPS)

GTG Automation, Inc. will perform evaluations of hazards from others in the work area – this does not include subcontractors that are working for/with GTG Automation, Inc. but work by others that the company could have a potential exposure from, including the following:

- Identifying the additional hazards introduced by the SIMOPS
- Assessing the relevant levels of risk
- Verifying the adequacy of the planned control measures
- Identifying additional risk-reduction measures
- Providing input to processes for embedding additional controls (e.g., permit-to-work)

GTG Automation, Inc. will also use the following methods when working multi-employer worksites or employees are on multiple worksites where hazardous chemicals are produced, used, or stored:

- On-site access to SDSs for each hazardous chemical that other employer(s)' employees may be exposed to
- Inform other employer(s) of any precautionary measures that need to be taken to protect employees during the workplace's normal operating conditions, and in foreseeable emergencies
- Inform other employer(s) of the labeling systems used in the workplace

A copy of the written hazard communication program is available to employees, their designated representatives, the Assistant Secretary, or the Director upon request, in accordance with the requirements of 29 CFR 1910.1020 (e).

Where employees must travel between workplaces during a work shift (i.e., their work is carried out at more than one geographical location), the written hazard communication program may be kept at the primary workplace facility. If there is no primary site, the program must be sent with employees.

GTG Automation, Inc. will use the forms on the following pages for the Hazard Identification & Risk Assessment Program.

JOB HAZARD ALERT

Department:	Date:
Location:	
Person who Discovered Hazard:	
Description of Hazard	
Supervisor Actions	
Root Cause(s)	
Control(s)	
Reviewed By:	Date Corrected:

JOB HAZARD ASSESSMENT

Job Title		Job Location	
Task #	Person Doing Assessment		Date
Task Description			
Hazard Type			
Hazard Description			
Consequence			
Hazard Control			
Rational or Comment			
Supervisor Signature			Date

HAZARD TRACKING LOG

Hazard Number	Description	Reported by	Date Reported	Corrected by	Responsible Supervisor	Date Corrected

JOB HAZARD ASSESSMENT (PAGE 1 OF 2)

GTG Automation, Inc. uses this program of self-inspection for our facilities and workplaces in order to identify hazards and assess risk. Self-inspection is a must if we are to know where probable hazards exist and whether they are under control. Safety inspection items are completed using the following self-inspection form. These checklists are designed to assist in this fact-finding. It will give The Company some indication of where we can take action to make our business safer and more healthful for all of our employees. Use sections on the checklist relevant to particular operations and disregard those which do not apply.

When a checklist has been completed, this material will be added to our injury information, our employee information, and to our process and equipment information. The Company will now possess many facts that will help determine what problems exist. Management will then use the OSHA standards in the problem-solving process, and it will be much easier to determine the action needed to solve these problems. Corrective action is required to be documented on the form at the end of this section. Corrective action or preventive action plans will be reviewed by management at safety committee meetings. The scope of our self-inspections will include the following:

- Processing, Receiving, Shipping and Storage – equipment, job planning, layout, heights, floor loads, projection of materials, materials-handling and storage methods, and training for material handling equipment
- Building and Grounds Conditions – floors, walls, ceilings, exits, stairs, walkways, ramps, platforms, driveways, and aisles
- Housekeeping Program – waste disposal, tools, objects, materials, leakage and spillage, cleaning methods, schedules, work areas, remote areas, and storage areas
- Electricity – equipment, switches, breakers, fuses, switchboxes, junctions, special fixtures, circuits, insulation, extensions, tools, motors, grounding, and NEC compliance
- Lighting – type, intensity, controls, conditions, diffusion, and location
- Heating and Ventilation – type, effectiveness, temperature, humidity, controls, and natural and artificial ventilation and exhaust
- Machinery – points of operation, flywheels, gears, shafts, pulleys, keyways, belts, couplings, sprockets, chains, frames, controls, lighting for tools and equipment, brakes, exhausting, feeding, oiling, adjusting, maintenance, lockout/tagout, grounding, workspace, location, and purchasing standards
- Personnel – experience training, hazard identification training; methods of checking machines before use; type of clothing; personal protective equipment; use of guards; tool storage; work practices; and methods of cleaning, oiling, or adjusting machinery
- Hand and Power Tools – purchasing standards, inspection, storage, repair, types, maintenance, grounding, use, and handling
- Chemicals – storage, handling, transportation, spills, disposals, amounts used, labeling, toxicity or other harmful effects, warning signs, supervision, training, protective clothing and equipment, and hazard communication requirements
- Fire Prevention – extinguishers, alarms, sprinklers, smoking rules, exits, personnel assigned, separation of flammable materials and dangerous operations, explosive-proof fixtures in hazardous locations, and waste disposal

JOB HAZARD ASSESSMENT (PAGE 2 OF 2)

- Maintenance, including tracking and abatement of preventive and regular maintenance – regularity, effectiveness, training of personnel, materials and equipment used, records maintained, method of locking out machinery, and general methods.
- Personal Protective Equipment – type, size, maintenance, repair, storage, assignment of responsibility, purchasing methods, standards observed, training in care and use, rules of use, and method of assignment
- Transportation – motor vehicle safety, seat belts, vehicle maintenance, and safe driver programs
- Review – evacuation routes, equipment, and personal protective equipment

JOB SAFETY INSPECTION AND REPORT

Company				Date		Time	
Job Site Location				Job Foreman/Supervisor			
Person(s) Making Inspection				Subcontractors On-Site			
An Adequate at Time of Inspection		B Needs Consideration		C Needs Immediate Attention		N Not Applicable	
Jobsite Information				A	B	C	N
				Action Taken			
Copy of Company Safety Program on site?				☐	☐	☐	☐
OSHA 300 and 301 Forms Posted and Complete?				☐	☐	☐	☐
Are required OSHA Posters posted?				☐	☐	☐	☐
Phone number to nearest medical center posted?				☐	☐	☐	☐
Tailgate/Toolbox training current?				☐	☐	☐	☐
HAZCOM and Safety Data Sheets (SDS) on site?				☐	☐	☐	☐
Work areas properly signed and barricaded?				☐	☐	☐	☐
Housekeeping				A	B	C	N
				Action Taken			
Work area generally neat?				☐	☐	☐	☐
Projecting nails removed or bent over?				☐	☐	☐	☐
Waste containers in use?				☐	☐	☐	☐
Designated disposal area in place?				☐	☐	☐	☐
Passageways/walkways clear?				☐	☐	☐	☐
Cords, leads, and trip hazards off the floor?				☐	☐	☐	☐
Fire Prevention				A	B	C	N
				Action Taken			
Charged and inspected fire extinguishers accessible?				☐	☐	☐	☐
Phone number of local fire department posted?				☐	☐	☐	☐
Flammables properly stored?				☐	☐	☐	☐
"No Smoking" signs posted near flammables?				☐	☐	☐	☐
Electrical				A	B	C	N
				Action Taken			
Damaged extension cords removed from service?				☐	☐	☐	☐
Ground fault circuit interrupters used?				☐	☐	☐	☐
Terminal boxes equipped with required covers?				☐	☐	☐	☐
Employees trained in Lockout/Tagout?				☐	☐	☐	☐
Hand, Power, Powder Tools				A	B	C	N
				Action Taken			
Hand tools inspected regularly?				☐	☐	☐	☐
Guards in place on machines?				☐	☐	☐	☐
Tools suited for their jobs?				☐	☐	☐	☐
Operators of powder-actuated tools licensed?				☐	☐	☐	☐
Materials Handling				A	B	C	N
				Action Taken			
Materials properly stored or stacked?				☐	☐	☐	☐
Employees using proper lifting methods?				☐	☐	☐	☐
Tag lines used to guide loads?				☐	☐	☐	☐
Proper number of workers for each operation?				☐	☐	☐	☐

Fall Protection	A	B	C	N	Action Taken
Employees properly trained?	☐	☐	☐	☐	
Safety rails and cables secured properly?	☐	☐	☐	☐	
Guardrails properly installed and secured?	☐	☐	☐	☐	
Employees have D- ring belts in center of back?	☐	☐	☐	☐	
Employees exposed to fall hazards tied off?	☐	☐	☐	☐	
Employees below protected from falling objects?	☐	☐	☐	☐	
Ladders	A	B	C	N	Action Taken
Ladders extend 36 inches above the landing?	☐	☐	☐	☐	
Ladders secured to prevent slipping or sliding?	☐	☐	☐	☐	
Damaged ladders removed from service?	☐	☐	☐	☐	
Stepladders used in fully open position?	☐	☐	☐	☐	
No stepping on top 2 rungs of stepladder?	☐	☐	☐	☐	
Scaffold	A	B	C	N	Action Taken
All scaffolding inspected daily?	☐	☐	☐	☐	
Erected on solid, stable footing?	☐	☐	☐	☐	
Tied-off to structure as required?	☐	☐	☐	☐	
Guardrails, mid-rails, and toe boards in place?	☐	☐	☐	☐	
Is scaffold properly planked?	☐	☐	☐	☐	
Is working level of scaffold fully planked?	☐	☐	☐	☐	
Proper access provided?	☐	☐	☐	☐	
Employees below protected from falling objects?	☐	☐	☐	☐	
Floor and Wall Openings	A	B	C	N	Action Taken
All floor and deck openings covered or barricaded?	☐	☐	☐	☐	
Perimeter protection in place?	☐	☐	☐	☐	
Deck planks secured?	☐	☐	☐	☐	
Materials stored away from edge?	☐	☐	☐	☐	
Guardrails in place?	☐	☐	☐	☐	
Trenches, Excavations and Shoring	A	B	C	N	Action Taken
Competent person on hand?	☐	☐	☐	☐	
Employees properly trained?	☐	☐	☐	☐	
No water in excavation or signs of cave-in?	☐	☐	☐	☐	
Excavations shored or sloped back?	☐	☐	☐	☐	
Materials stored at least two feet from trench?	☐	☐	☐	☐	
Excavations properly identified and barricaded?	☐	☐	☐	☐	
Ladders provided every 25 feet in trench?	☐	☐	☐	☐	
Is equipment a safe distance from edge of trench?	☐	☐	☐	☐	
Forklifts and Other Equipment	A	B	C	N	Action Taken
Gas cylinders stored correctly?	☐	☐	☐	☐	
Proper separation between fuels and oxygen?	☐	☐	☐	☐	
Burning/welding goggles or shields used?	☐	☐	☐	☐	
Other required PPE being used?	☐	☐	☐	☐	

Welding and Burning	A	B	C	N	Action Taken
Gas cylinders stored correctly?	☐	☐	☐	☐	
Proper separation between fuels and oxygen?	☐	☐	☐	☐	
Burning/welding goggles or shields used?	☐	☐	☐	☐	
Other required PPE being used?	☐	☐	☐	☐	
Fire extinguishers in close proximity?	☐	☐	☐	☐	
Hoses in good condition?	☐	☐	☐	☐	
Employees properly trained?	☐	☐	☐	☐	
Cranes	A	B	C	N	Action Taken
Gas cylinders stored correctly?	☐	☐	☐	☐	
Proper separation between fuels and oxygen?	☐	☐	☐	☐	
Burning/welding goggles or shields used?	☐	☐	☐	☐	
Other required PPE being used?	☐	☐	☐	☐	
Fire extinguishers in close proximity?	☐	☐	☐	☐	
Hoses in good condition?	☐	☐	☐	☐	
Employees properly trained?	☐	☐	☐	☐	
Concrete Construction	A	B	C	N	Action Taken
Exposed rebar properly capped or covered?	☐	☐	☐	☐	
Employees protected from cement dust and silica?	☐	☐	☐	☐	
Exposed skin covered?	☐	☐	☐	☐	
Runways adequate?	☐	☐	☐	☐	
Personal Protective Equipment	A	B	C	N	Action Taken
Fall protection inspected and used correctly?	☐	☐	☐	☐	
Hard hats being worn?	☐	☐	☐	☐	
Safety glasses/goggles being worn?	☐	☐	☐	☐	
Hearing protection being worn when required?	☐	☐	☐	☐	
Boots and long pants worn on jobsite?	☐	☐	☐	☐	
Long hair tied back?	☐	☐	☐	☐	
Traffic vests being worn?	☐	☐	☐	☐	
Respirators used when required? (Medical evaluations and fit testing completed)	☐	☐	☐	☐	
Other	A	B	C	N	Action Taken
	☐	☐	☐	☐	
	☐	☐	☐	☐	
Unsafe Acts or Practices Observed:					
Comments					
Evaluator's Signature:				Date:	
Evaluator's Signature:				Date:	

File this document in the "Company Safety and Health File."

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has adopted this policy to ensure the safety of personnel who use scaffolding in the performance of work.

REFERENCES

- §1926 Subpart L – Scaffold Specifications
- GTG Automation, Inc. Fall Protection Policy

RESPONSIBILITIES

The following engineering controls, training requirements, and safe work practices will be enforced by Greg Griffin to protect our employees from hazards associated with the erecting and use of scaffolds:

- Training of all employees that work on scaffolds is conducted by "Qualified" persons.
- An inspection of the scaffold must be conducted by a competent person and deemed safe prior to being used.

Competent Person

The *competent person* will be trained in accordance with the Occupational Safety and Health Administration and responsible for:

- Directing employees who erect, dismantle, move or alter scaffolding
- Determining if it is safe for employees to work from a scaffold during storms or high winds, and ensure that a personal fall arrest system is in place
- Training employees involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting scaffolding to recognize associated work hazards
- Inspecting scaffolds and scaffold components for visible defects before each work shift, and after any occurrence which could affect the structural integrity, and to authorize prompt corrective action
- Inspecting ropes on suspended scaffolds prior to each work shift and after every occurrence which could affect the structural integrity, and to authorize prompt corrective actions
- For suspension scaffolds, evaluating direct connections to support the load to be imposed
- For erectors and dismantler's, determining the feasibility and safety of providing fall protection and access
- For scaffold components: determining if a scaffold will be structurally sound when intermixing components from different manufacturer's; and determining if galvanic action has affected the capacity when using components of dissimilar metals

Qualified Person

Qualified persons will be responsible for:

- Designing and loading scaffolds in accordance with design specifications
- Training employees working on the scaffolds to recognize the associated hazards and understand procedures to control or minimize those hazards
- For suspension scaffolds:
 - Designing platforms on two-point adjustable suspension types that are less than 36 inches wide to prevent instability
 - Making swaged attachments and spliced eyes on wire suspension ropes
 - Designing components in accordance with design specifications

TRAINING

Before use, each GTG Automation, Inc. employee who performs work erecting, disassembling, moving, or working with scaffolds in any way is trained under the supervision of Greg Griffin, who is designated as the Qualified Person for GTG Automation, Inc., to recognize the hazards associated with the type of scaffold being used and to understand the procedures to control or minimize those hazards. Re-training will occur when conditions change or as needed.

- The training program, at a minimum, addresses the following hazards
- Assessment of any electrical hazards, fall hazards, and falling object hazards in the work area
- The correct procedures for dealing with electrical hazards and for erecting, maintaining, and disassembling the scaffolding and fall protection systems and falling object protection systems being used
- Proper use of the scaffold, and the safe handling of materials on the scaffold
- Maximum intended loads and the load carrying capacities of the scaffolds used
- The nature of scaffold hazards
- The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold being used
- The design criteria, maximum intended load carrying capacity, and intended use of the scaffold
- Any other safety topics deemed pertinent to the particular work-site, scaffold system, or fall protection systems being used
- Retraining is required when scaffold application, type of scaffold used, or when job conditions change

When GTG Automation, Inc. has reason to believe that an employee lacks the skill or understanding needed for safe work involving the erection, use or dismantling of scaffolds, GTG Automation, Inc. will retrain each such employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:

- Where changes at the worksite present a hazard about which an employee has not been previously trained
- Where changes in the types of scaffolds, fall protection, falling object protection, or other equipment present a hazard about which an employee has not been previously trained
- Where inadequacies in an affected employee's work involving scaffolds indicate that the employee has not retained the requisite proficiency.

DEFINITIONS

Adjustable suspension scaffold means a suspension scaffold equipped with a hoist(s) that can be operated by an employee(s) on the scaffold.

Bearer (putlog) means a horizontal transverse scaffold member (which may be supported by ledgers or runners) upon which the scaffold platform rests and which joins scaffold uprights, posts, poles, and similar members.

Boatswains' chair means a single-point adjustable suspension scaffold consisting of a seat or sling designed to support one employee in a sitting position.

Body belt (safety belt) means a strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration device.

Body harness means a design of straps which may be secured about the employee in a manner to distribute the fall arrest forces over at least the thighs, pelvis, waist, chest and shoulders, with means for attaching it to other components of a personal fall arrest system. *Brace* means a rigid connection that holds one scaffold member in a fixed position with respect to another member, or to a building or structure.

Bricklayers' square scaffold means a supported scaffold composed of framed squares which support a platform.

Cleat means a structural block used at the end of a platform to prevent the platform from slipping off its supports. Cleats are also used to provide footing on sloped surfaces such as crawling boards.

Competent person means one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Continuous run scaffold (Run scaffold) means a two-point or multi-point adjustable suspension scaffold constructed using a series of interconnected braced scaffold members or supporting structures erected to form a continuous scaffold.

Coupler means a device for locking together the tubes of a tube and coupler scaffold.

Crawling board (chicken ladder) means a supported scaffold consisting of a plank with cleats spaced and secured to provide footing, for use on sloped surfaces such as roofs.

Deceleration device means any mechanism, such as a rope grab, rip-stitch lanyard, specially-woven lanyard, tearing or deforming lanyard, or automatic self-retracting lifeline lanyard, which dissipates a substantial amount of energy during a fall arrest or limits the energy imposed on an employee during fall arrest.

Double pole (independent pole) scaffold means a supported scaffold consisting of a platform(s) resting on cross beams (bearers) supported by ledgers and a double row of uprights independent of support (except ties, guys, braces) from any structure.

Equivalent means alternative designs, materials or methods to protect against a hazard which the employer can demonstrate will provide an equal or greater degree of safety for employees than the methods, materials or designs specified in the standard.

Exposed power lines means electrical power lines which are accessible to employees and which are not shielded from contact. Such lines do not include extension cords or power tool cords.

Eye or Eye splice means a loop with or without a thimble at the end of a wire rope.

Fabricated decking and planking means manufactured platforms made of wood (including laminated wood, and solid sawn wood planks), metal or other materials.

Fabricated frame scaffold (tubular welded frame scaffold) means a scaffold consisting of a platform(s) supported on fabricated end frames with integral posts, horizontal bearers, and intermediate members.

Failure means load refusal, breakage, or separation of component parts. Load refusal is the point where the ultimate strength is exceeded.

Float (ship) scaffold means a suspension scaffold consisting of a braced platform resting on two parallel bearers and hung from overhead supports by ropes of fixed length.

Form scaffold means a supported scaffold consisting of a platform supported by brackets attached to formwork.

Guardrail system means a vertical barrier, consisting of, but not limited to, toprails, midrails, and posts, erected to prevent employees from falling off a scaffold platform or walkway to lower levels.

Hoist means a manual or power-operated mechanical device to raise or lower a suspended scaffold.

Horse scaffold means a supported scaffold consisting of a platform supported by construction horses (saw horses). Horse scaffolds constructed of metal are sometimes known as trestle scaffolds.

Independent pole scaffold (see "Double pole scaffold").

Interior hung scaffold means a suspension scaffold consisting of a platform suspended from the ceiling or roof structure by fixed length supports.

Ladder jack scaffold means a supported scaffold consisting of a platform resting on brackets attached to ladders.

Ladder stand means a mobile, fixed-size, self-supporting ladder consisting of a wide flat tread ladder in the form of stairs.

Landing means a platform at the end of a flight of stairs.

Large area scaffold means a pole scaffold, tube and coupler scaffold, systems scaffold, or fabricated frame scaffold erected over substantially the entire work area. For example: a scaffold erected over the entire floor area of a room.

Lean-to scaffold means a supported scaffold which is kept erect by tilting it toward and resting it against a building or structure.

Lifeline means a component consisting of a flexible line that connects to an anchorage at one end to hang vertically (vertical lifeline), or that connects to anchorages at both ends to stretch horizontally (horizontal lifeline), and which serves as a means for connecting other components of a personal fall arrest system to the anchorage.

Lower levels means areas below the level where the employee is located and to which an employee can fall. Such areas include, but are not limited to, ground levels, floors, roofs, ramps, runways, excavations, pits, tanks, materials, water, and equipment.

Masons' adjustable supported scaffold (see "Self-contained adjustable scaffold").

Masons' multi-point adjustable suspension scaffold means a continuous run suspension scaffold designed and used for masonry operations.

Maximum intended load means the total load of all persons, equipment, tools, materials, transmitted loads, and other loads reasonably anticipated to be applied to a scaffold or scaffold component at any one time.

Mobile scaffold means a powered or unpowered, portable, caster or wheel-mounted supported scaffold.

Multi-level suspended scaffold means a two-point or multi-point adjustable suspension scaffold with a series of platforms at various levels resting on common stirrups.

Multi-point adjustable suspension scaffold means a suspension scaffold consisting of a platform(s) which is suspended by more than two ropes from overhead supports and equipped with means to raise and lower the platform to desired work levels. Such scaffolds include chimney hoists.

Needle beam scaffold means a platform suspended from needle beams.

Open sides and ends means the edges of a platform that are more than 14 inches (36 cm) away horizontally from a sturdy, continuous, vertical surface (such as a building wall) or a sturdy, continuous horizontal surface (such as a floor), or a point of access. Exception: For plastering and lathing operations the horizontal threshold distance is 18 inches (46 cm).

Outrigger means the structural member of a supported scaffold used to increase the base width of a scaffold in order to provide support for and increased stability of the scaffold.

Outrigger beam (Thrustout) means the structural member of a suspension scaffold or outrigger scaffold which provides support for the scaffold by extending the scaffold point of attachment to a point out and away from the structure or building.

Outrigger scaffold means a supported scaffold consisting of a platform resting on outrigger beams (thrustouts) projecting beyond the wall or face of the building or structure, the inboard ends of which are secured inside the building or structure.

Overhand bricklaying means the process of laying bricks and masonry units such that the surface of the wall to be jointed is on the opposite side of the wall from the mason, requiring the mason to lean over the wall to complete the work. It includes mason tending and electrical installation incorporated into the brick wall during the overhand bricklaying process.

Personal fall arrest system means a system used to arrest an employee's fall. It consists of an anchorage, connectors, a body belt or body harness and may include a lanyard, deceleration device, lifeline, or combinations of these.

Platform means a work surface elevated above lower levels. Platforms can be constructed using individual wood planks, fabricated planks, fabricated decks, and fabricated platforms.

Pole scaffold (see definitions for "Single-pole scaffold" and "Double (independent) pole scaffold").

Power operated hoist means a hoist which is powered by other than human energy.

Pump jack scaffold means a supported scaffold consisting of a platform supported by vertical poles and movable support brackets.

Qualified means one who, by possession of a recognized degree, certificate, or professional standing, or who by extensive knowledge, training, and experience, has successfully demonstrated his/her ability to solve or resolve problems related to the subject matter, the work, or the project.

Rated load means the manufacturer's specified maximum load to be lifted by a hoist or to be applied to a scaffold or scaffold component.

Repair bracket scaffold means a supported scaffold consisting of a platform supported by brackets which are secured in place around the circumference or perimeter of a chimney, stack, tank or other supporting structure by one or more wire ropes placed around the supporting structure.

Roof bracket scaffold means a rooftop supported scaffold consisting of a platform resting on angular-shaped supports.

Runner (ledger or ribbon) means the lengthwise horizontal spacing or bracing member which may support the bearers.

Scaffold means any temporary elevated platform (supported or suspended) and its supporting structure (including points of anchorage), used for supporting employees or materials or both.

Self-contained adjustable scaffold means a combination supported and suspension scaffold consisting of an adjustable platform(s) mounted on an independent supporting frame(s) not a part of the object being worked on, and which is equipped with a means to permit the raising and lowering of the platform(s). Such systems include rolling roof rigs, rolling outrigger systems, and some masons' adjustable supported scaffolds.

Shore scaffold means a supported scaffold which is placed against a building or structure and held in place with props.

Single-point adjustable suspension scaffold means a suspension scaffold consisting of a platform suspended by one rope from an overhead support and equipped with means to permit the movement of the platform to desired work levels.

Single-pole scaffold means a supported scaffold consisting of a platform(s) resting on bearers, the outside ends of which are supported on runners secured to a single row of posts or uprights, and the inner ends of which are supported on or in a structure or building wall.

Stair tower (Scaffold stairway/tower) means a tower comprised of scaffold components and which contains internal stairway units and rest platforms. These towers are used to provide access to scaffold platforms and other elevated points such as floors and roofs.

Stall load means the load at which the prime-mover of a power-operated hoist stalls or the power to the prime-mover is automatically disconnected.

Step, platform, and trestle ladder scaffold means a platform resting directly on the rungs of step ladders or trestle ladders.

Stilts means a pair of poles or similar supports with raised footrests, used to permit walking above the ground or working surface.

Stonesetters' multi-point adjustable suspension scaffold means a continuous run suspension scaffold designed and used for stonesetters' operations.

Supported scaffold means one or more platforms supported by outrigger beams, brackets, poles, legs, uprights, posts, frames, or similar rigid support.

Suspension scaffold means one or more platforms suspended by ropes or other non-rigid means from an overhead structure(s).

System scaffold means a scaffold consisting of posts with fixed connection points that accept runners, bearers, and diagonals that can be interconnected at predetermined levels.

Tank builders' scaffold means a supported scaffold consisting of a platform resting on brackets that are either directly attached to a cylindrical tank or attached to devices that are attached to such a tank.

Top plate bracket scaffold means a scaffold supported by brackets that hook over or are attached to the top of a wall. This type of scaffold is similar to carpenters' bracket scaffolds and form scaffolds and is used in residential construction for setting trusses.

Tube and coupler scaffold means a supported or suspended scaffold consisting of a platform(s) supported by tubing, erected with coupling devices connecting uprights, braces, bearers, and runners.

Tubular welded frame scaffold (see "Fabricated frame scaffold").

Two-point suspension scaffold (swing stage) means a suspension scaffold consisting of a platform supported by hangers (stirrups) suspended by two ropes from overhead supports and equipped with means to permit the raising and lowering of the platform to desired work levels.

Unstable objects means items whose strength, configuration, or lack of stability may allow them to become dislocated and shift and therefore may not properly support the loads imposed on them. Unstable objects do not constitute a safe base support for scaffolds, platforms, or employees. Examples include, but are not limited to, barrels, boxes, loose brick, and concrete blocks.

Vertical pickup means a rope used to support the horizontal rope in catenary scaffolds.

Walkway means a portion of a scaffold platform used only for access and not as a work level.

Window jack scaffold means a platform resting on a bracket or jack which projects through a window opening.

SAFE PRACTICES

- Stationary scaffolds over 125 feet in height and rolling scaffolds over 60 feet in height will be designed by a professional engineer
- An inspection of the scaffold must be conducted by a competent person and deemed safe prior to being used
- Damaged or deteriorated equipment will not be used
- All scaffolding systems, components, and fall protection systems used will be inspected by Greg Griffin prior to use, before each work shift begins, after erecting or moving, and periodically through the work day to ensure the system is erected properly, that there is no damage to components of the system, and that the system is being used properly and safely
- Modifications of scaffold by non-qualified employees is prohibited. Only qualified and competent personnel are allowed to modify scaffolding systems. Disciplinary action for non-qualified modifications will be enforced
- Any system or component of a system which is found to have a defect in manufacturing or design, damage, excessive wear, weathering, or corrosion, will be immediately removed from service and tagged to indicate that it is not to be used with a prominent tag, as shown below, which states:



- Employees are prohibited from working on scaffolds covered in snow, ice, or other slippery materials, except as necessary for the removal of such materials
- Work on scaffolds is prohibited during high winds or storms unless a competent person has determined that it is safe for employees to be on the scaffold and those employees are protected by a personal fall arrest system or wind screens

- Unsafe equipment or conditions must be tagged out by a Competent Person and tags must be complied with
- Any repairs or modifications to a scaffold system or component of a system must be approved by Greg Griffin prior to implementation
- Any violation of the above policy, misuse of scaffolds, or misconduct while working on scaffolds will be subject to disciplinary action within the scope of Company policy, up to and including termination of employment

Capacity/Loads

Each scaffold and scaffold component will be capable of supporting, without failure, its own weight and at least four times the maximum intended load applied or transmitted to it. Scaffolds and scaffold components will not be loaded in excess of their maximum intended loads or rated capacities, whichever is less.

Platforms

Each platform on all working levels of scaffolds will be fully planked or decked between the front uprights and the guardrail supports as follows;

- Platforms will be entirely planked and decked with space not more than one inch wide between the platforms and uprights
- The platform will not deflect more than 1/60 of the span when loaded
- All platforms will be kept clear of debris or other obstructions
- Wood planks will be inspected to see that there are graded for scaffold use, are sound and in good condition, straight grained, free from saw cuts, splits and holes
- Platforms and walkways will be at least 18 inches in width. When the work area is less than 18 inches wide, guardrails and/or personal fall arrest systems will be used
- Where platforms are overlapped to create a long platform, the overlap will occur only over supports, and will not be less than 12 inches unless the platforms are nailed
- The front edge of all platforms will not be more than fourteen inches from the face of the work without guardrails or PFAS
- A platform greater than 10 feet in length will not extend over its support more than 18 inches, unless it is designed and installed so that the cantilevered portion of the platform is able to support employees without tipping, or has guardrails which block employee access to the cantilevered end
- Don't cover wood with opaque finishes, other than the edges for making identification
- Coatings will not obscure the top or bottom wood surfaces
- Each end of the platform, unless cleated or otherwise restrained by hooks or equivalent means, will extend over the centerline of its support at least six inches
- Scaffold components manufactured by different manufacturers will not be intermixed unless the components fit together without force and the scaffold's structural integrity is maintained. Scaffold components made of dissimilar metals will not be used together unless a competent person has determined that galvanic action will not reduce the strength of any component

Support Scaffolds

Supported scaffolds are platforms supported by legs, outriggers beams, brackets, poles, uprights, posts, frames, or similar rigid support. The structural members, poles, legs, posts, frames, and uprights, must be plumb and braced to prevent swaying and displacement.

Supported scaffolds with a height to base width ratio of more than 4:1 must be restrained by guying, tying, bracing or an equivalent means.

The following placements must be used for guys, ties, and braces;

- Install guys, ties, or braces at the closest horizontal member to the 4:1 height and repeat vertically with the top restraint no further than 4:1 height from the top
- Vertically – every 20 feet or less for scaffolds less than three feet wide and every twenty-six feet or less for scaffolds more than three feet wide
- Horizontally – at each end; at intervals not to exceed 30 feet from one end

Supported scaffold poles, legs, posts, frames, and uprights will bear on base plates and mud sills or other adequate firm foundation and will include the following;

- Footings will be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement
- Unstable objects will not be used to support working platforms
- Front-end loaders and similar pieces of equipment will not be used to support scaffold platforms unless specifically designed by the manufacturer for such use
- Forklifts will not be used to support scaffold platforms unless the platform is attached to the fork and the fork-lift is not moved horizontally while the platform is occupied

Supported scaffold poles, legs, posts, frames, and uprights will be plumb and braced to prevent swaying and displacement.

Suspended Scaffolds

A suspension scaffold contains one or more platforms suspended by ropes or other non-rigid means from an overhead structure, 1926.450(b), such as the following scaffolds: single-point, multi-point, multi-level, two-point, adjustable, boatswain's chair, catenary, chimney hoist, continuous run, elevator false car, go-devils, interior hung, masons', and stone setters'.

- All support devices must rest on surfaces that can support four times the scaffold load when operating at the rated load of the hoist, or at least one-and-a-half times the load imposed on them by the scaffold at the stall capacity of the hoist, whichever is greater
- A competent person must evaluate all direct connections prior to use to confirm that the supporting surfaces are able to support the imposed load
- Suspension scaffolds must be secured to prevent them from swaying
- Guardrails, a personal fall-arrest system, or both must protect each employee more than 10 feet (3.1 m) above a lower level from falling

- A competent person must inspect ropes for defects prior to each workshift and after every occurrence that could affect a rope's integrity
- When scaffold platforms are more than 24 inches (61 cm) above or below a point of access, ladders, ramps, walkways, or similar surfaces must be used
- When using direct access, the surface must not be more than 24 inches (61 cm) above or 14 inches (36 cm) horizontally from the surface
- When lanyards are connected to horizontal lifelines or structural members on single-point or two-point adjustable scaffolds, the scaffold must have additional independent support lines equal to the suspension lines and have automatic locking devices
- Outrigger beams must be placed perpendicular to their bearing support
- Emergency escape and rescue devices must not be used as working platforms, unless designed to function as suspension scaffolds and emergency systems.
- Tiebacks must be secured to a structurally sound anchorage on the building or structure. Sound anchorages do not include standpipes, vents, other piping systems, or electrical conduit. A single tieback must be installed perpendicular to the face of the building or structure. Two tiebacks installed at opposing angles are required when a perpendicular tieback cannot be installed
- Only those items specifically designed as counterweights must be used
- Counterweights must be secured by mechanical means to the outrigger beams
- Vertical lifelines must not be fastened to counterweight
- Sand, masonry units, or rolls of roofing felt may not be used for counterweights
- The suspension ropes must be long enough to allow the scaffold to be lowered to the level below without the rope passing through the hoist, or the end of the rope configured to prevent the end from passing through the hoist
- Repaired wire may not be used
- Drum hoists must contain no less than four wraps of the rope at the lowest point
- Employers must replace wire rope when the following conditions exist: kinks; six randomly broken wires in one rope lay or three broken wires in one strand in one lay; one third of the original diameter of the outside wires is lost; heat damage; evidence that the secondary brake has engaged the rope; and any other physical damage that impairs the function and strength of the rope
- Suspension ropes supporting adjustable suspension scaffolds must be a diameter large enough to provide sufficient surface area for the functioning of brake and hoist mechanisms
- Suspension ropes must be shielded from heat-producing processes
- Power-operated hoists used to raise or lower a suspended scaffold must be tested by a qualified testing laboratory
- The stall load of any scaffold hoist must not exceed three times its rated load
- The stall load is the load at which the prime-mover (motor or engine) of a power-operated hoist stalls or the power to the prime-mover is automatically disconnected
- Gasoline power-operated hoists or equipment are not permitted

- Drum hoists must contain no less than four wraps of suspension rope at the lowest point of scaffold travel
- Gears and brakes must be enclosed
- An automatic braking and locking device, in addition to the operating brake, must engage when a hoist makes instantaneous change in momentum or an accelerated overspeed.
- Manually operated hoists used to raise or lower a suspended scaffold must be tested and listed by a qualified testing laboratory
- These hoists require a positive crank force to descend

Welding can be done from suspended scaffolds when:

- A grounding conductor is connected from the scaffold to the structure and is at least the size of the welding lead
- The grounding conductor is not attached in series with the welding process or the work piece
- An insulating material covers the suspension wire rope and extends at least 4 feet (1.2 m) above the hoist
- Insulated protective covers cover the hoist
- The tail line is guided, retained, or both, so that it does not become grounded
- Each suspension rope and any other independent lines are insulated from grounding

Access Requirements

Access will be provided when scaffold platforms are more than 24 inches above or below the point of access. Direct access is acceptable when the scaffold is not more than 14 inches horizontally and not more than 24 inches vertically from the other surfaces. Crossbraces will not be used as a means of access.

Type of accesses which are permitted: portable ladders tied off to the structure; hook-on ladders; attachable ladders; stairways; stair towers; ramps and walkways; or integral prefabricated frames.

When erecting or dismantling supported scaffolds, a safe means of access will be provided when a competent person has determined the feasibility and analyzed the site conditions.

FALL PROTECTION

Fall protection includes guardrail systems and personal fall arrest systems.

Guardrails

All scaffolds more than six feet above the lower level will protect employees with guardrails on each open side of the scaffold. Guardrails will be installed along the open sides and ends before releasing the scaffold for use by the employees, other than erection or dismantling crews.

Guardrails are not required when:

- The front end of all platforms are less than 14 inches from the face of the work
- When employees are plastering and lathing 18 inches or less from the front edge

Materials such as steel or plastic banding will not be used for toprails or midrails.

Fall Arrest Systems

Personal fall arrest systems include harnesses, components of the harness/belt such as Dee-rings, and snap hooks, lifelines, and anchorage point. Employees working on scaffolds ten (10) feet or more above ground/floor level will use fall protection in accordance with GTG Automation, Inc.'s Fall Protection Program.

The following chart illustrates the type of fall protection required for specific scaffolds;

Type of Scaffold	Fall Protection Required
Aerial lifts	Personal fall-arrest system
Boatswains' chair	Personal fall-arrest system
Catenary scaffold	Personal fall-arrest system
Crawling board (chicken ladder)	Personal fall-arrest system, or a guardrail system, or a ¾ inch (1.9 cm) diameter grabline or equivalent handhold securely fastened beside each crawling board
Float scaffold	Personal fall-arrest system
Ladder jack scaffold	Personal fall-arrest system
Needle beam scaffold	Personal fall-arrest system
Self-contained scaffold	Both a personal fall-arrest system and a guardrail system
Single-point and two-point suspension scaffolds	Both a personal fall-arrest system and a guardrail system
Supported scaffold	Personal fall-arrest system or guardrail system
All other scaffolds not specified above	Personal fall-arrest system or guardrail systems that meet the required criteria

Clearance Distances between Scaffolds and Powerlines

The following table provides the clearance distances between scaffolds and powerlines, or any other conductive material, while being erected, used, dismantled, altered or moved.

Insulated Lines Voltage	Minimum Distance	Alternatives
Less than 300 volts	3 feet	
300 to 50 kv	10 feet	
More than 50 kv	10 feet plus 0.4 inches for each 1 kv over 50 kv	Two times the length of the line insulator, but never less than 10 feet
Uninsulated Lines Voltage	Minimum Distance	Alternatives
Less than 50 kv	10 feet	
More than 50 kv	10 feet plus General Rule: 0.4 inches for each 1 kv over 50 kv	Two times the length of the line insulator, but never less than 10 feet

However, scaffolds can be moved closer if it is necessary for the performance of work, provided the power lines are de-energized or protective coverings are installed to help prevent accidental contact.

SCAFFOLD CONSTRUCTION

Greg Griffin has been designated as the qualified person responsible for designing scaffolds. Scaffolds will be built to meet the design made by the qualified person.

Different types of scaffolds must be built to meet certain capacity requirements.

Scaffolds that directly connect to roofs and floors and counterweights used to balance adjustable suspension scaffolds, the load capacity must be capable of resisting at least 4 times the tipping moment imposed by the scaffold operating at the rated load of the hoist, or 1.5 (minimum) times the tipping moment imposed by the scaffold operating at the stall load of the hoist, whichever is greater.

For non-adjustable suspension scaffolds, the suspension rope (including connection hardware) must be able to support at least 6 times the maximum load applied or transmitted to that rope.

For adjustable suspension scaffolds, the suspension rope (including connecting hardware) must be able to support at least 6 times the maximum load applied or transmitted to that rope or at least 2 times the stall load of the hoist, whichever is greater.

For other types of scaffolds, the scaffold and its components must be able to support its own weight and at least 4 times the maximum intended load applied or transmitted to it.

Generally, scaffold platforms and walkways must be at least 18 inches (46 cm) wide. If conditions where the scaffold platforms and walkways are built does not allow for this, then the walkways and platforms must be as wide as possible.

The only exceptions to this requirements are ladder jack scaffolds, top plate bracket scaffolds, roof bracket scaffolds, and pump jack scaffolds which all must be at least 12 inches (30 cm) wide.

Generally, the maximum distance from the front edge of any scaffold platform must not be more than 14 inches (36 cm) from the face of the work being done. Outrigger scaffolds have a maximum distance of 3 inches (8 cm) while those used for plastering and lathing must be no more than 18 inches (46 cm) from the face.

However, if guardrail systems are built along the front edge or personal fall arrest systems are used, then the maximum distance can be greater.

Each end of a platform that is 10 feet or less in length must not extend more than 12 inches over the edge of its support unless the cantilevered portion of the scaffold is able to support employees and/or materials without tipping or has guardrails to prevent employees from accessing the cantilevered end.

Each end of a platform that is greater than 10 feet in length must not extend more than 18 inches over the edge of its support unless the cantilevered portion of the scaffold is able to support employees and/or materials without tipping or has guardrails to prevent employees from accessing the cantilevered end.

On scaffolds where planks are abutted to create a long platform, each abutted end must rest on a separate support surface. Common support members such as "T" sections or the use of hook on platforms are also permitted.

Fall Hazard Assessment

Job Name:		Location:	
Date Assessed:	Related Operating Procedures Reviewed: ☐ YES ☐ NO	Location Marked and Entry Controlled: ☐ YES ☐ NO	
FALL HAZARD ASSESSMENT CHECKLIST			
1. Can an employee enter the area without restriction and perform work?		☐ YES	☐ NO
2. Are fall prevention systems such as cages, guardrails, toeboards, and manlifts in place		☐ YES	☐ NO
3. Have slipping and tripping hazards been removed or controlled?		☐ YES	☐ NO
4. Have visual warnings of fall hazards been installed?		☐ YES	☐ NO
5. Can the distance a worker could fall be reduced by installing platforms, nets etc.?		☐ YES	☐ NO
6. Are any permanently installed floor coverings, gratings, hatches, or doors missing?		☐ YES	☐ NO
7. Does the location contain any other recognized safety and or health hazards?		☐ YES	☐ NO
8. Is the space designated as a Permit Required Confined Space?		☐ YES	☐ NO
9. Have anchor points been designated and load tested?		☐ YES	☐ NO
Assessment Information: (indicate specifics with initials)			
Initials	Hazard	Remarks/Recommendations	
	Total potential fall distance:		
	Number of workers involved:		
	Frequency of task:		
	Obtainable anchor point strength:		
	Required anchor point strength: (not less than 5000 lbs)		
Additional Requirements:			
Potential environmental conditions that could impact safety:			
Initials	Condition	Remarks/Recommendations	
Possible required structural alterations:			
Initials	Alteration	Remarks/Recommendations	
Possible task modification that may be required:			
Initials	Task	Remarks/Recommendations	
Training requirements:			
Initials	Requirement	Remarks/Recommendations	
Personal protective equipment required:			
Initials	Requirement	Remarks/Recommendations	
Comments:			
☐ Approved AUTHORIZATION:			
I certify that I have conducted a Fall Hazard Assessment of the above designated location and have detailed the findings of the assessment on this form. * Further detailed on attachment: ☐ YES ☐ NO			
Title:	Date:	Time:	
Name:	Signature:		

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has adopted this policy to inform employees of the Spill Prevention and Response Policy. This ensures the safety and health of the employees.

Greg Griffin is responsible for ensuring that the following policy is enforced.

STORAGE

It is the policy of GTG Automation, Inc. that all chemical substances must be stored in the proper containers to minimize the potential for a spill. Whenever possible, chemicals will be kept in closed containers and stored so they are not exposed to storm water.

SUBSTANCE IDENTIFICATION

GTG Automation, Inc. will ensure all chemicals used that may be potentially spilled or released are kept on the chemicals with potential spill or release list provided on page 4 of this policy. The chemicals list will consist of both liquid chemicals used at the facilities of GTG Automation, Inc. or brought on to the sites of the owner client.

As part of the risk identification and assessment plan, a material inventory identifying hazardous substances and toxic chemicals will be kept determining the potential for spills.

SPILL KITS

It is the policy of GTG Automation, Inc. that spill kits must contain the appropriate supplies for the materials that that may be spilled. The supplies will be easily accessible when required and considerations will be made for both the type and quantity of materials.

Spill kits will include, but are not limited to, at least the following:

10 white absorbents for oil	Vermiculite or other absorbent
10 gray absorbents for all chemical spills	Broom and pan
Plastic bags with waste labels	Personnel protective equipment (gloves, goggles, dust/mist mask)
6-gallon empty recovery drum	

GTG Automation, Inc. will provide spill kits and proper spill response materials based on the substances and quantity of the potential spills.

TRAINING

It is the policy of GTG Automation, Inc. that all employees will be trained on the process and materials they will be working with, the potential safety hazards, and the practices and procedures on how to prevent or respond properly in the event of a toxic or hazardous spill incident.

SAFE PRACTICES

At all times, there will be one person on call (and available to respond to an emergency, who will be responsible for coordinating all hazardous waste emergency response measures.

This individual will be designated the On-Scene Coordinator and will have the authority to mobilize all resources necessary to carry out procedures outlined in the plan. He or she will have knowledge of all hazardous waste generating operations and activities at the location and characteristics of hazardous waste, the location of records, and location of all emergency response and spill cleanup and control equipment.

In the event of a hazardous waste release the On-Scene Coordinator, or alternate, must be contacted immediately. A mobile communication system (i.e., telephone, radio, walkie-talkie, or cellular phone) will be available near the storage locations during transfer operations.

The On-Scene Coordinator must be informed of the nature and location of the spill and will direct the resources of manpower and equipment for the spill response action. The On-Scene Coordinator will remain in control for the duration of the response.

The Need of Outside Support (Larger Spills): The On-Scene Coordinator, or individual directed by the On-Scene Coordinator, will make the necessary contact with outside support and regulatory agencies.

Spill Events: In the event of an incident involving a large spill (greater than 1 gallon of hazardous material or 1 pint of acutely hazardous)

Alert the On-Scene Coordinator

The On-Scene Coordinator will immediately notify the Environmental Health and Safety Department. The On-Scene Coordinator will summon additional assistance, if necessary (local or state emergency response teams, Fire Depts. etc.). The On-scene coordinator will obtain the Material's Safety Data Sheet (SDS) to determine the hazards and appropriate response activities. The SDS will be provided to emergency responders.

APPROPRIATE PERSONAL PROTECTIVE EQUIPMENT (PPE)

Determine exact source of leak or spill, amount, and area affected by the release. After putting on personal protective equipment and after assessing the nature of the hazards and hazardous chemicals, remedy and stop the point source spill, if safe to do so. Stop spill material with standard industrial absorbent. Take the necessary action to keep the spill from spreading. Spread absorbent to surround and absorb the spilled material. Collect contaminated material (absorbent, rags, disposal suits, etc.) into a recovery drum and label for proper disposal.

DISPOSAL OF SPILL MATERIALS

Oil Spill Waste

Oil Spill Waste will be cleaned up using spill absorbent material and drummed for off-site disposal. Free liquid is pumped into UN approved 30 or 55-gallon drums. The UTPA Environmental Protection Division, using an approved UT System Vendor, disposes of generated waste.

Hazardous Waste Releases

The On-Scene Coordinator must, immediately after an emergency, provide for the treatment, storage, or disposal of recovered waste, contaminated soil or surface water, or any other material that results from a fire, explosion, or other release at the facility.

HOUSEKEEPING

It is the policy of GTG Automation, Inc. that areas where chemicals may be used or stored must be maintained using good housekeeping best management practices.

This includes, but is not limited to:

- Organized closed and clean storage containers
- Away from potential receiving waters
- Labeled correctly
- Secondary containment where necessary
- Removing any spillage immediately

COMMUNICATION MEASURES

In the event of any spill the appropriate personnel should be contacted to initiate immediate action, proper reports written for review and evaluation by management, and any governmental and environmental agencies need to be notified by law.

Emergency Contact Numbers will be posted at telephones located throughout the facility.

The following information will be provided when reporting a spill:

- Identity of the caller
- Contact phone number
- Location of spill
- Type of product spilled
- Quantity spilled
- Extent of actual and/or potential water pollution
- Date and time of spill
- Cause of spill

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TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has adopted this policy to inform employees of the stop work authority. This ensures the safety and health of the employees.

RESPONSIBILITIES

Greg Griffin is responsible for ensuring that the following policy is enforced.

ROLES AND RESPONSIBILITIES

Management

- Creates a culture that promotes SWA,
- Establishes clear expectations and responsibilities
- Demonstrate support for using SWA without the potential for retribution
- Resolve SWA conflicts when they arise
- Hold employees and contractors accountable for full compliance with the SWA program

Supervisors and Managers

- Promote a culture where SWA is freely exercised
- SWA requests are honored and resolved before resuming operations
- Ensure necessary stop work follow-up is completed

HSE Department

- Provide training, support, of the SWA program
- Document and monitor compliance of the SWA program

Employees

- Initiate stop work (in good faith)
- Support stop work initiated by others

TRAINING

GTG Automation, Inc. will ensure that employees will receive stop work authority training before initial assignment. The training will be documented, including the employee's name, the dates of training and subject.

PROCEDURES

All contractors and employees have the authority and obligation to stop any task or operation where concerns or questions regarding the control of hazards or unsafe acts.

It is the policy of GTG Automation, Inc. that no work will resume until all stops work issues and concerns have been adequately addressed.

Stop Work Intervention

GTG Automation, Inc. ensures that employees will not be reprimanded for issuing a stop work intervention.

Any form of retribution, reprimand or intimidation directed at any individual or company for exercising their right to issue a stop work authority will not be tolerated by GTG Automation, Inc..

All employees of GTG Automation, Inc. are responsible to initiate a stop work intervention when warranted and management is responsible to create a culture where stop work authority is exercised freely.

Stop Work Authority Steps

The steps to a stop work authority for GTG Automation, Inc. include stop, notify, correct, and resume.

When an unsafe condition is identified the stop work authority (SWA) (also known as a stop work intervention), will be initiated, coordinated through the supervisor, initiated in a positive manner, notify all affected personnel and supervision of the stop work issue, correct the issue, and resume work when safe to do so.

- NOTE: No work can resume once a SWA is exercised until all issues and concerns have been addressed..

Documentation

It is the policy of GTG Automation, Inc. that all stop work interventions will be documented for lessons learned and corrective measures to be put in place.

Stop Work Reports

GTG Automation, Inc. ensures that stop work reports will be reviewed by supervision in order to:

- Measure participation
- Determine quality of interventions and corrective actions
- Trend common issues
- Identify opportunities for improvement
- Establish lessons learned

Follow Up Importance

It is of high importance of GTG Automation, Inc. to conduct a follow-up after a stop work intervention has been initiated and closed.

It is the desired outcome of any stop work intervention that the identified safety concern(s) have been addressed to the satisfaction of all involved persons prior to the resumption of work. Most issues can be resolved in a timely manner at the job site, occasionally additional investigation and corrective actions may be required to identify and address root causes.

POLICY

The control of traffic in and around work areas must be a first-priority safety issue in planning any roadwork where the possibility of vehicle hazards exists. Many trades are required to establish some form of traffic control when their work approaches, is adjacent to, or encroaches on, a public thoroughfare.

OSHA Part 29 CFR 1926.200 states that "Construction areas must be posted with legible traffic signs at points of hazard", and "All traffic control signs or devices used for protection of construction workers will conform to Part 6 of the Federal Highway Administration (FHWA) Manual of Uniform Traffic Control Devices (MUTCD)."

The company has adopted this policy to protect its employees and the public from the hazards associated with temporary traffic control.

DEFINITIONS

STANDARD - The uniform traffic control regulation from the MUTCD that applies to the part of this chapter being discussed

OPTION - An acceptable alternative method that may be applied to a particular regulation of the MUTCD referenced

RESPONSIBILITIES

Employer Responsibilities

GTG Automation, Inc. will:

- Designate a Traffic Control Supervisor to design and manage temporary traffic control (TTC) zones
- Ensure all employees engaged in construction work in or near roadways will be knowledgeable of the hazards associated with their work, follow the safe practices of this policy, and be trained on the applicable regulations governing that work
- All traffic control devices, signs and barriers will meet the applicable MUTCD and FHWA requirements

Employee Responsibilities

Traffic Control Supervisor

The company designated traffic control supervisor is responsible for:

- Completing MUTCD and FHWA training and demonstrating an understanding of the requirements
- Designing and managing temporary traffic control (TTC) zones
- Providing road user education and oversee TTC zone enforcement
- Ensuring all necessary traffic control devices are in good condition and available at the jobsite
- Notifying all applicable Federal, State, and local agencies and law enforcement departments, and obtaining authorization to implement TTC plans

Flaggers

All person assigned flagging duties by the company will be:

- Be trained on flagging operations
- Be able to demonstrate an understanding their duties
- Follow all safe practices regarding flagging operations

Construction Personnel

All employees operating equipment or performing groundwork in or around a public roadway will:

- Follow all safe practices as defined in this policy
- Wear all necessary PPE appropriate for their job
- Understand the TTC zones and signage
- Report any unsafe conditions to the TTC supervisor

GENERAL SAFETY INFORMATION

Workers exposed to traffic must be attired in bright, highly visible apparel. Flaggers must wear high visibility clothing with a fluorescent background and made of retroreflective material. This makes employees visible for at least 1,000 feet in any direction.

In all instances on the work site, pedestrian traffic has the right-of-way.

When work activity occurs on or adjacent to a surface being used by the public, the contractor is responsible for providing flagger(s) to direct traffic.

Training will be provided to workers involved in the planning, setup, operation, maintenance or removal of traffic control to the level of their responsibility.

Employees struck by vehicles or mobile equipment account for many work zone injuries or fatalities. Work zones should be marked by traffic control devices such as: signals, message boards, cones, barrels, barricades and delineator posts.

Hand-signaling devices such as Stop/Slow paddles or red flags should be provided to flaggers. Oftentimes, the Stop/Slow paddle is the preferred hand-signaling device because the paddle gives road users more positive guidance than red flags, which are primarily used in emergency situations.

TEMPORARY TRAFFIC CONTROL PLANNING

A TTC plan describes the measures that will be used for directing road users through a work zone or an incident area. TTC plans play a vital role in providing a reasonably safe and efficient road user flow when a work zone, incident, or other event that temporarily disrupts normal road use.

TTC plans range in scope from being very detailed to simply referencing typical drawings contained in this MUTCD or specific drawings contained in the contract documents. The degree of detail in the TTC plan depends entirely on the nature and complexity of the situation.

The designated traffic control supervisor, who is knowledgeable about the fundamental principles of TTC and work activities to be performed, will prepare TTC plans. The design, selection, and placement of TTC devices for a TTC plan should be based on engineering judgment.

Coordination between adjacent or overlapping projects should be made to prevent duplicate signing and to check compatibility of traffic control between the projects.

Traffic control planning should be completed for all highway construction, utility work, maintenance operations, and incident management, including minor maintenance and utility projects, before occupying the TTC zone.

Planning for all road users should be included in the process, and include:

- Continuous access to circulation paths for pedestrians, if existing pedestrian routes are blocked or detoured, information about alternative routes, usable by pedestrians with disabilities will be provided
- Access to temporary bus stops, reasonably safe travel across intersections with accessible pedestrian signals, and other routing issues
- Where temporary pedestrian routes are channelized, barriers and channelizing devices, detectable by people with visual disabilities, should be provided
- Provisions that enable contractors to develop an alternate TTC plan based on project needs
- Modifications of TTC plans may be necessary because of changing conditions or a determination of better methods of safely and efficiently handling road users
- This alternate or modified plan must have the approval of the responsible highway agency prior to implementation
- Continuity of transit service should be incorporated into the TTC planning process. The TTC plan should provide for features such as accessible temporary bus stops, pullouts, and satisfactory waiting areas for transit patrons, including persons with disabilities, if applicable
- Continuity of railroad service and acceptable access to abutting property owners and businesses should also be incorporated into the TTC planning process
- Reduced speed limits should be used only in the specific portion of the TTC zone where conditions or restrictive features are present
- Frequent changes in the speed limit should be avoided. A TTC plan should be designed so that vehicles can reasonably safely travel through the TTC zone with a speed limit reduction of no more than 10 mph, and should be used only when required
- If a speed reduction of more than 10 mph is required, additional driver notification should be provided. The speed limit should be stepped down in advance of the location requiring the lowest speed, and additional TTC warning devices should be used.

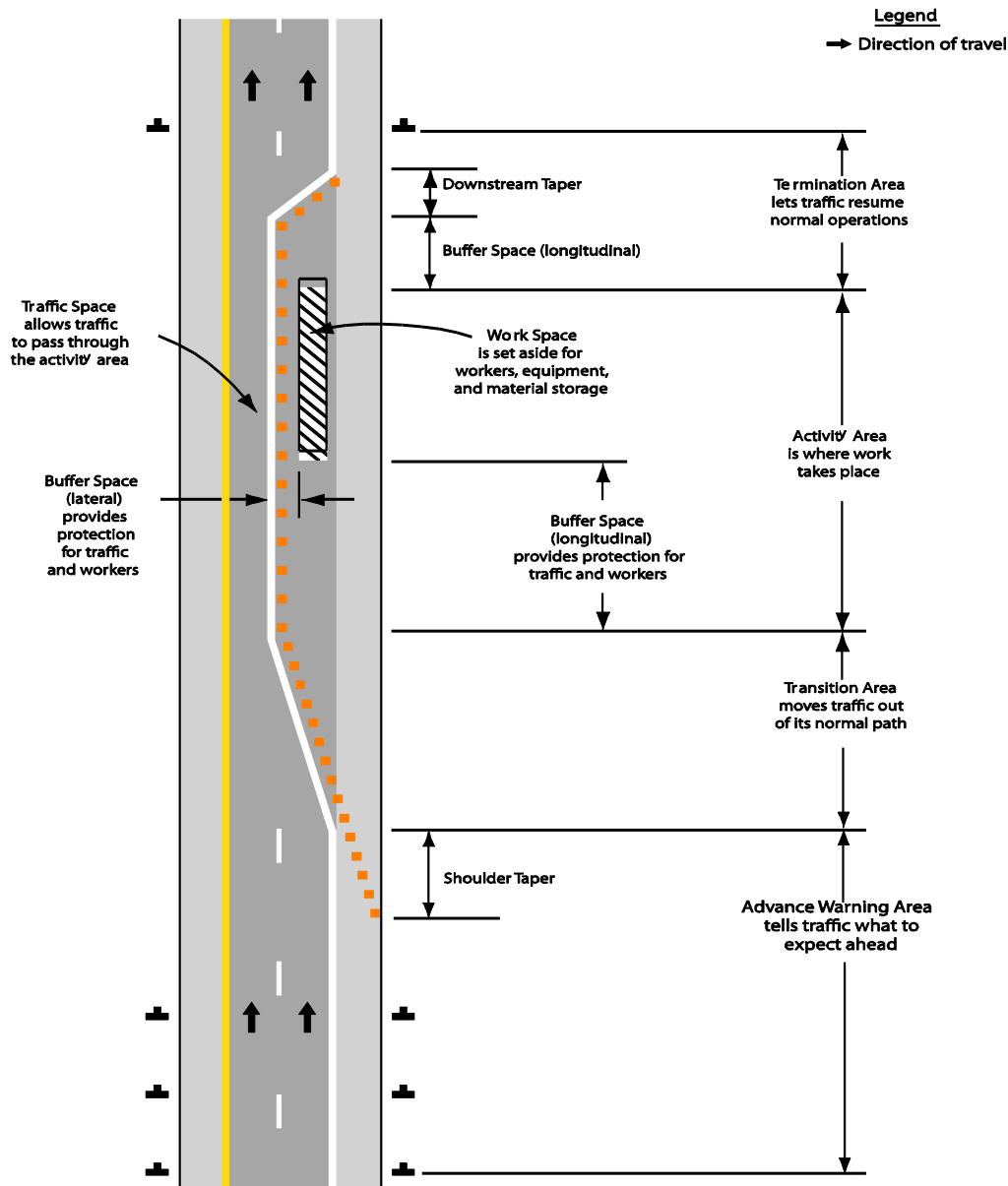
TEMPORARY TRAFFIC CONTROL ZONES

A **TTC zone** is an area of a highway where road user conditions are changed because of a work zone or an incident using TTC devices, uniformed law enforcement officers, or other authorized personnel.

A **work zone** is an area of a highway with construction, maintenance, or utility work activities. Signs, channelizing devices, barriers, pavement markings, and/or work vehicles typically mark a work zone. It extends from the first warning sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to the END ROAD WORK sign or the last TTC device.

An **incident area** is an area of a highway where authorized officials in response to a traffic incident, natural disaster, or special event impose temporary traffic controls. It extends from the first warning device (such as a sign, light, or cone) to the last TTC device or to a point where road users return to the original lane alignment and are clear of the incident.

Components of Temporary Traffic Control Zones



Most TTC zones are divided into four areas:

- The advance warning area
- The transition area
- The activity area
- The termination area

Advance Warning Area

Standard: The advance warning area is the section of highway where road users are informed about the upcoming work zone or incident area.

The advance warning area may vary from a single sign or high-intensity rotating, flashing, oscillating, or strobe lights on a vehicle to a series of signs in advance of the TTC zone activity area.

Typical distances for placement of advance warning signs on freeways and expressways should be longer because drivers are conditioned to uninterrupted flow. Therefore, the advance warning sign placement should extend on these facilities as far ½ mile or more.

SUGGESTED ADVANCE WARNING SIGN SPACING

Road Type	Distance Between Signs**		
	A	B	C
Urban (low speed)*	100	100	100
Urban (high speed)*	350	350	350
Rural	500	500	500
Expressway / Freeway	1,000	1,500	2,640
* Speed Category to be determined by highway agency ** Distances are shown in feet. The A dimension is the distance from the transition or point of restriction to the first sign. The B dimension is the distance between the first and second signs. The C dimension is the distance between the second and third signs. (The third sign is the first one in a three-sign series encountered by a driver approaching a TTC zone.)			

On urban streets, the effective placement of the first warning sign in feet should range from 4 to 8 times the speed limit in mph, with the high end of the range being used when speeds are relatively high. When a single advance warning sign is used, the advance warning area can be as short as 100 ft. When two or more advance warning signs are used on higher-speed streets, such as major arterials, the advance warning area should extend a greater distance.

Since rural highways are normally characterized by higher speeds, the effective placement of the first warning sign should be substantially longer. Since two or more advance warning signs are normally used for these conditions, the advance warning area should extend 1,500 ft. or more for open highway conditions.

Option: Advance warning may be eliminated if the activity area is far enough away from the road users' path so that it does not interfere with the normal traffic flow.

Flagger Procedures

The use of paddles and flags by flaggers is illustrated in Figure E-1.

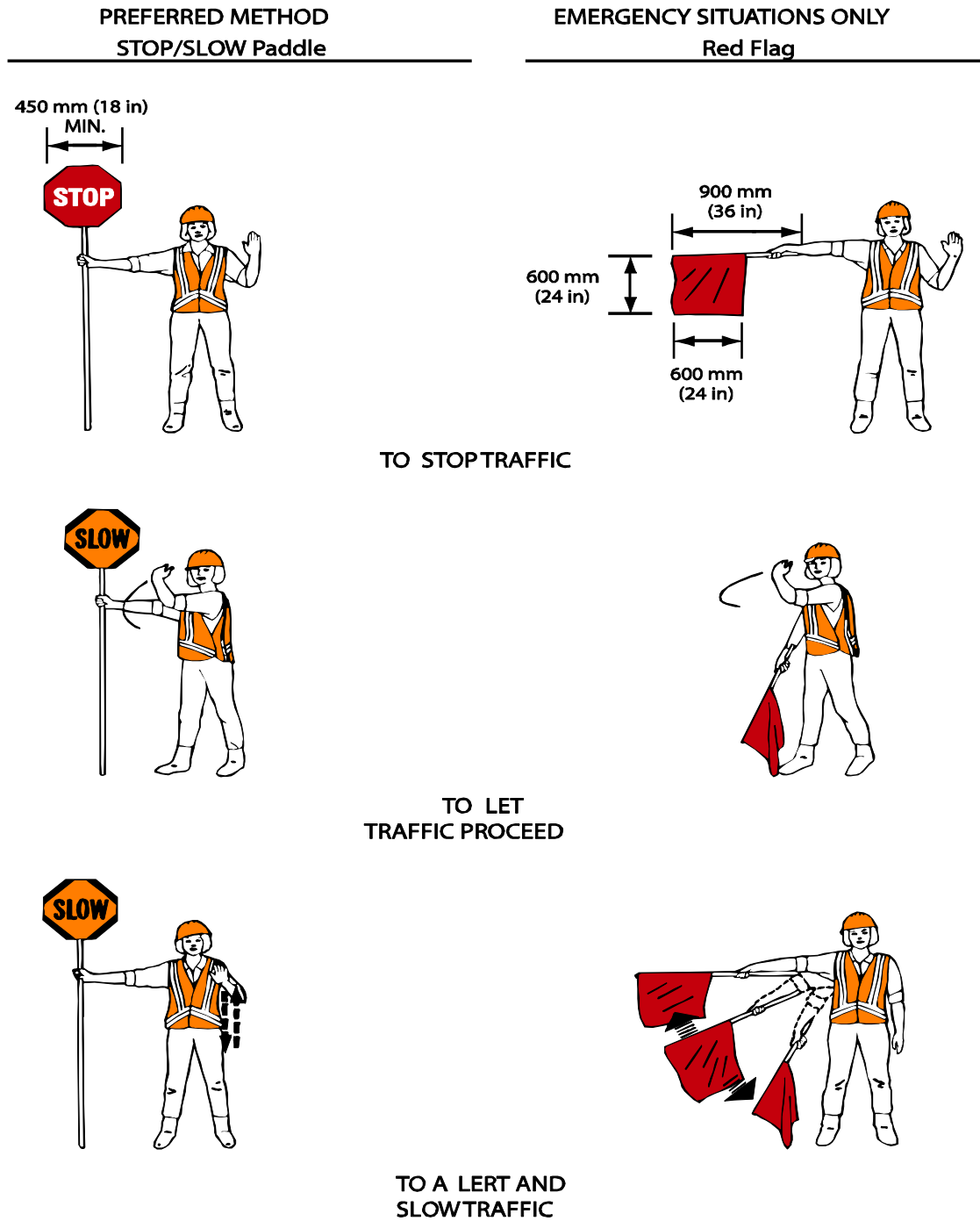
STANDARD: The following methods of signaling with paddles will be used:

- To stop road users, the flagger will face road users and aim the STOP paddle face toward road users in a stationary position with the arm extended horizontally away from the body. The free arm will be held with the palm of the hand above shoulder level toward approaching traffic
- To direct stopped road users to proceed, the flagger will face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body. The flagger will motion with the free hand for road users to proceed
- To alert or slow traffic, the flagger will face road users with the SLOW paddle face aimed toward road users in a stationary position with the arm extended horizontally away from the body
- To further alert or slow traffic, the flagger holding the SLOW paddle face toward road users may motion up and down with the free hand, palm down.

Standard: The following methods of signaling with a flag will be used:

- To stop road users, the flagger will face road users and extend the flag staff horizontally across the road users' lane in a stationary position so that the full area of the flag is visibly hanging below the staff. The free arm will be held with the palm of the hand above the shoulder level toward approaching traffic
- To direct stopped road users to proceed, the flagger will stand parallel to the road user movement and with flag and arm lowered from the view of the road users, and motion with the free hand for road users to proceed. Flags must not be used to signal road users to proceed.
- To alert or slow traffic, the flagger will face road users and slowly wave the flag in a sweeping motion of the extended arm from shoulder level to straight down without raising the arm above a horizontal position. The flagger must keep the free hand down.

Figure E-1. Use of Hand-Signaling Devices b/ Flaggers



Flagger Stations

Standard: Flagger stations will be located so that approaching road users will have sufficient distance to stop at an intended stopping point.

The distances shown in the table below, provide information regarding the stopping sight distance as a function of speed, may be used for the location of a flagger station. These distances may be increased for downgrades and other conditions that affect stopping distance. Flagger stations should be located so that an errant vehicle has additional space to stop without entering the workspace.

Speed*	Distance
20 mph	115 feet
25 mph	155 feet
30 mph	200 feet
35 mph	250 feet
40 mph	305 feet
45 mph	360 feet
50 mph	425 feet
55 mph	495 feet
60 mph	570 feet
65 mph	645 feet
70 mph	730 feet
75 mph	820 feet

TRAINING

GTG Automation, Inc. will ensure all employees working in temporary traffic control areas are trained in all regulations and safe practices appropriate to their job functions.

Traffic Control Supervisor

- Successful completion of MUTCD and FHWA training and can demonstrate an understanding, and proper application of, temporary traffic control requirements including:
- Identification and use of the necessary traffic control devices
- The placement and location of all required TTC devices for the work zone to be established
- Knowledge of how to control road user movement

Flaggers

- Proper flagging operations
- Be able to demonstrate an understanding their duties
- Follow all safe practices regarding flagging operations

Equipment Operators

- Understand the meaning and purpose of TTC devices and the required safe practices

Ground Workers

- Proper use of all necessary PPE
- Knowledge of the meaning of all the TTC zones and signage

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has adopted this program for the safety of employees when working in or around trenches and excavations

REFERENCES

- 29 Code of Federal Regulations:
 - 1910.23—Ladders
 - 1910.134—Respiratory Protection
 - 1910.146—Permit-required Confined Spaces
 - 1910.178—Powered Industrial Truck
 - 1910 Subpart D—Walking-Working Surfaces
 - 1926 Subpart AA—Confined Spaces in Construction
 - 1926 Subpart O—Motor Vehicles, Mechanized Equipment and Marine Operations
 - 1926 Subpart P—Excavations
 - 1926 Subpart V—Electric Power Transmission and Distribution
 - 1926.28—Personal Protective Equipment
 - 1926.500—Fall Protection
 - 1926.651—Specific Excavation Requirements
 - 1926.652—Requirements for Protective Systems
 - 1926.1053—Ladders
 - 1926.650—Scope, applications, definitions, requirements for excavations
 - 1926 Subpart P App B—Sloping and Benching

DEFINITION

Excavation services refers to any operation in which earth, rock or other material in the ground is moved, removed or otherwise displaced by means of tools, equipment or explosives through any of the following methods: grading, trenching, digging, ditching, drilling, auguring, tunneling, scraping, cable or pipe plowing, driving or any other way.

RESPONSIBILITIES

GTG Automation, Inc. will provide the resources necessary for the implementation of this program. GTG Automation, Inc. will implement and enforce the engineering controls, procedures and work practices to ensure that no employee is exposed to hazards from excavations being performed or existing at the job site.

Greg Griffin is designated as the Competent Person for GTG Automation, Inc. in authority over all excavation operations. Greg Griffin will ensure all safety measures and systems are in place and correctly installed, that all safety procedures are adhered to, and that the regular inspections of excavations, trenches and the general work site are conducted.

Competent Person Responsibilities

- Will maintain a copy of 29 CFR 1926 Subpart P and have a comprehensive knowledge of OSHA Excavations standard. In addition, competent persons will have a general knowledge of all applicable construction standards
- Conduct pre-job site review to develop a job plan that ensures a safe, efficient job process. A competent person will evaluate difficult sloping and shoring problems (e.g., manholes) before commencing the work
- Perform daily inspections of equipment and trench conditions at the start of each shift or as needed by changing conditions
- The competent person has the duty and responsibility to remove all employees from hazardous conditions and effect all changes necessary to ensure safety
- Categorize soil conditions and conduct visual and manual tests to determine the stability of soil and surrounding trench conditions.
- **NOTE:** If visual and manual tests are not performed, soils will be classified as type "C"
- Maintain on-site records of protection systems
- Determine the appropriate protection system to be used and oversee installation
- Verify that a competent person designs ramps and walkways for employee use in accordance with OSHA standards
- Greg Griffin will conduct daily inspections, examining for the possibility of cave-ins, failures, protective systems, etc. If problems are found, provisions will be made for immediate personnel removal
- The competent person will verify the proper design of structural equipment ramps and walkways or will contact a registered professional engineer (RPE) to design structural equipment ramps and walkways
- Hold tailgate safety meetings with all crew members before trenching and shoring operations. Subsequent meetings will be held as conditions warrant
- A competent person will be on-site at all times during excavation/trenching operations
- Assure that appropriate emergency rescue equipment is available to meet existing or potential conditions
- Monitor use of water removal equipment
- Test for oxygen presence and air quality in excavations, as necessary. Competent persons will be qualified in identifying confined/hazardous spaces due to the presence of flammable/combustible gases, toxics, oxygen deficiency and oxygen-enriched environments
- The competent person will consult with an RPE for trenches over 20 inches, specially designed shoring, bracing, underpinning or when excavation endangers nearby structures

NOTE: Competent persons will ensure that all trenches are properly classified, sloped or shored in accordance with the appendices of 29 CFR 1926 Subpart P or in accordance with manufactures' tabulated data. Furthermore, competent persons will consult with an RPE, obtaining written guidance whenever the work exceeds 20 ft. in depth or the work will require control measures not specified in the standard.

Supervisors

- Establishing and maintaining safe and healthful working conditions
- Being familiar with excavation safety and health hazards to which their employees are exposed, how to recognize them, the potential effects these hazards have on the employees and rules, procedures and work practices for controlling exposure to those hazards
- Setting good examples, instructing their employees and ensuring they fully understand and follow safe procedures

Employees

- No employee is expected to undertake a job until they have received instructions on how to do it properly and safely and are authorized to perform the job
- No employees will undertake a job that appears to be unsafe
- Mechanical safeguards will always be in place and kept in place
- Employees are to report all unsafe conditions encountered during work to a superior or designated individual
- Personal protective equipment (PPE) will be used when and where required and properly maintained

TRAINING

Employees who are involved in the excavation operation and exposed to excavation operation hazards will be trained in the excavator notification and excavation practices. When GTG Automation, Inc. has reason to believe that an employee lacks the skill or understanding needed for safe work involving excavation practices, Greg Griffin will retrain each employee so that the requisite proficiency is regained. Retraining is required in at least the following situations:

- Where changes at the worksite present a hazard about which an employee has not been previously trained
- Where inadequacies in an affected employee's work involving excavations indicate that the employee has not retained the requisite proficiency

GTG Automation, Inc. will ensure training is conducted when employees are hired and provide at least an annual refresher training for employees involved in or exposed to excavation operation hazards. At a minimum, the training will include applicable local rules that relate to digging, including tolerance zones, ground markings or any other relevant elements of safe digging to prevent the striking of a pipe

GTG Automation, Inc. will verify and document that each employee has received the proper tools and training to carry out their excavation responsibilities. This documentation will be verification that the employee has demonstrated proficiency in the work practices involved in their role and will be maintained for the duration of the employee's employment. The documentation will contain the content of the training, the employee's name and dates that the training took place.

DAMAGE PREVENTION

Incident Investigation

Before starting an investigation, ensure that the incident site is safe, then secure the site using cones, tape or guards. Securing the site will also help preserve any material evidence that may be useful in the investigation.

All incidents will be reported and investigated. The investigation will be thorough and seek to identify the events that contributed to causing the incident, the parties involved, the extent of the damage that occurred and any other relevant information. Reporting will include all necessary levels of management.

For incidents that result in any damage to any buried infrastructure, 911 and the utility company will be called immediately, and the proper individuals notified.

GTG Automation, Inc. will establish a corrective action program based on the findings of the investigation in order to analyze incidents for common root causes.

Reporting

Any fatalities that were caused due to a work-related incident will be reported to OSHA within eight (8) hours of the occurrence. If one or more employees becomes hospitalized as a result of a work-related incident, GTG Automation, Inc. will report the in-patient hospitalization to OSHA within twenty-four (24) hours. OSHA contact information: <https://www.osha.gov/contactus/bystate>

GTG Automation, Inc. will report severe injuries and/or fatalities using one of the following methods:

- By telephone or in person to the OSHA area office that is nearest to the site of the incident
- By telephone to the OSHA central telephone number, 1-800-321-OSHA (1-800-321-6742)
- By using the [reporting application](#) located on OSHA website at www.osha.gov/report

Corrective Action Plan

A corrective action plan will be implemented for any incident that occurs – its purpose will be to identify solutions that will make future excavations safer after an incident occurs. Steps to be taken include but are not limited to:

- Performing a root cause analysis to find the cause of the incident
- Address any corrective actions that are determined from the root cause analysis

Corrective action programs will analyze incidents for root causes and will at least:

- Retain incident investigation findings for future hazard analysis or two (2) years, whichever is greater
- Determine and document responses to findings to ensure corrective action plans are completed
- Implement a system to distribute incident investigation findings to appropriate personnel and/or similar facilities throughout the organization

Stop Work Authority

All employees of GTG Automation, Inc. have the authority to initiate a Stop Work Intervention anytime an unsafe action occurs. Stop Work Authority is exercised freely.

GTG Automation, Inc. ensures that employees will not be reprimanded for issuing a Stop Work Intervention.

Any form of retribution or intimidation directed at any individual or company for exercising their right to issue a stop work authority will not be tolerated by GTG Automation, Inc..

To follow up on the cause of the stop work order, GTG Automation, Inc. will utilize any existing procedures for an incident investigation and follow-up.

SAFE PRACTICES

GTG Automation, Inc. will implement and enforce the following engineering controls, procedures and work practices to ensure that no employee is exposed to hazards from excavations being performed or existing at the jobsite:

- Greg Griffin will ensure that all employees are trained in and familiar with required work practices and excavation procedures to safeguard personnel involved in trenching operations or who work in the vicinity of excavation operations
- Employees conducting trenching and excavation operations will be protected from cave-in hazards through benching, sloping, shoring, scaling loose material or trench shields/boxes
- Utility operators will be contacted at least 48 hours before work is to begin and underground installations located before the commencement of any excavation work. When excavations are approaching any located utility line, equipment operations will be stopped no closer than 3 ft. from the suspected location and the utility will be positively located by careful hand digging, before the resumption of machine operations
- Any utilities which are uncovered as a result of excavation operations will be protected and suitably supported during work progress, prominently marked for location and hazard and will be carefully backfilled as soon as possible
- Trench excavations will have access and egress ladders, ramps or stairs provided for employees on any excavation that is 4 ft. or more in depth. Ladders will be located within 25 ft. of the employees and will extend to a height of at least 3 ft. above the excavation. Lateral travel along the wall of a trench to a ladder or other means of egress will not exceed 25 ft.
- Walkways will be provided where employees or equipment are required or permitted to cross over excavations. Regulation guardrails will be installed where walkways are elevated six (6) ft. or more above lower levels

- Employees are not permitted underneath loads handled by lifting or digging equipment. Personnel will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any equipment, spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped with adequate overhead protection for the operator during loading and unloading operations
- Tests will be conducted for hazardous atmospheres and air contaminants (oxygen, flammable gases, etc.) and provide ventilation where necessary
- In excavations where a hazardous atmosphere, to include an oxygen deficient atmosphere, exists or will reasonably be expected to exist, such as in excavations in landfill areas or excavations in areas where hazardous substances are stored nearby, the atmospheres in the excavation will be tested before employees enter excavations greater than 4 ft. in depth
- Proper respiratory protection will be provided where necessary for personnel exposed to hazardous atmospheres above Permissible Exposure Limits (PEL). Where ventilation is used to control exposure to hazardous atmospheres, continued testing will be used to monitor levels of hazardous atmospheres
- Employees are not permitted to work in excavations in which there is accumulated water or in excavations in which water is accumulating, unless adequate precautions such as special support or shield systems to protect from cave-ins, water removal to control the level of accumulating water or use of a safety harness and lifeline have been taken to protect employees against the hazards posed by water accumulation
- An adequate system of shoring, benching or sloping in accordance with specifications in §1926.652 and appendices A and C of OSHA standards for excavation operations will be provided for any excavation over five (5) ft. in depth or any excavation which has been inspected and is believed unsafe to enter without a protective system. Inspections and determination of the type of protective system used will be done by Greg Griffin and based on soil type, density, moisture content and other factors which might affect the performance of protective systems
- Protection of employees with regard to soil classifications includes:
 - The determination of soil types and special considerations will be done in specific measures
 - Shoring, sloping, shield and excavation will be installed as needed
 - Shoring equipment will not be subjected to excessive forces and be installed to protect employees from lateral loads
 - Timber shoring or aluminum hydraulic shoring will be determined according to appendices A and C of the OSHA standard
 - The devices used will be properly maintained and in good repair. If inspection reveals damage or defect, shoring equipment will be tagged and immediately removed from service
 - Employees will be protected from hazards of falling, rolling or sliding materials or equipment
 - Personnel are prohibited from being within the shield when installing or removing the shield.
 - All shields used will be designed to resist calculated trench forces

Inspections

- A competent person designated by Greg Griffin will conduct an inspection of worksites daily, before any employee entering an excavation to ensure that safety measures are in place and proper procedures for safety are being observed. Inspections of the excavation site will be made daily before commencement of work, regularly during work operations, in the event an occurrence takes place (such as inclement weather) which might pose a hazard to commencing and at the cessation of work to ensure barricades and appropriate safety measures are in place before leaving the site
- In the event an inspection reveals the possibility of a cave-in, failure of a protective system, hazardous atmosphere or any threat to the safety of personnel, the excavation will immediately be evacuated until corrections are made to the satisfaction of Greg Griffin

Locating Underground Utility Installations

- Before digging, call 811 to determine the location of any underground utilities
- GTG Automation, Inc. will not excavate in a street, highway, public place, a private easement of a public utility or near the location of a public utility facility owned, maintained or installed on a customer's premises, without having first ascertained the location of all underground facilities of a public or private utility in the proposed area of excavation
- Upon receiving the information from the public utility, GTG Automation, Inc. personnel will exercise reasonable care when working in close proximity to the underground utilities. If the utilities are or are likely to be exposed, only hand digging will be employed in such circumstances and any support reasonably necessary for protection of the utilities will be provided on the construction site.
- When any contact with or damage to any pipe, cable or any other underground utility occurs, GTG Automation, Inc. will immediately notify the utility company. If an energized electrical cable is severed, an energized conductor is exposed or dangerous fluids or gases are escaping from a broken line, Greg Griffin will evacuate personnel from the immediate area until the utility company representative arrives
- While an excavation is open, underground utilities will be protected, supported or removed as necessary to safeguard employees

Surface Encumbrances

- All surface encumbrances such as trees, boulders, rock fragments or other obstructions whose movement will cause injury to an employee will be removed or supported
- Excavations that personnel are required to enter will have spoil piles and other material stored and retained not less than two (2) ft. from the excavation edge
- When a shoring system is used, the system will be designed and used to resist the added pressure when heavy equipment, material handling equipment or material is located near an excavation
- When mobile equipment is utilized or permitted adjacent to an excavation where the operator's vision is restricted, stop logs, barricades or a signal person will be used

Access and Egress

- Lateral travel along the wall of a trench to a ladder or other means of egress will not exceed 25 ft.
- An excavation four (4) ft. or more in depth and occupied by an employee will be provided with either a ladder extending not less than three (3) ft. above the top as a means of access or with a ramp meeting the following requirements:
 - Structural ramps that are used solely by employees as a means of access or egress from excavations will be designed by a competent person. Structural ramps used for access or egress of equipment will be designed by a competent person qualified in structural design and will be constructed in accordance with the design
 - Ramps and runways constructed of two (2) or more structural members will have the members connected together to prevent displacement. Structural members used for ramps and runways will be of uniform thickness
 - Cleats or other appropriate means used to connect runway structural members will be attached to the bottom of the runway or will be attached in a manner to prevent tripping
 - Structural ramps used in lieu of steps will be provided with cleats or other surface treatments on the top surface to prevent slipping
- An earth ramp may be used in place of a ladder if:
 - The ramp material will be stable
 - The sides of the excavation above the ramp will be maintained to the maximum allowable slope or sheeted or shored along the means of egress
 - The degree of angle of the ramp will not be more than 45 degrees
 - Vertical height between the floor of the trench and the toe of the ramp will not exceed 30 inches

Exposure to Vehicle Traffic

- Employees exposed to public vehicular traffic will be provided with and be required to wear, warning vests or other suitable garments marked with or made of reflectorized or high-visibility material
- A sidewalk will not be undermined unless it is shored to support a live load of at least 125 pounds per square foot
- Employees who are routed from a sidewalk or walkway into a roadway to detour excavations will be protected on all sides by regulation guardrails or barricades
- If an employee or equipment is required or permitted to cross a trench or ditch, a walkway, ramp or bridge will be provided and will have a designed capacity of not less than 3 times the imposed load. Regulation guardrails will be installed
- If equipment is routed across or onto a roadway, protection will be provided using regulation signals, signs or barricades
- An open cut into a roadway will be provided with a regulation barricade on all sides. Warning lights will be provided during hours of darkness

Walkways

- Walkways will be provided where employees or equipment are required or permitted to cross over excavations. Regulation guardrails will be provided where walkways are six (6) ft. or more above lower levels
- A walkway or sidewalk will be kept clear of excavated material and other obstructions
- The walkways and sidewalks will be lighted if used during hours of darkness
- A walkway or sidewalk that is adjacent to an excavation will be separated from the excavation and protected by an appropriate guardrail

Exposure to Falling Loads

Personnel will not be permitted under loads handled by lifting or digging equipment. Employees will be required to stand away from any vehicle being loaded or unloaded to avoid being struck by any spillage or falling materials. Operators may remain in the cabs of vehicles being loaded or unloaded when the vehicles are equipped with regulation protection for the operator during loading and unloading operations.

Mobile Equipment Warning Systems

When mobile equipment is operated adjacent to an excavation or when such equipment is required to approach the edge of an excavation and the operator does not have a clear and direct view of the edge of the excavation, a warning system will be utilized such as barricades, hand or mechanical signals or stop logs. If possible, the grade will be away from the excavation.

Hazardous Atmospheres

To prevent exposure to hazardous atmospheres and to assure acceptable breathing conditions, all of the following requirements will apply:

- Where an oxygen deficiency or a hazardous atmosphere exists, the atmosphere will be tested before employees enter excavations that are more than 4 ft. deep
- Precautions will be taken to prevent employee exposure to atmospheres that contain less than 19.5% oxygen and any other hazardous atmosphere. These precautions include providing regulation respiratory protection or ventilation
- Precautions will be taken, such as providing ventilation, to prevent employee exposure to an atmosphere that contains a concentration of a flammable gas in excess of 20% of the lower flammable limit of the gas
- When using controls intending to reduce levels of atmospheric contaminants to acceptable PEL, testing will be conducted as often as necessary to ensure that breathing air remains safe
- Emergency rescue equipment will be readily available and attended where atmospheric conditions exist or will develop
- Employees entering bell-bottom pier holes or other similar deep and confined footing excavations, will wear a harness with a lifeline securely attached to it. The lifeline will be separate from any line used to handle materials and will be individually attended at all times while employee wearing it is in the excavation

Protection from Water Accumulation Hazards

- Employees will not work in excavations where water has or is accumulating, unless adequate precautions have been taken to protect employees against the hazards posed by such water accumulation including support and shield systems, water removal and safety harnesses and lifeline
- If water is controlled or prevented from accumulating by the use of water pumps, the pumping equipment and operations will be monitored by a competent person to ensure proper operation
- If excavation work interrupts the natural drainage of surface water (such as streams), diversion ditches, dikes or other suitable means will be used to prevent surface water from entering the excavation and to provide adequate drainage of the area adjacent to the excavation
- Excavations subject to runoff from heavy rains will require an inspection by a competent person
- An ongoing inspection of an excavation or trench will be made by a qualified person. After every rainstorm or other hazard-producing occurrence, an inspection will be made by a competent person for evidence of possible slides or cave-ins. Where these conditions are found, all work will cease until additional precautions, such as additional shoring or reducing the slope, have been accomplished

Stability of Adjacent Structures

- Excavation below the level of the base or footing of any foundation or retaining wall that will be reasonably expected to pose a hazard to employees will not be permitted except when:
 - A support system, such as shoring, bracing or underpinning, is provided to ensure the safety of employees and the stability of the structure
 - The excavation is in stable rock
 - An RPE has approved the determination that the structure is sufficiently removed from the excavation so as to be unaffected by the excavation activity or that such excavation work will not pose a hazard to employees
- Sidewalks, pavements and appurtenant structure will not be undermined unless a support system or another method of protection is provided to protect employees from the possible collapse of such structures
- The shoring, bracing and underpinning will be inspected daily or more often, as conditions warrant, by a competent person

Employee Protection from Loose Rock or Soils

- Adequate protection will be provided to protect employees from loose rock or soil that will pose a hazard by falling or rolling from an excavation face. Such protection will consist of scaling to remove loose material; installation of protective barricades at intervals as necessary on the face to stop and contain falling material or other means that provide equivalent protection
- Employees will be protected from excavated or other materials or equipment that will pose a hazard by falling or rolling into excavations. Protection will be provided by placing and keeping such materials or equipment at least two (2) ft. from the edge of excavations or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations or by a combination of both if necessary

- If different textured soils are encountered in the side of an excavation, each soil type of the excavation will be cut to the proper maximum allowable slope, except that the slope will not steepen between the toe of the slope and the ground level where soft clay or running soil is encountered in the lower cut
- If the excavation is a trench, a trench shoring system will be used or the sides will be properly benched or sloped to protect against a cave-in
- An excavation that is cut into a rock formation will be scaled to remove loose material
- When installed forms, walls or similar structures create a trench between the form, wall or structure and the side of the excavation, it will be treated as a trench

General Classification of Soil and Rock Deposits

- Soil classifications will be determined by testing and protective systems will be designed according to those classifications
- Each soil and rock deposit will be classified by a competent person as Stable Rock, Type A, Type B or Type C in accordance with OSHA definitions
- The classification of the deposits will be made based on the results of at least one visual and at least one manual analysis. Such analyses will be conducted by a competent person using approved methods of soil classification and testing
- The visual and manual analyses will be designed and conducted to provide sufficient quantitative and qualitative information as may be necessary to identify properly the properties, factors and conditions affecting the classification of the deposits
- Layered systems will be classified according to their weakest layer. However, each layer may be classified individually where a more stable layer lies under a less stable layer
- If after classifying a deposit, the properties, factors or conditions affecting its classification change in any way, the changes will be evaluated by a competent person. The deposit will be reclassified as necessary to reflect the changed circumstances

Protection of Employees in Excavations

- Employees in an excavation will be protected from cave-ins by an adequate protective system designed in accordance with OSHA requirements, except when: excavations are made entirely in stable rock; excavations are less than five (5) ft. deep and examination of the ground by a competent person provides no indication of a potential cave-in
- Protective systems will have the capacity to resist without failure all loads that are intended or will reasonably be expected to be applied or transmitted to the system
- The slopes and configurations of sloping and benching systems will be selected and constructed by GTG Automation, Inc. and will be in accordance with OSHA requirements or the following alternative options

Option 1 - Allowable configurations and slopes.

- Excavations will be sloped at an angle not steeper than one and one-half horizontal to one vertical (34 degrees measured from the horizontal), unless GTG Automation, Inc. uses one of the other options listed below
- Specified slopes will be excavated to form configurations that are in accordance with the slopes shown for Type C soil.

Option 2 - Maximum allowable slopes and allowable configurations for sloping and benching systems, will be determined in accordance with the conditions and requirements set forth in §1926 Subpart P – Appendices A and B.

Option 3 - Designs using other tabulated data.

- Designs of sloping or benching systems will be selected from and in accordance with tabulated data, such as tables and charts
- The tabulated data will be in written form and will include all of the following:
 - Identification of the parameters that affect the selection of a sloping or benching system drawn from such data
 - Identification of the limits of use of the data, to include the magnitude and configuration of slopes determined to be safe
 - Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data
 - At least one copy of the tabulated data which identifies the RPE who approved the data, will be maintained at the jobsite during construction of the protective system. After that time, the data may be stored off the jobsite, but a copy of the data will be made available to OSHA upon request

Option 4 - Design by an RPE

- Sloping and benching systems not utilizing previous Options 1, 2 or 3 will be approved by a RPE
- Designs will be in written form and will include at least the following:
 - The magnitude of the slopes that were determined to be safe for the particular project
 - The configurations that were determined to be safe for the particular project
 - The identity of the RPE approving the design
- At least one copy of the design will be maintained at the jobsite while the slope is being constructed. After that time, the design need not be at the jobsite, but a copy will be made available to OSHA upon request

Design of Support Systems

Designs of support systems, shield systems and other protective systems will be selected and constructed by GTG Automation, Inc. and will be in accordance with OSHA requirements. or the following alternative options:

Option 1 - Designs for timber shoring in trenches will be determined in accordance with the conditions and requirements set forth in §1926 Subpart P – Appendices A and C. Designs for aluminum hydraulic shoring will be in accordance with Option 2 below, but if manufacturer's tabulated data cannot be utilized, designs will be in accordance with Appendix D.

Option 2 - Designs Using Manufacturer's Tabulated Data.

Design of support systems, shield systems or other protective systems that are drawn from manufacturer's tabulated data will be in accordance with all specifications, recommendations and limitations issued or made by the manufacturer.

Deviation from the specifications, recommendations and limitations issued or made by the manufacturer will only be allowed after the manufacturer issues specific written approval.

Manufacturer's specifications, recommendations and limitations and manufacturer's approval to deviate from the specifications, recommendations and limitations will be in written form at the jobsite during construction of the protective system. After that time, this data may be stored off the jobsite, but a copy will be made available to the Secretary upon request.

Option 3 - Designs using other tabulated data.

Designs of support systems, shield systems or other protective systems will be selected from and be in accordance with tabulated data, such as tables and charts.

The tabulated data will be in written form and include all of the following:

- Identification of the parameters that affect the selection of a protective system drawn from such data
- Identification of the limits of use of the data
- Explanatory information as may be necessary to aid the user in making a correct selection of a protective system from the data
- At least one copy of the tabulated data, which identifies the RPE who approved the data, will be maintained at the jobsite during construction of the protective system. After that time, the data may be stored off the jobsite, but a copy of the data will be made available to OSHA upon request

Option 4 - Design by an RPE

Support systems, shield systems and other protective systems not utilizing previous Options 1, 2 or 3 will be approved by a RPE.

Designs will be in written form and will include the following:

- A plan indicating the sizes, types and configurations of the materials to be used in the protective system
- The identity of the RPE approving the design

At least one copy of the design will be maintained at the jobsite during construction of the protective system. After that time, the design may be stored off the jobsite, but a copy of the design will be made available to OSHA upon request.

Protective Systems Materials and Equipment.

- Materials and equipment used for protective systems will be free from damage or defects that might impair their proper function
- Manufactured materials and equipment used for protective systems will be used and maintained in a manner that is consistent with the recommendations of the manufacturer and in a manner that will prevent employee exposure to hazards
- When equipment used for protective systems is damaged, a competent person will examine the equipment and evaluate its suitability for continued use. If the competent person cannot assure the equipment is able to support the intended loads or is otherwise suitable for safe use, then equipment will be removed from service be evaluated and approved by a RPE before being returned to service
- General installation and removal of support systems:
 - Members of support systems will be securely connected together to prevent sliding, falling, kickouts or other predictable failure
 - Support systems will be installed and removed in a manner that protects employees from cave-ins, structural collapses or from being struck by members of the support system
 - Individual members of support systems will not be subjected to loads exceeding those which those members were designed to withstand
- Excavation of material to a level no greater than two (2) ft. below the bottom of the members of a support system will be permitted, but only if the system is designed to resist the forces calculated for the full depth of the trench and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the support system
- Installation of a support system will be closely coordinated with the excavation of trenches
- Before temporary removal of individual members begins, additional precautions will be taken to ensure the safety of employees, such as installing other structural members to carry the loads imposed on the support system
- Loads will be released slowly so as to note any indication of possible failure of the remaining members of the structure or possible cave-in of the sides of the excavation
- Backfilling will progress together with the removal of support systems from excavations
- Employees will not be permitted to work on the faces of sloped or benched excavations at levels above other employees except when employees at the lower levels are adequately protected from the hazard of falling, rolling or sliding material or equipment

- General shield systems requirements:
 - Shield systems will not be subjected to loads exceeding those which the system was designed to withstand
 - Shields will be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads
 - Employees will be protected from the hazard of cave-ins when entering or exiting the areas protected by shields
 - Employees will not be allowed in shields when shields are being installed, removed or moved vertically
 - Excavations of earth material to a level not greater than two (2) ft. below the bottom of a shield will be permitted, but only if the shield is designed to resist the forces calculated for the full depth of the trench and there are no indications while the trench is open of a possible loss of soil from behind or below the bottom of the shield
- Regulation guardrails or barricades will be provided at all remotely located excavations. All wells, pits and shafts, temporary or otherwise, will be barricaded or covered. Temporary wells, pits and shafts will be backfilled when exploration and similar operations are completed.

REQUIREMENTS

Preventing and Reporting Underground Damage

All of the below organizations have guidelines on underground damage prevention and who to contact if damage occurs. Registration and account management are necessary for this information.

Reporting of any underground damage will be reported to the Utility as soon as possible. Also, 911 may need to be called. Other organizations that also have reporting requirements are CGA DIRT, AGA, API and INGAA, but all required parties will be notified as soon as possible.

6. The Common Ground Alliance (CGA) is a non-profit organization dedicated to promoting shared responsibilities in damage prevention. Representing individuals from 15 stakeholder groups and over 150 member organizations, the CGA works cooperatively with all interested stakeholders to identify and implement effective measures to protect the underground infrastructure during excavation activity.

The Common Ground Alliance (CGA) Damage Information Reporting Tool (DIRT) uses a one-call system to notify all stakeholders of any damage. You will be registered with DIRT to participate in this service. Get more information and [register here](#)

Depending on where the work is performed, CGA has Regional Partners throughout the USA: <https://commongroundalliance.com/map>

7. The American Gas Association (AGA) offers Emergency Planning and other services such as an Alert System, but you will have an account that you may [set up here](#)
8. The American Petroleum Institute (API) has damage reporting guidelines as well as process documentation and encourages all to call before you dig. See <https://call911.com> for information in your area and [API Call Before You Dig](#) for more information
9. The Interstate Natural Gas Association of America (INGAA) is a trade organization that advocates regulatory and legislative positions of importance to the natural gas pipeline industry in North America. See [INGAA](#) for more information. Their guidance on an emergency can be found [here](#) and the National Pipeline Mapping System is [available here](#)

INSPECTION OF TRENCHES AND EXCAVATIONS FORM

Project:			Weather:	Soil Type:	Date:
Type of Protective System:			Trench Depth:	Length	Width:
Project Supervisor:			Assigned Competent Person:		
Crew Members:					
Excavation Equipment Type(s):					
Equipment Operator(s):					
Yes	No	N/A	Excavation		
☐	☐	☐	Excavations and Protective Systems inspected by Competent Person daily, before start of work		
☐	☐	☐	Competent Person has authority to remove employees from excavation immediately		
☐	☐	☐	Surface encumbrances supported or removed		
☐	☐	☐	Employees protected from loose rock or soil		
☐	☐	☐	Hard hats worn by all employees		
☐	☐	☐	Spoils materials and equipment set back a minimum of 2 inches from edge of excavation		
☐	☐	☐	Barriers provided at all remote excavations, wells, pits, shafts, etc.		
☐	☐	☐	Ingress/egress within excavation provided at 25 inches intervals		
☐	☐	☐	Walkways and bridges over excavations 6 inches or more in depth equipped with guardrails		
☐	☐	☐	Warning vests or other highly visible PPE provided and worn by all employees exposed traffic		
☐	☐	☐	Employees prohibited from working or walking under suspended loads		
☐	☐	☐	Employees prohibited from working on faces of sloped/benched excavations above co-employees		
☐	☐	☐	Warning system established/used when mobile equipment is operating near edge of excavation		
Yes	No	N/A	Utilities		
☐	☐	☐	Utility companies contacted and/or utilities located		
☐	☐	☐	Exact location of utilities marked when near excavation		
☐	☐	☐	Underground installations protected, supported or removed when excavation is open		
Yes	No	N/A	Wet Conditions		
☐	☐	☐	Precautions taken to protect employees from accumulation of water		
☐	☐	☐	Water removal equipment monitored by Competent Person		
☐	☐	☐	Surface water controlled or diverted		
☐	☐	☐	Inspection made after each rainstorm		
Yes	No	N/A	Hazardous Atmosphere		
☐	☐	☐	Atmosphere tested when there is a possibility of oxygen deficiency or build-up of hazardous gases		
☐	☐	☐	Oxygen content is between 19.5% and 21%		
☐	☐	☐	Ventilation provided to prevent flammable gas build-up to 20% of lower explosive limit of the gas		
☐	☐	☐	Testing conducted to ensure that atmosphere remains safe		
☐	☐	☐	Emergency Response Equipment readily available where a hazardous atmosphere will or does exist		
☐	☐	☐	Employees trained in the use of Personal Protective and Emergency Response Equipment		
☐	☐	☐	Safety harness and lifeline individually attended when employees enter deep confined excavation		
Comments:					
Signature of Competent Person:					Date:

SAFE DIGGING COMMITMENT

The goal of GTG Automation, Inc. is to ensure the safety of its employees and others while performing any excavation operations. GTG Automation, Inc. is committed to safe digging practices and providing a safe working environment. GTG Automation, Inc. will investigate all property damage that safe practices follow, call before digging and follow any applicable state and local laws related to excavations.

Executive Name:

Date:

Executive Signature:

EMPLOYEE ACKNOWLEDGEMENT AND ACCOUNTABILITY

By signing below, I acknowledge that I have received proper training to perform my role as an excavations operator and understand the roles and responsibilities to prevent incidents during excavations. I will report all unsafe conditions I encounter during work to the proper individual or superior. I will not undertake any job that I have not been trained to perform safely or that appears to be unsafe. Wherever PPE is required, I will ensure that the correct equipment is worn and that it is properly maintained afterward.

Employee Name:

Date:

Employee Signature:

TRAINING RECORD

Trainer:	
Signature:	
Date:	
CONTENT OF TRAINING	
ATTENDEES	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has adopted this policy for the prevention of employee exposure to hazards resulting either directly or indirectly from “Hot Work” (welding, cutting, and brazing) in the workplace, as specified by the following OSHA regulations:

REFERENCES

- §1910.252—General Requirements
- §1910.253—Oxygen-fuel Gas Welding and Cutting
- §1910.254—Arc Welding and Cutting

RESPONSIBILITIES

Greg Griffin is the supervisor responsible for ensuring the following engineering controls, work practices, and safety procedures are enforced.

TRAINING

GTG Automation, Inc. has implemented this policy to ensure that employees are properly trained, aware of hazards associated with hot work, and correctly informed of Company policies, practices, and procedures to prevent, or if possible, eliminate these hazards.

SAFE PRACTICES

Greg Griffin will ensure that welders, cutters, and their supervisors involved in the performance of hot work operations are properly trained in the safe operations of any equipment required, the safe use of the process, proper personal protective equipment (PPE), and safety procedures which will be followed. If welding cannot be conducted safely, the welding and cutting will not be permitted.

Before cutting or welding processes are permitted, the area will be inspected and cleared by Greg Griffin before authorization to proceed is granted. Written “Hot Work” permits will be utilized to ensure appropriate safe work practices are observed.

Cutting or welding will not be permitted in areas not authorized by management, in sprinkled buildings while such protection is impaired, in the presence of explosive atmospheres, or in areas near the storage of large quantities of exposed, readily ignitable materials.

Operators will report any equipment defect or safety hazard to their supervisor, and the use of the equipment will be discontinued until its safety has been assured. Repairs will be performed only by qualified employees.

Where possible, all hot work operations will be performed outside of buildings or structures, clear of any foreseeable fire hazards. If the object to be welded or cut cannot readily be moved, all moveable fire hazards will be removed.

Where hot work must be performed indoors or in the vicinity of fire hazards, the area will be cleared, if possible, of any and all material and equipment which may present a hazard of fire or explosion from flame, sparks, arcs, or slag.

Precautions will be taken so that no readily combustible materials on the floor below will be exposed to sparks which might drop through openings or cracks in the floor. The same precautions will be observed with regard to cracks or holes in walls, open doorways, and open or broken windows.

Where fire hazards exist in the area of hot work operations that cannot be removed, they will be guarded to prevent fire, and the hot work operation will be shielded to confine the heat sparks and slag and to protect the immovable fire hazards and prevent hot materials from falling to a lower level. Fire watchers will have fire extinguishers readily available. A fire watch will be maintained for at least one (1) hour (60 minutes) after the welding or cutting operation is completed to prevent or extinguish any fire resulting from these operations. In addition, a minimum two (2)-hour surveillance period will be observed after completing any hot work.

The employee(s) assigned to fire watch will be trained in the proper use of fire extinguishers and fire prevention measures, ensure that appropriate fire-fighting equipment and fire extinguishers are readily available, and be responsible for sounding of fire alarms in the event of a fire which is not readily extinguishable. All arc welding operations in occupied areas will be screened to prevent other employees from being exposed to flash hazards.

Where practicable, all combustibles will be relocated at least 35 ft. from the work site. Where relocation is impracticable, combustibles will be protected with flameproof covers or otherwise shielded with metal or asbestos guards or curtains.

GTG Automation, Inc. will be responsible for inspecting work areas prior to any hot work being performed (including the checking of fire suppression system status), designating precautions to be followed before work commences, and assigning a fire watch where advisable or required when any of the following conditions exist:

- Locations where other than a minor fire might develop.
- Appreciable combustible material, in building construction or contents, closer than 35 ft. to the point of operation.
- Appreciable combustibles are more than 35 ft. away, but are easily ignited by sparks.
- Wall or floor openings within a 35ft. radius that expose combustible material in adjacent areas, including concealed spaces in walls or floors.
- Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

If the requirements for fire hazards and guarding, as stated above, cannot be fully met, GTG Automation, Inc. employees will not perform the welding and cutting operations until hazardous conditions are fully resolved. Any hot work to be performed in confined spaces will conform to Permit-required Confined Space procedures and the following requirements:

- Adequate ventilation is a prerequisite to work in confined spaces.
- When welding or cutting is being performed in any confined spaces, the gas cylinders and welding machines will be kept outside of the space. Before operations are started, gas cylinders will be secured, heavy portable equipment mounted on wheels will be securely blocked to prevent accidental movement, and warning signs will be posted.
- Where a welder must enter a confined space through a manhole or other small opening, means will be provided for quickly removing him in case of emergency. When safety belts and lifelines are used for this purpose, they will be so attached to the welder's body that his body cannot be jammed in a small exit opening. An attendant with a pre-planned rescue procedure will be stationed outside to observe the welder at all times and be capable of putting rescue operations into effect.

- When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes will be removed from the holders, and the holders stored so that accidental contact cannot occur, and the machine disconnected from the power source.
- In order to eliminate the possibility of gas escaping through leaks of improperly closed valves when gas welding or cutting, the torch valves will be closed, and the fuel-gas and oxygen supply to the torch positively shut off at some point outside the confined area, whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practicable, the torch and hose will also be removed from the confined space.

Any welding or brazing materials used in hot work which might possibly generate hazardous fumes, gases, or dust to the metals involved will be suitably labeled to indicate the hazard, and appropriate measures for ventilation or respiratory protection provided to ensure that no employee is exposed to higher than permissible levels of hazardous fumes.

Welding, cutting, or burning of metals containing lead, zinc, cadmium, mercury, beryllium, or other exotic metals, paints, coatings, or preservatives will require that regulation ventilation or respiratory protection be utilized.

After welding or cutting operations are completed, the welder will mark the hot metal or provide some other means of warning other employees.

First aid kits and equipment are readily available at all times for employee use during welding and cutting operations. First aid kits are kept in all company vehicles and are regularly inspected by Greg Griffin to ensure that contents are kept fully stocked and that the appropriate items are available.

Employees in charge of fuel-gas and oxygen supply equipment (including distribution piping systems and generators) will be fully instructed and determined competent for handling, use, and storage of compressed gas cylinders and related equipment.

The manufacturer's recommendations covering the operation and maintenance of oxygen or fuel-gas supply equipment, including generators, and oxygen or fuel-gas distribution piping systems will be followed and readily available to employees.

Cylinders will be stored in an upright position at least 20 ft. from any flammable gases or petroleum products and be kept away from radiators and other sources of heat.

Cylinders will be stored in assigned storage spaces away from elevators, stairs, or gangways. Assigned storage spaces will be locations where cylinders will not be knocked over or damaged by passing or falling objects, or subject to tampering by unauthorized persons.

Cylinders shall not be kept in unventilated enclosures, such as lockers and cupboards. Empty cylinders shall have their valves closed. Valve protection caps, where cylinder is designed to accept a cap, shall always be in place except when cylinders are in use or connected for use.

Only approved apparatus such as torches, regulators, or pressure-reducing valves, acetylene generators, and manifolds will be used.

Employees exposed to the hazards created by welding, cutting, or brazing operations shall be protected by PPE.

Goggles or other suitable eye protection will be used during all gas welding or oxygen cutting operations. Spectacles without side shields, with suitable filter lenses, are permitted for use during gas welding operations on light work, for torch brazing, or for inspection.

Employees assigned to operate or maintain arc welding equipment will be properly trained & qualified to operate such equipment and in safety procedures and familiar with OSHA §1910.252(a)(b) & (c) and §1910.254 requirements for arc welding and equipment handling, to include the following areas: machine hook up, grounding, electric shock, switches, manufacturers' instructions and electrode holders.

There will be no leaks of cooling water, shielding, gas, or engine fuel.

If gas-shielded arc welding operations are being performed, operators will be familiar with the American Welding Society Standard A6-1.

Machines that have become wet will be thoroughly dried and tested before being used.

Cables with damaged insulation or exposed bare conductors will be replaced. Joining lengths of work and electrode cables will be done by the use of connecting means specifically intended for the purpose. The connecting means will have insulation adequate for the service conditions.

Helmets or hand shields will be used during all arc welding or arc cutting operations.

The frame or case of the welding machine, except engine-driven machines, will be grounded.

Before starting operations, all connections to the machine will be checked to make certain they are properly made.

The above policies and procedures will be enforced at GTG Automation, Inc..

EXOTHERMIC WELDING

Exothermic welding (also known as exothermic bonding, thermite, or CAD welding) is frequently used for bonding electrical conductors for grounding, using a process that employs molten metal to permanently join the conductors. This method employs an exothermic reaction of a thermite composition to heat the metal and requires no external source of heat or current. The chemical reaction that produces the heat is an aluminothermic reaction between aluminum powder and a metal oxide. As the molten copper rapidly reaches temperatures of around 1,400 °C, the process has an obvious risk of burn injuries and the potential to start an unintentional fire.

The important safety concerns include:

- Proper PPE: always wear safety glasses, gloves, proper footwear (e.g., leather boots).
- Clear the area of any and all flammable materials; keep a properly rated fire extinguisher handy.
- Inspect the welding molds: they should be clean, dry, proper size, in good condition (replace when worn).
- Protecting the materials from moisture (e.g., a drop of rain can cause a violent and dangerous reaction).
- Keep unused shots separated from the one being ignited (particularly important for railroad shots).
- Store all welds/molds in cool, dry locations and in properly labeled boxes.

Maintain a copy of the applicable Material Safety Data Sheet (MSDS) on file and on site.

HOT WORK SAFETY CHECKLIST/PERMIT

Hazard Assessment will be completed and resolved before commencing welding, cutting, or heating operations. The Authorized Supervisor will sign off on this permit.

Hot Work Location		
Yes	No	
☐	☐	Is appropriate fire-extinguishing equipment ready for use?
☐	☐	Is all flammable material moved away from work zone or properly shielded?
☐	☐	Are drums, barrels, tanks, or other containers cleansed of flammable, explosive, or toxic residue that could react to heat?
☐	☐	Are containers tested prior to and frequently during welding, torching, abrasive cutting, or other hot works to ensure that the containers are free of flammable or toxic vapors?
☐	☐	Are shaded goggles or other suitable eye protection used when gas welding or oxygen cutting?
☐	☐	Are transparent face shields or goggles used when resistance welding or resistance brazing?
☐	☐	Do all welding helpers and equipment attendants use face or eye protection?
☐	☐	Are helmets and hand shields worn to protect the face, neck, and ears when arc welding?
☐	☐	Do lenses have permanent markings to show the source and shade?
☐	☐	Do all employees wear PPE when exposed to the hazards created by welding, cutting, or brazing?
☐	☐	Is clothing that is easily ignited or highly flammable, such as that made from synthetic materials, prohibited while welding, cutting, or brazing?
☐	☐	Are all electrodes removed from the holders and the machine turned off when arc welding is stopped for lunch or overnight?
☐	☐	Are the torch valves closed when gas welding or cutting is stopped for lunch or overnight?
☐	☐	Are only approved apparatus such as torches, regulators, or pressure-reducing valves used?
☐	☐	Are all compressed-gas cylinders legibly marked to identify the gas content?
☐	☐	Are all compressed-gas cylinders stored away from radiators and other sources of heat?
☐	☐	Do all compressed-gas cylinders have valve protection caps in place, hand- tight when not in use?
☐	☐	Are all compressed-gas cylinders securely lashed in place to prevent them from falling?
☐	☐	Are oxygen and fuel-gas cylinders stored separately by at least 20 feet or by a noncombustible barrier at least five feet high with a fire-resistance rating of at least one-half hour?
☐	☐	Are there signs in fuel-gas storage areas that read "DANGER – NO SMOKING, MATCHES OR OPEN LIGHTS" or equivalent wording?
☐	☐	Are regulators with cracked, broken, or defective parts removed from service?
☐	☐	Are approved back-flow valves or flash-back valves installed between the blowpipe or torch and the hoses?
☐	☐	Are arc welder lead cables or electrode lead cables with damaged insulation or exposed conductors removed from service?
Hot Work Permit Observations		
Assessor's Name:		
Signature		Date
Supervisor's Name		
Signature		Date

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has implemented this policy and procedures to inform workers of the written Working Alone Procedures in the workplace. This ensures the health and safety of workers at the work site.

RESPONSIBILITIES

Working alone safety is a shared responsibility between the Company and its employees.

Employer Responsibilities

- Ensuring all employees are physically fit and capable to perform the job duties assigned
- Training personnel to recognize and manage fatigue
- Responding quickly to eliminate workplace hazards
- Providing adequate rest breaks
- Ensuring employees follow safe job procedures
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness

Supervisor Responsibilities

- Establishing and maintaining safe and healthful working conditions
- Monitoring employee fatigue
- Ensuring employees are not impaired by illness or medication use
- Setting good examples, instructing their employees, making sure they fully understand and follow safe procedures

Safety Committee Responsibilities

- Assist in training employees to recognize and control workplace hazards
- Monitor the workplace for hazards
- Encourage employees to report hazards
- Implement appropriate controls
- Ensure corrective action is taken promptly

Employee Responsibilities;

- Notifying their supervisors if they are fatigued to the point of not being able to perform their duties safely
- Ensuring they are physically and mentally fit to perform their job functions safely; they must take responsibility for their own safety as well
- Notifying their supervisor if they are taking prescription or over-the-counter medications

- No employee is expected to undertake a job until he/she has received instructions on how to do it properly and safely, and is authorized to perform the job
- No employee should undertake a job that appears to be unsafe
- Employees are to report to a superior or designated individual all unsafe conditions encountered during work
- Personal protective equipment must be used when and where required, and properly maintained

PROCEDURES

Working Alone

Working alone applies when a worker is working alone at a work site, and assistance is not readily available if:

- There is an emergency, or
- The scheduled co-worker(s) is injured or ill
- GTG Automation, Inc. will notify its workers when workers will not be permitted to work alone

When Working Alone is Prohibited

- Rescue operations in an Immediately Dangerous to Life and Health (IDLH) atmosphere
- Operations in an IDLH atmosphere during an internal structure fire
- Permit-required confined space entry
- Hot work when other than a minor fire may develop
- Logging Operations
- Tree trimming operations involving electrical hazards greater than 750 volts
- Operations where hazardous procedures are being conducted

Hazard Identification, Elimination and Control

GTG Automation, Inc. ensures that before any worker is assigned to work alone or in isolation that a hazard assessment will be performed to identify any potential hazard to that worker.

Greg Griffin will perform the hazard assessment. If any hazard(s) are determined through the hazard assessment, GTG Automation, Inc. will take measures to eliminate or, if not practicable, reduce said hazard(s).

Communication

The safe work procedure for communication provided for a worker who works alone and persons capable of assisting the worker in an emergency or if the worker is injured or ill is: two-way radio; telephone, cell phone, or; other electronic type of communication.

Greg Griffin will ensure that any employee working alone has properly functioning primary and secondary methods of communication and has been adequately trained in their use.

When electronic communication is not practicable or readily available at the worksite an alternate form of communication will be implemented for workers who work alone.

GTG Automation, Inc. will ensure:

- GTG Automation, Inc. or another competent worker visits the worker,
- The worker contacts GTG Automation, Inc. or another competent worker,
- The visits or contacts will be at intervals of time appropriate to the nature of the hazards associated with the work being performed by the worker.

Procedures for Checking the Well-being of a Worker

It is the determination of GTG Automation, Inc. to implement written procedures, in consultation with the joint committee or worker health and safety representative, for checking the well-being of any worker assigned to work alone or in isolation.

The written procedures include: a system to check on the worker (well-being) at regular time intervals, including a final check at the end of the work shift; procedures to follow when the worker cannot be contacted, and provisions for emergency rescue.

Contact Person

A designated worker will be assigned to establish contact with the worker at regular predetermined intervals and shall record the results each time he/she establishes contact.

Emergency Procedures

GTG Automation, Inc. will implement emergency procedures taking into consideration the length of time missing, weather conditions, physical fitness, etc..

In the event of an emergency:

- Report emergencies to local fire and police departments
- Inform the emergency chain of command of an emergency
- Warn employees about the emergency
- Conduct an orderly, efficient workplace evacuation
- Assist employees with disabilities or injuries during an evacuation
- Shut down critical equipment, operate fire extinguishers, and perform other essential services during an evacuation
- Account for employees at a designated safe area after an evacuation
- Perform rescue and first aid that may be necessary during an emergency

In the event that the lone worker cannot be contacted by GTG Automation, Inc. or the lone workers known associates, an employee search will be initialized. The employee search will include notifying the local fire and police departments

[illegible]

POLICY

This chapter assists GTG Automation, Inc. to implement engineering, administrative, work practice controls, personal protective equipment (PPE), and the considerations that need to be addressed during the Covid-19 National Emergency. It is intended for planning purposes. GTG Automation, Inc. and employees should use this guidance to help identify risk levels in workplace settings and to determine any appropriate control measures to implement.

Coronavirus Disease 2019 (COVID-19) is a respiratory disease caused by the SARS-CoV-2 (Severe Acute Respiratory Syndrome-Corona Virus 2). Depending on the severity of COVID-19's international impacts, outbreak conditions, including those rising to the level of a pandemic, can affect all aspects of life and work, including travel, trade, tourism, food supplies, and financial markets. To reduce the impact of COVID-19 outbreak conditions on businesses, workers, customers, and the public, it is important for all employers to plan now for COVID-19. The focus here is to prevent the spread of SARS-CoV-2. Employers who have not prepared for pandemic events should prepare themselves and their workers as far in advance as possible of potentially worsening outbreak conditions. Lack of continuity planning can result in a cascade of failures as employers attempt to address challenges of COVID-19 with insufficient resources and workers who may not be adequately trained to perform under pandemic conditions.

REFERENCES

- 29 CFR 1910 Subpart E-Exit Routes and Emergency Planning
- 29 CFR 1910 Subpart I- Personal Protective Equipment
- 29 CFR 1910.38-Emergency Action Plans
- 29 CFR 1910.134-Respiratory Protection Program
- 29 CFR 1910.1030-Bloodborne Pathogens

RESPONSIBILITIES OF EMPLOYERS

- Self-train on infectious disease propagation, accomplished through research and take prompt action to a changing landscape
- Consideration of Employee health on the job and exposures to SARS-CoV-2
- Develop an Infectious Disease Preparedness and Response Plan
- Protect workers through Plan, policies and training

RESPONSIBILITIES OF EMPLOYEES

- Self-train on infectious disease propagation, accomplished through research and take prompt action to a changing landscape
- Follow all direction of Infectious Disease Preparedness and Response Plan
- Consideration of self and coworkers' risk of exposure

HAZARDS

- Spread of infectious diseases
- Development of antimicrobial resistance
- Illness
- Death

PROCEDURES (SAFE PRACTICES)

Ability to Identify Symptoms from the CDC and WHO

Be prepared to identify signs and symptoms from the CDC (Centers for Disease Control) and WHO (World Health Organization) of COVID -19 such as fever, cough, shortness of breath. Symptoms will appear within 2-14 days after contraction (based on the incubation period of MERS-CoV viruses).

EMERGENCY Warning signs (symptoms) that require medical attention immediately include:

- Trouble breathing
- Persistent pain or pressure in the chest
- New confusion or inability to arouse
- Bluish lips or face

Follow preventative precautions from the CDC such as:

- Proper Hand Washing Techniques- liquid or bar soap wash for 20 seconds minimum, hand Sanitizer when not available
- Avoid Close Contact- restricting or eliminating required business travel, avoiding in-person meetings
- Stay Home if sick-if you must go out, wear a facemask
- Practice good cough and sneeze etiquette (cough into the inside of elbow, sneeze into a tissue and discard)
- Clean and disinfect-surfaces cleaned daily at a minimum

General Safety

Steps GTG Automation, Inc. Can Take to Reduce the Risk of Exposure to SARS-CoV-2 at Work

This section describes basic steps that GTG Automation, Inc. can take to reduce the risk of worker exposure to SARS-CoV-2, the virus that causes COVID-19, in their workplace.

Later sections of this guidance—including those focusing on jobs classified as having low, medium, high, and very high exposure risks—provide specific recommendations for GTG Automation, Inc. and workers within specific risk categories.

Develop an Infectious Disease Preparedness and Response Plan

Plans should consider and address the level(s) of risk associated with various worksites and job tasks workers perform at those sites. Such considerations may include:

Determinations of where, how, and to what sources of SARS-CoV-2 might workers be exposed, including:

- The general public, customers, and coworkers
- Sick individuals or those at particularly high risk of infection (e.g., international travelers who have visited locations with widespread sustained (ongoing) COVID-19 transmission, healthcare workers who have had unprotected exposures to people known to have, or suspected of having, COVID-19).
- Non-occupational risk factors at home and in community settings.
- Individual employees risk factors (e.g., older age; presence of chronic medical conditions, including immunocompromising conditions; pregnancy) along with controls necessary to address those risks such as work from home planning.

Other contingency planning recommendations include:

- The need for social distancing, staggered work shifts, downsizing operations, delivering services remotely, and other exposure-reducing measures.
- Options for conducting essential operations with a reduced workforce, including cross-training workers across different jobs in order to continue operations or deliver services.
- Interrupted supply chains or delayed deliveries.

Basic Infection Prevention Measures:

- Promote frequent and thorough hand washing, emphasizing this is the primary defense (provide hand sanitizer when hand washing facilities and liquid or bar soap are not available). Provide workers, customers, and worksite visitors with a place to wash their hands. Provide alcohol-based hand sanitizer containing at least 60% alcohol.
- Encourage employees to stay home if sick
- Encourage respiratory etiquette-cover coughs and sneezes
- Provide employees, customers, business partners and the public with tissues and trash receptacles.
- GTG Automation, Inc. should explore whether they can provide policies and procedures on flexible worksites (telecommuting) and flexible work hours (staggered shifts) to increase the physical distance between employers and employees and customers.
- Deter workers from using other desks and/or offices as well as phones and other work tools and equipment.
- Maintain or increase regular housekeeping practices such as surface cleaning with disinfecting cleaning products. When choosing these cleaners, it is a best practice to look at EPA (Environmental Protection Agency) approved with claims against emerging viral pathogens (see REQUIREMENTS). These have proven effective against SARS-CoV-2 and follow manufacturer's instructions for use.

Develop Policies and Procedures for Prompt Identification and Isolation of Sick People (if appropriate)

- Prompt identification and isolation of potentially infectious individuals is a critical step in protecting workers, customers, visitors, and others at a worksite.
- GTG Automation, Inc. should inform and encourage employees to self-monitor for signs and symptoms of COVID-19 if they suspect possible exposure.
- GTG Automation, Inc. should develop policies and procedures for employees to report when they are sick or experiencing symptoms of COVID-19.
- Where appropriate, GTG Automation, Inc. should develop policies and procedures for immediately isolating people (stay home) who have signs or symptoms of COVID-19, and train workers to implement them. Move potentially infectious people to a location away from workers, customers, and other visitors. Although most worksites do not have specific isolation rooms, designated areas with closable doors may serve as isolation rooms until potentially sick people can be removed from the worksite.
- Take steps to limit the spread of the respiratory secretions of a person who may have COVID-19. Provide a face mask, if feasible and available, and ask the person to wear it, if tolerated. Note: A face mask (also called a surgical mask, procedure mask, N95 or other similar terms) on a patient or other sick person should not be confused with PPE for a worker; the mask acts to contain potentially infectious respiratory secretions at the source (i.e., the person's nose and mouth).
- If possible, isolate people suspected of having COVID-19 separately from those with confirmed cases of the virus to prevent further transmission—particularly in worksites where medical screening, triage, or healthcare activities occur, using either permanent (e.g., wall/different room) or temporary barrier (e.g., plastic sheeting).
- Restrict the number of personnel entering isolation areas.
- Protect workers in close contact with (i.e., within 6 feet of) a sick person or who have prolonged/repeated contact with such persons by using additional engineering and administrative controls, safe work practices, and PPE. Workers whose activities involve close or prolonged/ repeated contact with sick people are addressed further in later sections covering workplaces classified at medium and very high or high exposure risk.

Develop, Implement, and Communicate Workplace Flexibilities and Protections

- An internal communication process for employees who are symptomatic for Covid-19 is to self-report to their Supervisor who will require self-quarantine and possible medical care until a conformational test can be performed. If positive, CDC direction is for the employer to maintain confidentiality and follow medical advice. Any changes to the workplace due to Covid-19 shall be internally communicated prior to the change (if possible) to all employees and externally to any entity that requires similar information. Internal/external communication to stakeholders shall also include workforce availability (readiness) and/or any precautionary measures for employees such as the use of certain PPE, staggered work shifts, any downsizing, or other exposure reducing direction or any unique requirements for employees who are reporting to a project.
- Ensure that sick leave policies are flexible and consistent with public health guidance and that employees are aware of these policies.

- Talk with companies that provide your business with contract or temporary employees about the importance of sick employees staying home and encourage them to develop non-punitive leave policies.
- On employee Return To Work (RTW), Centers for Disease Control have two guidelines to follow on discontinuation of home isolation for persons with Covid-19; a time-since-illness-onset with a time since recovery strategy (a non-test based) and a Test based strategy.
 - Time based: employees who are symptomatic shall remain at home and self-care. They may discontinue home isolation under the following conditions: at least a 3 day (72 hours) waiting period since recovery has passed (defined as resolution of fever without the use of fever reducing medications) **and** an improvement or resolution in respiratory symptoms (cough, shortness of breath) **and** at least 7 days have passed since symptoms first appeared.
 - Test based: strategy is contingent on the availability of ample testing supplies and laboratory capacity as well a convenient access to testing. For those choosing a test-based strategy, the recommended protocol has been simplified so that only one swab I needed at every sampling. Persons who have Covid-19, are symptomatic and were directed to self-care at home may discontinue home isolation under the following conditions: resolution of fever without the use of fever reducing medications **and** improvement in respiratory symptoms (cough, shortness of breath) **and** negative results of an FDA Emergency Use Authorized molecular assay for COVID-19 from at least two consecutive nasopharyngeal swab specimens collected at longer than or equal to 24 hours apart. See [Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Persons Under Investigation \(PUIs\) for 2019 Novel Coronavirus \(2019-nCoV\)](#) for specimen collection guidance.
 - For individuals with laboratory confirmed Covid-19 who have not had any symptoms, they may discontinue home isolation when at least 7 days have passed since the date of their first positive Covid-19 diagnostic test and have had no subsequent illness.
- Maintain flexible policies that permit employees to stay home to care for a sick family member. GTG Automation, Inc. should be aware that more employees may need to stay at home to care for sick children or other sick family members than what is usual.
- Recognize that workers with ill family members may need to stay home to care for them.
- Be aware of workers' concerns about pay, leave, safety, health, and other issues that may arise during infectious disease outbreaks. Provide adequate, usable, and appropriate training, education, and informational material about business-essential job functions and worker health and safety, including proper hygiene practices and the use of any workplace controls (including PPE). Informed workers who feel safe at work are less likely to be unnecessarily absent.

Work with insurance companies (e.g., those providing employee health benefits) and state and local health agencies to provide information to workers and customers about medical care in the event of a COVID-19 outbreak

IMPLEMENT WORKPLACE CONTROLS

Occupational Safety and Health Professionals have a methodology to mitigate hazards known as the “Hierarchy of Controls”. The best way to control a hazard is to systematically remove it from the workplace, rather than relying on workers to reduce their exposure. During a COVID-19 outbreak, when it may not be possible to eliminate the hazard, the most effective protection measures are (listed from most effective to least effective): engineering controls, administrative controls, safe work practices (a type of administrative control), and PPE. There are advantages and disadvantages to each type of control measure when considering the ease of implementation, its effectiveness, and cost. In most cases, a combination of control measures will be necessary to protect workers from exposure to SARS-CoV-2.

Engineering controls involve isolating employees from work-related hazards. In workplaces where they are appropriate, these types of controls reduce exposure to hazards without relying on the worker and can be the most cost-effective solution to implement. Engineering controls for SARS-CoV-2 may include: Installing high-efficiency air filters; increasing ventilation rates in the work environment; installing physical barriers, such as clear plastic sneeze guards; installing a drive-through window for customer service; specialized negative pressure ventilation in some settings, such as for aerosol generating procedures (e.g., airborne infection isolation rooms in healthcare settings and specialized autopsy suites in mortuary settings).

Administrative Controls require action by the worker or GTG Automation, Inc.. Typically, administrative controls are changes in work policy or procedures to reduce or minimize exposure to a hazard.

Examples of administrative controls for SARS-CoV-2 include: encouraging sick workers to stay at home; surface cleaning the workplace; minimizing contact among workers, clients, and customers by replacing face-to-face meetings with virtual communications and implementing telework; establishing alternating days or extra shifts that reduce the total number of employees in a facility at a given time, allowing them to maintain distance from one another while maintaining a full onsite work week; discontinuing nonessential travel to locations with Covid-19 outbreaks; developing emergency communications plans, including a forum for answering workers’ concerns and internet-based communications, if feasible.

Providing workers with up-to-date education and training on COVID-19 risk factors and protective behaviors (e.g., cough etiquette and care of PPE); training workers who need to use protective clothing and equipment, how to put it on, use/wear it, and take it off correctly, including in the context of their current and potential duties.

Develop Safe Work Practices are types of administrative controls that include procedures for safe and proper work used to reduce the duration, frequency, or severity of exposure to a hazard. Examples of safe work practices for SARS-CoV-2 include providing resources and a work environment that promotes personal hygiene. For example, provide tissues, no-touch trash cans, hand soap, alcohol-based hand rubs containing at least 60 percent alcohol, disinfectants, and disposable towels for workers to clean their work surfaces; requiring regular hand washing or the use of alcohol-based hand rubs. Workers should always wash hands when they are visibly soiled and after removing any PPE, post handwashing signs in restrooms.

PPE-PERSONAL PROTECTIVE EQUIPMENT

While engineering and administrative controls are considered more effective in minimizing exposure to SARS-CoV-2, PPE may also be needed to prevent certain exposures. While correctly using PPE can help prevent some exposures, it should not take the place of other prevention strategies. Examples of PPE include gloves, goggles, face shields, face masks, and respiratory protection, when appropriate. During an outbreak of an infectious disease, such as COVID-19, recommendations for PPE specific to occupations or job tasks may change depending on geographic location, updated risk assessments for workers, and information on PPE effectiveness in preventing the spread of COVID-19. All types of PPE shall be selected based on the hazard to the worker; properly fitted and periodically refitted (respirators); consistently and properly worn; regularly inspected; maintained and replaced as necessary. PPE should also be properly removed, cleaned and stored or disposed of to avoid contamination.

GTG Automation, Inc. is obligated to provide their workers with PPE needed to keep them safe while performing their jobs. The types of PPE required during a COVID-19 outbreak will be based on the risk of being infected with SARS-CoV-2 while working and job tasks that may lead to exposure.

Workers, including those who work within six (6) feet of patients known to be, or suspected of being, infected with SARS-CoV-2 and those performing aerosol-generating procedures, need to use respirators:

National Institute for Occupational Safety and Health (NIOSH)-approved, N95 filtering facepiece respirators or better must be used in the context of a comprehensive, written respiratory protection program that includes fit-testing, training, and medical exams. When disposable N95 filtering facepiece respirators are not available, consider using other respirators that provide greater protection and improve worker comfort. Other types of acceptable respirators include: a R/P95, N/R/P99, or N/R/P100 filtering facepiece respirator; an air-purifying elastomeric (e.g., half-face or full-face) respirator with appropriate filters or cartridges; powered air purifying respirator (PAPR) with high-efficiency particulate arrest (HEPA) filter; or supplied air respirator (SAR). For more information on respiratory protection, see REQUIREMENTS. Consider using PAPRs or SARs, which are more protective than filtering facepiece respirators, for any work operations or procedures likely to generate aerosols (e.g., cough inducing procedures, some dental procedures, invasive specimen collection, blowing out pipettes, shaking or vertexing tubes, filling a syringe, centrifugation). Use a surgical N95 respirator when both respiratory protection and resistance to blood and body fluids is needed. Face shields may also be worn on top of a respirator to prevent bulk contamination of the respirator. Certain respirator designs with forward protrusions (duckbill style) may be difficult to properly wear under a face shield. Ensure that the face shield does not prevent airflow through the respirator.

Consider factors such as function, fit, ability to decontaminate, disposal, and cost. OSHA's Respiratory Protection eTool provides basic information on respirators such as medical requirements, maintenance and care, fit testing, written respiratory protection programs, and voluntary use of respirators, which GTG Automation, Inc. may also find beneficial in training workers. See REQUIREMENTS, Respirator training should address selection, use (including donning and doffing), proper disposal or disinfection, inspection for damage, maintenance, and the limitations of respiratory protection equipment. The appropriate form of respirator will depend on the type of exposure and on the transmission pattern of COVID-19.

CLASSIFYING WORKER EXPOSURE TO SARS-COV-2

Worker risk of occupational exposure to SARS-CoV-2, the virus that causes COVID-19, during an outbreak may vary from very high to high, medium, or lower (caution) risk. The level of risk depends in part on the industry type, need for contact within six (6) feet of people known to be, or suspected of being, infected with SARS-CoV-2, or requirement for repeated or extended contact with persons known to be, or suspected of being, infected with SARS-CoV-2.



To help GTG Automation, Inc. determine appropriate precautions, OSHA has divided job tasks into four risk exposure levels: very high, high, medium, and lower risk.

The Occupational Risk Pyramid shows the four exposure risk levels in the shape of a pyramid to represent probable distribution of risk. Most American workers will likely fall in the lower exposure risk (caution) or medium exposure risk levels.

Very high exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19 during specific medical, postmortem, or laboratory procedures. Workers in this category include: Healthcare workers (e.g., doctors, nurses, dentists, paramedics, emergency medical technicians) performing aerosol-generating procedures (e.g., intubation, cough inducing procedures, bronchoscopies, some dental procedures and exams, or invasive specimen collection) on known or suspected COVID-19 patients; healthcare or laboratory personnel collecting or handling specimens from known or suspected COVID-19 patients (e.g., manipulating cultures from known or suspected COVID-19 patients). Morgue workers performing autopsies, which generally involve aerosol-generating procedures, on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

High exposure risk jobs are those with high potential for exposure to known or suspected sources of COVID-19. Workers in this category include: Healthcare delivery and support staff (e.g., doctors, nurses, and other hospital staff who must enter patients' rooms) exposed to known or suspected COVID-19 patients. (Note: when such workers perform aerosol-generating procedures, their exposure risk level becomes very high.); Medical transport workers (e.g., ambulance vehicle operators) moving known or suspected COVID-19 patients in enclosed vehicles; Mortuary workers involved in preparing (e.g., for burial or cremation) the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death.

Medium exposure risk jobs include those that require frequent and/or close contact with (i.e., within six (6) feet of people who may be infected with SARS-CoV-2, but who are not known or suspected COVID-19 patients. In areas without ongoing community transmission, workers in this risk group may have frequent contact with travelers who may return from international locations with widespread COVID-19 transmission. In areas where there is ongoing community transmission, workers in this category may have contact with the general public (e.g., in schools, high-population-density work environments, and some high-volume retail settings).

Lower exposure risk (caution) jobs are those that do not require contact with people known to be, or suspected of being, infected with SARS-CoV-2 nor frequent close contact with (i.e., within six (6) feet of) the general public. Workers in this category have minimal occupational contact with the public and other coworkers. Follow the guidance on page 1-2 on developing “Steps that all Employers Can” take to reduce workers risk of exposure.

Jobs Classified at the Lower Exposure Risk (Caution) To Protect Workers-Engineering Controls

Additional engineering controls are not recommended for workers in the lower exposure risk group. GTG Automation, Inc. should ensure that engineering controls, if any, used to protect workers from other job hazards continue to function as intended.

Jobs Classified at the Lower Exposure Risk (Caution) To Protect Workers- Administrative Controls

Monitor public health communications about COVID-19 recommendations and ensure that workers have access to that information. Frequently check the CDC COVID-19 website. Collaborate with workers to designate effective means of communicating important COVID-19 information.

Additional PPE is not recommended for workers in the lower exposure risk group. Workers should continue to use the PPE, if any, that they would ordinarily use for other job tasks.

Jobs Classified at the Medium Exposure Risk (Caution) To Protect Workers-Engineering Controls

Install physical barriers, such as clear plastic sneeze guards, where feasible.

Jobs Classified at the Medium Exposure Risk (Caution) To Protect Workers-Administrative Controls

Consider offering face masks to ill employees and customers to contain respiratory secretions until they are able leave the workplace (i.e., for medical evaluation/care or to return home). In the event of a shortage of masks, a reusable face shield that can be decontaminated may be an acceptable method of protecting against droplet transmission. Keep customers informed about symptoms of COVID-19 and ask sick customers to minimize contact with workers until healthy again, such as by posting signs about COVID-19 in stores where sick customers may visit (e.g., pharmacies) or including COVID-19 information in automated messages sent when prescriptions are ready for pick up. Where appropriate, limit customers’ and the public’s access to the worksite, or restrict access to only certain workplace areas. Consider strategies to minimize face-to-face contact (e.g., drive-through windows, phone-based communication, telework). Communicate the availability of medical screening or other worker health resources (e.g., on-site nurse; telemedicine services).

Jobs Classified at the Medium Exposure Risk (Caution) To Protect Workers-PPE

When selecting PPE, consider factors such as function, fit, decontamination ability, disposal, and cost. Sometimes, when PPE will have to be used repeatedly for a long period of time, a more expensive and durable type of PPE may be less expensive overall than disposable PPE.

GTG Automation, Inc. should select the combination of PPE that protects workers specific to their workplace.

Workers with medium exposure risk may need to wear some combination of gloves, a gown, a face mask, and/or a face shield or goggles. PPE ensembles for workers in the medium exposure risk category will vary by work task, the results of GTG Automation, Inc. hazard assessment, and the types of exposures workers have on the job. In rare situations that would require workers to use respirators see the previous information on respirators and the links under REQUIREMENTS.

Jobs Classified at the High or Very High Exposure Risk to Protect Workers-Engineering Controls

Ensure appropriate air-handling systems are installed and maintained in healthcare facilities. See “Guidelines for Environmental Infection Control in Healthcare Facilities” for more recommendations on air handling systems-link in REQUIREMENTS. CDC recommends that patients with known or suspected COVID-19 (i.e., person under investigation) should be placed in an airborne infection isolation room (AIIR), if available. Use isolation rooms when available for performing aerosol-generating procedures on patients with known or suspected COVID-19. For postmortem activities, use autopsy suites or other similar isolation facilities when performing aerosol-generating procedures on the bodies of people who are known to have, or suspected of having, COVID-19 at the time of their death. See the CDC postmortem guidance under REQUIREMENTS.

Use special precautions associated with Biosafety Level 3 when handling specimens from known or suspected COVID-19 patients. For more information about biosafety levels, consult the U.S. Department of Health and Human Services (HHS) “Biosafety in Microbiological and Biomedical Laboratories” and Determining Biosafety Levels in REQUIREMENTS.

Jobs Classified at the High or Very High Exposure Risk to Protect Workers-Administrative Controls

If working in a healthcare facility, follow existing guidelines and facility standards of practice for identifying and isolating infected individuals and for protecting workers. Develop and implement policies that reduce exposure, such as cohorting (i.e., grouping) COVID-19 patients when single rooms are not available. Post signs requesting patients and family members to immediately report symptoms of respiratory illness on arrival at the healthcare facility and use disposable face masks.

Consider offering enhanced medical monitoring of workers during COVID-19 outbreaks.

Jobs Classified at the High or Very High Exposure Risk to Protect Workers-Safe Work Practices

Provide emergency responders and other essential personnel who may be exposed while working away from fixed facilities with alcohol-based hand rubs containing at least 60% alcohol for decontamination in the field.

Workers Living Abroad or Travelling Internationally

GTG Automation, Inc. with workers living abroad or traveling on international business should consult the “Business Travelers” section of the OSHA COVID-19 webpage, see REQUIREMENTS.

Also: CDC travel warnings and U.S. Department of State (DOS) travel warnings. See REQUIREMENTS

GTG Automation, Inc. should communicate to workers that the DOS cannot provide Americans traveling or living abroad with medications or supplies, even in the event of a COVID-19 outbreak.

As COVID-19 outbreak conditions change, travel into or out of a country may not be possible, safe, or medically advisable. It is also likely that governments will respond to a COVID-19 outbreak by imposing public health measures that restrict domestic and international movement, further limiting the U.S. government’s ability to assist Americans in these countries. It is important that employers and workers plan appropriately, as it is possible that these measures will be implemented very quickly in the event of worsening outbreak conditions in certain areas.

REQUIREMENTS

CDC Covid-19 Symptoms

<https://www.cdc.gov/coronavirus/2019-ncov/symptoms-testing/symptoms.html>

WHO Covid-19 Symptoms

https://www.who.int/health-topics/coronavirus#tab=tab_3

CDC Covid-19 Prevention Precautions

<https://www.cdc.gov/coronavirus/2019-ncov/prepare/prevention.html>

OSHA COVID-19 Information for the Workplace

<https://www.osha.gov/SLTC/covid-19/standards.html>

CDC Interim Guidance on Business Response

https://www.cdc.gov/coronavirus/2019-ncov/community/guidance-business-response.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fcoronavirus%2F2019-ncov%2Fspecific-groups%2Fguidance-business-response.html

Respirator Selection Logic

<https://www.cdc.gov/niosh/docs/2005-100/default.html>

NIOSH Guidance on Respirators

<https://www.cdc.gov/niosh/topics/respirators/>

OSHA eTool Respirator

<https://www.osha.gov/SLTC/etools/respiratory/index.html>

CDC/NIOSH Guidance on Optimizing Respirators

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/respirators-strategy/index.html>

EPA list of Disinfectants for Use Against SARS-CoV-2

<https://www.epa.gov/pesticide-registration/list-n-disinfectants-use-against-sars-cov-2>

Guidelines for Environmental Infection Control in Healthcare Facilities

<https://www.cdc.gov/mmwr/preview/mmwrhtml/rr5210a1.htm>

CDC Postmortem Guidance

<https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-postmortem-specimens.html>

Health and Human Services Biosafety in Microbiological and Biomedical Laboratories

https://www.cdc.gov/labs/BMBL.html?CDC_AA_refVal=https%3A%2F%2Fwww.cdc.gov%2Fbiosafety%2Fpublications%2Fbmb15%2Findex.htm

CDC Travel

<https://www.cdc.gov/coronavirus/2019-ncov/travelers/index.html>

State Department Travel

<https://travel.state.gov/content/travel.html>

CDC's Recognizing Biosafety Level

<https://www.cdc.gov/training/quicklearns/biosafety/>

TRAINING

Training to perform work under pandemic conditions, specifically train on your Infectious Disease Preparedness and Response Plan. Training material should be easy to understand and available in the appropriate language and literacy level for all workers.

Provide all workers with job-specific education and training on preventing transmission of COVID-19, including initial and routine/refresher training. Ensure that psychological and behavioral support is available to address employee stress and anxiety.

Train in SARS-CoV-2 Risk Factors. Train in proper hygiene and cough/sneeze etiquette such as coughing into the inside of elbow, sneezing into a tissue and discarding.

Train in Respiratory Protection Program and in other PPE usage.

Cross train on mission critical tasks should some employees not be able to perform this work.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name	Signature

POLICY

GTG Automation, Inc. has adopted this Concrete Operations policy to protect employees from the hazards around concrete operations and masonry. Also, refer to earlier chapters on “Silica” and “Structural Demolition” for associated policies.

Introduction: Concrete is one of the most common building materials used today. Hardened concrete is durable, needs little maintenance, and is used in many ways. However, working with concrete, concrete trucks, and concrete equipment presents hazards to those who don't follow safe work practices.

Concrete Pumps, Buckets, and Buggies: Concrete buggy handles must not extend beyond the wheels on either side of the buggy

- Don't allow anyone to ride on, or hang on, concrete buckets during movement. No one is allowed to work under concrete buckets while they're being moved, lowered, or elevated.
- Signalmen and pump operators must maintain visual contact, and know the proper hand signals to use
- Make sure that everyone knows when the pump or pump hose is being moved.

Working around Cement Trucks: Always use steps and handholds when climb on or off the truck. Never put any part of your body in the rotating drum of the truck

- Use two workers when attaching chutes together to prevent injury to your hands and arms. Keep fingers away from pinch points when attaching and using the chutes. Lock the chutes in place to prevent them from swinging when the truck is moved
- Don't walk backward when guiding a truck, and always keep visual contact with the driver

Forming, Shoring, Jacks, and Lifting Units: Shoring and tilt ups must be able to support at least two times the weight of the material

- Paint the ends of forming stakes and pins with high visibility paint to prevent trip and fall hazards
- Make sure there's enough bracing on forms to support the load of concrete
- Using blocking to support the load in any position, in case the jack/lifting unit malfunctions
- When working on forms more than six feet above a lower level, you must use fall protection or work from a platform

Concrete Dust, Silica, and Chemicals: Cement mixtures contain silicates that can be a health hazard when inhaled. When batching, cutting, drilling, grinding, or chipping concrete wear a dust mask or respirator

- Contact with wet concrete, mortar, or cement mixtures can cause skin irritation, severe chemical burns, or serious eye damage. Always wear the necessary PPE

Reinforcing Steel and Wire-Mesh: Wear gloves to protect your hands from lacerations and rust on rebar and wire-mesh

- Secure the ends or turn wire-mesh over to help to prevent recoiling
- Whenever you work above rebar that sticks out of the floor, cover the rebar with protective caps or troughs to prevent you from being impaled if you fall. Cap rebar that extends horizontally to prevent injuries

Power Concrete Trowels: Always read the operator's manual prior to using a power trowel. Never let an untrained employee operate a concrete power trowel. Manually guided powered and rotating concrete trowel machines must be equipped with a control switch that will automatically shut off the power whenever the operator releases the handles.

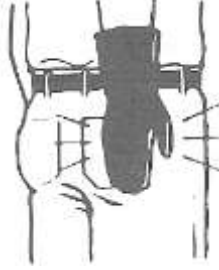
Workplace Inspection: *Check the square provided at each point that is applicable to your job.*

- ☐ Adequate illumination for work
- ☐ All required PPE available
- ☐ Fire alarm stations clearly marked and readily accessible
- ☐ Lights above emergency exits have all bulbs lit
- ☐ Signs showing locations of fire extinguishers clearly visible
- ☐ Fire extinguishers fully charged
- ☐ Signs showing locations of first aid stations clearly visible
- ☐ First aid kits readily accessible and stocked
- ☐ Signs showing locations of emergency eyewash stations clearly visible
- ☐ Emergency eyewash stations fully accessible and checked
- ☐ Sufficient copies of "Incident & Injury Report" forms and SDS sheets available
- ☐ Walkways unobstructed; clear of equipment and materials
- ☐ Walkways clear on oil, grease, loose material and other slipping hazards
- ☐ Stair treads and handrails in good condition
- ☐ All guards in place and fully operational
- ☐ Safety placards in place and legible
- ☐ Lockout/Tagout kits in place and complete
- ☐ All solvents, cleaning supplies, lubricants, etc. that have warning labels also have SDS on file

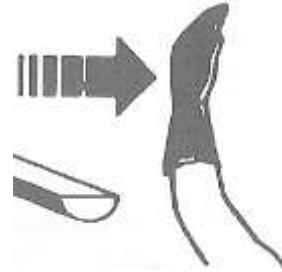
Hand Signals: Hand signals need to be learned by the worker signaling the truck operators and the truck operators themselves. Safety must include everyone working where concrete pouring operations are taking place.



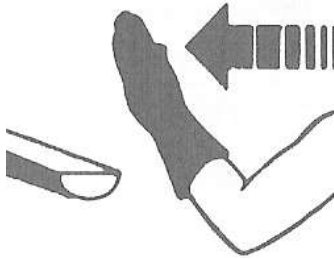
DRIVE IN



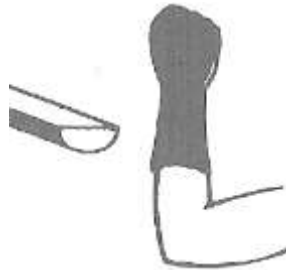
BACK IN



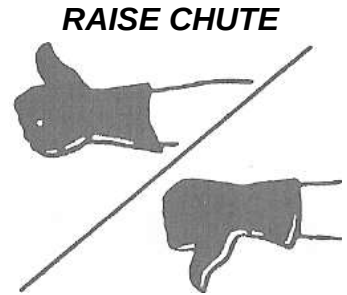
BACK UP



PULL FORWARD



STOP



RAISE CHUTE



LOWER CHUTE



START POURING



MORE WATER

STOP POURING

MORTAR AND CONCRETE MIXERS

Introduction: Many small concrete jobs and practically all masonry jobs require the use of portable powered concrete mixers. These machines pose work hazards because of the close proximity to moving parts, lifting hazards and splash hazards.

Let's review some basic safety rules:

- Get trained on the equipment you'll be using
- Perform a pre-operational check of the machine prior to use. Lubricate the mixer before starting. Make sure all guards are in place and report all needed repairs immediately
- Never attempt to repair or adjust a mixer when it's running, with the exception of the carburetor on a gasoline mixer. Don't refuel gas-powered machines while engine is hot or running. Don't operate a mixer that's leaking fuel
- Set up the mixer on a firm, solid base before starting. Ensure that the area where you're working is level and clear of trip hazards. Level machine and make sure wheels are blocked
- Get help to move the mixer from one location to another.
- Add a small amount of water to the mixing drum before putting in the dry mix. This prevents binding
- Only put in the amount of mix recommended by the manufacturer for the size of mixer you're using
- On electric mixers, inspect the electrical components and connections for any damage. Make sure the extension cord that you're using is properly rated and in good condition. Make sure the connection to the extension cord is off the ground and away from water
- Always wear eye protection when operating mixers. If mortar or cement splashes in your eyes, don't rub them, sand can scratch your eye causing further injury. Wash your eye immediately with saline eye wash or clean water
- Wear gloves, dust masks, and other necessary PPE when operating mixers
- Some chemical additives in cement products can irritate your skin, wash your hands and arms often when using additives
- When dumping mixed material, don't put your fingers or hands near the pinch points of the drum or hopper
- Never put the shovel or other objects inside the drum of the mixer when it's running, it can catch in the mixing paddle and damage the mixer or injure you. Always place a safety grate in the mixer when adding material, never allow put any part of your body in the mixer while it's running
- Clean the mixer with water immediately after each use to remove all material. A dirty mixer may throw out pieces of hard mortar when used again that could cause injury. Don't scrub the mixer with a brush when mixer is running
- Remove all loose material from mixer and frame before towing mixer to prevent hazard to others
- Make sure the hitch is the correct size before towing a mixer, check for the proper weight rating and size
- Always secure safety chains correctly and check that mixer tires are properly inflated and in decent condition
- If cleaning a mixer with a pneumatic chipping hammer becomes necessary, wear hearing, eye protection and respiratory protection as silica dust is a health hazard

POLICY

GTG Automation, Inc. will ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an 8-hour time weighed average (TWA). GTG Automation, Inc. will ensure that no employee is exposed to an airborne concentration of asbestos more than 1.0 fiber per cubic centimeter of air (1 f/cc) as averaged over a sampling period of 30 minutes. Determinations of employee exposure shall be made from breathing zone air samples.

GTG Automation, Inc. has implemented this policy to ensure no employee is exposed to airborne concentrations of asbestos at levels in excess of permissible exposure limits (PEL). Asbestos exposure poses adverse health effects including respiratory disease and various types of cancer. Exposure to asbestos has been shown to cause lung cancer, asbestosis, mesothelioma, and cancer of the stomach and colon.

Greg Griffin shall be considered the competent person(s) responsible for ensuring the following training, engineering controls, and safe work practices are implemented and enforced.

TRAINING

GTG Automation, Inc. shall provide training to all employees who are exposed, or potentially exposed, to airborne concentrations of asbestos at or above PEL and assures employee participation.

Employees shall be provided adequate information and instruction on proper respirator use, personal protective equipment (PPE), and their limitations.

Employees whose work activities involve asbestos abatement or removal of asbestos will be trained in the proper safe work practices prior to or at the time of their initial assignment where asbestos is present and annually thereafter.

Employees whose work activities are not involved in asbestos abatement or removal operations but have the potential to be exposed to asbestos in the performance of their jobs will be provided asbestos awareness training.

The training program will be conducted in a manner that employees are able to understand and will address the health effects associated with exposure to asbestos to include asbestosis, mesothelioma, colon cancer, cancer of the stomach and the relationship between smoking and exposure to asbestos producing lung cancer. Employees will be informed during training to not disturb asbestos containing material.

A certificate of training will be provided and maintained.

POTENTIAL ASBESTOS LOCATIONS

During asbestos awareness training, the following will be identified as possible locations where employees may be exposed to asbestos while performing their job duties. Asbestos materials are used in the manufacturing of heat-resistant clothing, automotive brake and clutch linings, and a variety of building materials including insulation, soundproofing, floor and ceiling tiles, roofing felts, fire-resistant drywall, pipe and boiler insulation materials, pipeline wrap and in sprayed-on materials located on beams, in crawlspaces and between walls.

GTG Automation, Inc. will keep an accurate record of all measurements taken to monitor employee exposure to asbestos the objective data reasonably relied upon to support exemption medical surveillance for each employee and, training.

Safety data sheets for all hazardous materials are available to employees at the company office. An inventory of PACM and ACM is also maintained at the company office. The inventory is provided to all employees and contractors working in the inventoried areas.

Examples of “friable” or “non-friable” asbestos include:

- Friable means that the material can be crumbled with hand pressure and so is then likely to emit fibers. The fibrous or fluffy sprayed-on materials used for fireproofing, insulation, or sound proofing are considered to be friable and readily release airborne fibers if disturbed
- Materials such as vinyl-asbestos floor tile or roofing felts are considered non-friable and generally do not emit airborne fibers unless subjected to sanding or sawing operations. Asbestos-cement pipe or sheet can emit airborne fibers if the materials are cut, abraded, or sawed, or if they are broken during demolition operations
- All appropriate regulation signs and labels will be posted in areas of potential exposure to asbestos
- GTG Automation, Inc. employees will abide warning signs and labels and will not disturb the Asbestos Containing Material. Signs and labels will identify the material which is present, its location, and appropriate work practices which, if followed, will ensure that Asbestos Containing Material (ACM) and/or Presumed Asbestos Containing Material (PACM) will not be disturbed. Greg Griffin will ensure that employees working in and adjacent to regulated areas comprehend the warning signs

The regulation warning signs will bear the following information:

- Warning signs that demarcate the regulated area will be provided and displayed at each location where a regulated area is required to be established. Signs will be posted at such a distance from such a location that an employee may read the signs and take necessary protective steps before entering the area marked by the signs

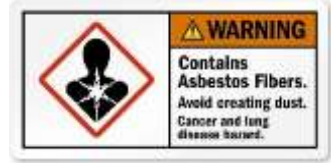


Where the use of respirators and protective clothing is required in the regulated area, the warning signs will include the following:

- GTG Automation, Inc. will ensure that employees working in and contiguous to regulated areas comprehend the required warning signs that are posted. Means to ensure employee comprehension may include the use of foreign languages, pictographs, and graphics
- Labels will be affixed to all products containing asbestos and to all containers containing such products, including waste containers.



- Where feasible, installed asbestos products will contain a visible label.
 - Labels will be printed in large, bold letters on a contrasting background.
 - Labels will be used in accordance with the requirements of §1910.1200 of OSHA's Hazard Communication standard, and will contain the following information:



Regular monitoring of air quality in work areas will be provided to ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1 f/cc) in 30 minutes.

Employees exposed to airborne concentrations, at or above the TWA PEL shall be initially monitored. After the initial determinations, samples shall be of such frequency and pattern as to represent with reasonable accuracy the levels of exposure of the employees (no greater than 6 months if exposures may exceed the TWA PEL).

The Company shall institute the exposure monitoring whenever there has been a change in the production, process, control equipment, personnel or work practices that may result in new or additional exposures above the TWA PEL.

Air quality will be determined from breathing zone air samples. The samples will be representative of the 8-hour TWA and 30-min. short-term exposure. Measurement records of all monitoring tests will be kept available at the company office.

Within 15 working days after the receipt of the results of any monitoring, GTG Automation, Inc. will notify any affected employee of these results. The written notification will contain the corrective action being taken to reduce employee exposure to or below the TWA and/or excursion limit.

MEDICAL SURVEILLANCE

- The medical surveillance program for employees who potentially may be exposed to asbestos at or above the action level or permissible exposure limits (PEL) will be provided under the supervision of a licensed physician at no cost to the employee
- The medical surveillance program is provided to ensure employees are not exposed to hazardous levels of asbestos in accordance with §1926.1101. Appendices A and B of this document are available to all employees at the Company office

EXPOSURE CONTROL AND PPE

- If the TWA and/or excursion limit is exceeded, this written program to reduce employee exposure will be implemented. Engineering controls and work practices will be implemented to reduce/maintain the exposure below TWA
- Reducing exposure levels will be accomplished by means of engineering controls, work practice controls, and the use of respiratory protection. Engineering and work practice controls will include exhaust systems for hand tools, wet methods, clean-up procedures, and PPE. This will be done except to the extent that such controls are not feasible

- Respirators will be used during installation or implementation of feasible engineering and work practice controls, work operations for which engineering, and work practice controls are not feasible, work operations for which feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the TWA and or excursion limit, and in emergencies. The employer must implement a respiratory protection program which covers each employee required to use a respirator.
- GTG Automation, Inc. will provide, at no cost to the employees, respirators that meet National Institute of Occupational Safety and Health (NIOSH) approval. Powered, air-purifying respirators will be available when employees choose to use this type, or when the respirator will provide adequate protection.
- GTG Automation, Inc. will issue specific PPE to employees involved with asbestos removal and abatement

ASBESTOS REGULATED AREAS

Employees are informed of all regulated areas and are properly trained in entrance procedures, safety requirements, and practices while in regulated areas.

All Class I, II, and III asbestos work will be conducted within regulated areas. All other operations will be conducted within a regulated area where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed a PEL.

Regulated areas will comply with the following requirements:

- Be clearly demarked from the rest of the work area in a manner that protects people outside the area from potentially being exposed to asbestos. Barriers and negative pressure enclosures may be used to separate the regulated area from the rest of the work area
- Utilize provided signage and display in designated areas that are under regulation
- Limit access only to authorized workers

All persons entering a regulated area where employees are required to wear respirators will be supplied with a regulation respirator.

- Greg Griffin will ensure that employees do not eat, drink, smoke, chew tobacco or gum, or apply cosmetics in the regulated area.
- Greg Griffin will ensure that all asbestos work performed within regulated areas is supervised by a Competent Person.
- The GTG Automation, Inc. Respiratory Protection Program and required respiratory protective equipment is provided at no cost for all employees with potential for exposure to asbestos.
- In the event of an emergency where airborne hazardous materials are released at hazardous levels, employees not wearing sufficient PPE for the situation will be immediately evacuated to a safe area until the hazard is contained.
- Adequate ventilation and appropriate engineering controls will be ensured in all enclosed work areas.
- Employees will wear appropriate PPE at all times while in work areas. This PPE will include proper eye/face protection in accordance with §1910.133 where appropriate.

- When airborne concentration of asbestos is above the TWA, appropriate PPE will be provided. PPE will include coveralls, gloves, head coverings, foot coverings, face shields, and vented goggles
- If an employee is exposed to asbestos above the TWA and/or excursion limit, or where the possibility of eye irritation exists, the employer shall provide at no cost to the employee and ensure that the employee uses appropriate protective work clothing and equipment

Greg Griffin will ensure that the negative pressure respirators fit properly and are checked annually to make sure that the respirator continues to fit properly. Employees wearing negative pressure respirators will have either quantitative or qualitative fit tests; the qualitative fit tests may be used only for testing the fit of a half mask. Greg Griffin will supervise this testing.

All employees who perform work in regulated areas are covered by this program. Employees who perform housekeeping activities during and after construction activities are covered by the asbestos construction standard.

GTG Automation, Inc. employees will be protected from exposure when working on multi-contractor worksites. If employees working immediately adjacent to a Class I asbestos job are exposed to asbestos due to the inadequate containment of such job, Greg Griffin will either remove the employees from the area until the enclosure breach is repaired; or perform an initial exposure assessment pursuant to 1926.1101(f).

SAFE PRACTICES

GTG Automation, Inc. will ensure all employees adhere to the following safe working practices

Hygiene and Change Rooms

GTG Automation, Inc. will provide clean change rooms for employees who work in areas where their airborne exposure to asbestos is above the TWA and/or excursion limit. GTG Automation, Inc. also will ensure employees shower at the end of the work shift. GTG Automation, Inc. will ensure that no employee takes contaminated work clothing out of the change room, except those employees authorized to do so for the purpose of laundering, maintenance, or disposal.

Housekeeping

All surfaces shall be maintained as free as practicable of ACM waste and debris and accompanying dust.

[illegible]

RESPIRATOR INSPECTION RECORD

Owner Information

Owner Name:

Company Name:

Employee ID # (if applicable)

Department

Work Phone:

Respirator Information

Type of Respirator:

Manufacturer:

Model #:

Date of Inspection:

Respirator ID#:

Size #:

Time:

Inspection Criteria

Estimated Frequency (Check all that apply):

☐ Hourly ☐ Twice Each Shift ☐ Daily ☐ Weekly ☐ Monthly ☐ Before Use ☐ After Use

This Inspection is being conducted:

☐ PRIOR to use☐ AFTER use

Initials:

Component

Defects Found

Corrective Action Taken

Cartridge Holder

Cartridge Threads/Fittings

Cartridge Canister

Cartridge Filter

Connections

Elastomeric Parts Deteriorating?

Elastomeric Parts Pliable?

Exhalation Valve Assembly

Facepiece

Gaskets

Harness Assembly

Headbands

Hose Assembly

Inhalation Valve

Nose Cup Valves

Speaking Diaphragm

Other

Comments:

Inspector's Name:

Title:

Signature:

Date

Form Retention Information

Attachments

Retention File Location

☐ Yes☐ No

Date Filed

Filed By:

☐ *See Following Pages

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has established this drug and alcohol policy to protect its employees from the hazards created by the use of alcohol and illegal drugs in the workplace.

In accordance with the [Drug-Free Workplace Act](#), which was enacted by The Department of Labor in 1988, GTG Automation, Inc. prohibits the unlawful cultivation, manufacturing, dispensing, distribution, possession, use or sale of illicit drugs and the abuse of alcohol in the workplace.

Greg Griffin is responsible for implementing and ensuring that the requirements of this policy are followed.

RESPONSIBILITIES

Employer

- Develop, implement, and enforce a written drug and alcohol policy with clear expectations and the disciplinary actions if those expectations are not met
- Develop a system to protect the confidentiality of employees and their testing records
- Provide adequate drug and alcohol awareness training
- Offer an employee assistance program (EAP) that provides employees substance abuse counseling and/or treatment
- Communicate the importance of confidentiality to management and employees and the expectations they are required to follow
- Maintain an ongoing effort for a drug-free workplace

Employee

- Comply with all aspects of the policy regarding testing and follow-up actions
- Attend all company provided training
- Report all observed or suspected occurrences of substance abuse to the company immediately
- Disclose any conviction for a drug-related offense in the workplace within five (5) days after such conviction

SAFE PRACTICES

Affected Employees

All employees, full time, or part time shall be subject to a drug and alcohol test randomly, for reasonable cause or suspicion, or post incident.

Employees holding safety sensitive positions shall be subject to regularly scheduled drug and alcohol testing, these positions include employees that:

- Operate heavy machinery or company transportation
- Handle hazardous chemicals
- Responsible for company financial activities
- Hold a supervisory position

Drug and Alcohol Testing Parameters

GTG Automation, Inc. shall designate a trained qualified Medical Review Officer (MRO) to review all test results and make recommendations to the company.

Samples may be collected by saliva, hair samples, or breathalyzer and shall be tested by a U.S. Department of Health and Human Services (DHHS) certified laboratory under the National Laboratory Certification Program (NLCP). The following substance categories may be tested for:

- Marijuana
- Cocaine
- Opiates
- Phencyclidine (PCP)
- Amphetamines
- Benzodiazepines
- Barbiturates
- Methadone
- Propoxyphene
- Quaaludes

GTG Automation, Inc. may require testing in any of the following situations:

- Pre-employment and post offer
- Reasonable Cause/Suspicion
- Post-incident
- Randomly
- Annual physicals

Pre-Employment and Post-Offer Testing

Potential hires are subject to a drug and alcohol test prior to employment and all individuals shall be tested before their initial assignment. Testing shall be scheduled during the hiring process and conducted by a third-party laboratory in a location that ensures a timely receipt of the results.

Any offer of employment shall be deemed conditional upon the potential hire having a negative test result, all test results shall be reported by the designated MRO.

Reasonable Cause/Suspicion Testing

Employees observed showing behaviors that a competent person or company official determine as reasonable cause or suspicion they are performing work under the influence, shall be required to submit a drug and alcohol test.

Testing shall be conducted promptly at a designated sample collection site after the suspected employee is removed from duty. The employee under suspicion shall not be allowed to drive themselves to the collection site (or elsewhere) and shall be provided transportation. If testing at a collection site is not feasible, a qualified technician may be brought to the worksite to conduct the testing.

Post-Incident Testing Procedures

Employees involved in any type of work-related incident or accident must submit a drug and alcohol test to determine whether drugs were a factor in the incident. Testing shall be conducted if drug or alcohol use was likely the cause of the incident and any employee whose behavior may have had an impact on it. Employees shall not return to work until the test results have been received.

Random Testing Procedures

GTG Automation, Inc. may conduct a random drug and alcohol test on a monthly, quarterly, or annual basis depending on its needs. Employees shall be selected using a computer based random number generator that is matched with an employee's social security number or employee ID number. This will result in an unbiased and equal probability for any employee from the entire selection to be tested. Regardless of any previous selections, all employees shall be subject for selection each time.

Random testing shall be unannounced, and employees selected shall be notified the day of collection after they have reported for duty. Testing shall be conducted immediately, but no later than 24 hours after being notified.

Specimen collection shall be conducted on different days of the week throughout each test cycle to prevent employees from matching their drug-use patterns to the schedule for collection.

Positive Results

Employees with positive test results shall be viewed as a violation of company policy and shall be subject to disciplinary action. Other drug related activity such as possession or sale or attempting to cheat testing shall also be viewed as violation of company policy.

A substance abuse assessment shall be provided to employees following a positive result or for those who voluntarily seek assistance for a substance abuse issue. Employees with a positive test result may be subject to disciplinary action such as suspension or termination.

Returning to Work

Employees returning to work after completing any mandated treatments following a policy violation, may be subject to a return-to-duty process or an unannounced testing program.

Employees shall sign a return-to-work agreement that defines any required expectations GTG Automation, Inc. and the employee assistance or medical professional involved may have for that employee. The agreement shall also state any consequences if those expectations are not achieved.

Employee Assistance Programs

GTG Automation, Inc. shall provide employees who have drug and alcohol abuse issues with options for an employee assistance program (EAP). This may include a program that is internal or through an outside source that is management-sponsored or peer-assisted and provided by a union.

Note: Employees may have special protections under the Americans with Disabilities Act of 1990, the Rehabilitation Act of 1973 or the Family and Medical Leave Act of 1993.

Notification

Prior to a testing program being implemented, GTG Automation, Inc. shall post notices throughout the workplace and notify employees in writing 30-60 days before the program goes into effect. Programs shall be available to all employees upon request.

Confidentiality

GTG Automation, Inc. shall maintain employee medical and testing records in accordance to Health Insurance Portability and Accountability Act (HIPAA) requirements to assure the confidentiality.

Confidentiality is a crucial component of a drug-free workplace. If employees feel that their privacy is not protected, they may be reluctant to seek help.

State, Local, and Jurisdictional Regulations

Many states and municipalities have specific drug-free workplace regulations that define when and how employees can be tested for illegal drugs. Always check with your state or local government to identify these requirements and obtain any other regulations or assistance regarding drug-free workplace programs.

Drug and alcohol testing cutoff levels shall meet or exceed the jurisdictional regulations in which the testing is taken place.

Medicinal/Recreational Marijuana

Marijuana use, medical or recreational, can potentially impact workplace safety and the performance of the user by impairing the cognitive and physiological functions for long periods of time. GTG Automation, Inc. prohibits employees from being under the influence or impaired due to any drug or alcohol during working hours. Employees shall notify management of any prescribed drug prior to the start of the workday.

As many states have legalized marijuana for medicinal purposes, it still remains illegal under federal law.

Client/Host Requirements

Employees that receive an unacceptable test result shall be prohibited from working on a client/host facility.

TRAINING

Employee Training

GTG Automation, Inc. ensures the substance abuse prevention director and EAP administrator shall provide all employees with ongoing awareness training and adequate education on drug and alcohol use in the workplace. New-employee training shall include the following:

- Company policies and procedures
- Importance of a drugfree workplace
- Effects of drug and alcohol
- Recognizing and reporting suspicious behavior
- Types of testing and the requirements
- Consequences of unacceptable results or refusal
- Seeking help and assistance programs

Supervisor Training

Supervisors shall receive additional training that has been developed and implemented by the general manager and/or the substance abuse program director. This training program shall include at least 60 minutes of training on the use of controlled substances and consist of the following topics in addition to ones covered in employee training:

- Supervisory responsibilities
- Recognizing signs and symptoms drug and alcohol use
- Determining reasonable suspicion
- Procedures for intervention
- Actions to take for unacceptable test results or refusals
- EAP's and ways to assist employees seeking help

Training records

Training records shall be documented, maintained for at minimum three (3) years, and made available to employees upon request. Documentation for each training program shall include the date and time training was conducted, name of the instructor, and any other applicable information or signatures.

POLICY

GTG Automation, Inc. has adopted this policy to inform employees of the Fit for Duty Policy. This ensures the safety and health of the employees.

RESPONSIBILITIES

Employer Responsibilities

- Ensuring all employees are physically fit and capable to perform the job duties assigned
- Training personnel to perform assigned tasks safely
- Responding quickly to eliminate workplace hazards
- Ensuring all equipment is kept in good repair
- Ensuring employees follow safe job procedures
- Reviewing job hazard analysis whenever there is a significant change to any element of the job or there has been an injury or illness

Supervisor Responsibilities

- Establishing and maintaining safe and healthful working conditions
- Monitoring employee work behaviors using behavior-based safety tools to determine if they will be removed from the worksite
- Ensuring employees are not impaired by illness or medication use
- Setting good examples, instructing their employees, making sure they fully understand and follow safe procedures

Employee Responsibilities

- Notifying their supervisors if they are fatigued to the point of not being able to perform their duties safely
- Ensuring they are physically and mentally fit to perform their job functions safely; they must take responsibility for their own safety as well
- Notifying their supervisor if they are taking prescription or over-the-counter medications
- No employee is expected to undertake a job until he/she has received instructions on how to do it properly and safely, and is authorized to perform the job
- No employee will undertake a job that appears to be unsafe
- Employees are to report to a superior or designated individual all unsafe conditions encountered during work
- Personal protective equipment must be used when and where required, and properly maintained

TRAINING

GTG Automation, Inc. will ensure all employees will be properly trained for their assigned task. Before any employee starts a new assigned task, the employee must receive specific training. Examples might include:

- Forklift operation
- Instrumentation
- Heavy equipment operation
- Scaffold building, etc.

PROCEDURES

Drug and Alcohol Testing

It is the policy of GTG Automation, Inc. that drug and alcohol testing for pre-employment, post-accident, or random will be conducted by only a laboratory certified by the U.S. Department of Health and Human Services (HHS) under the National Laboratory Certification Program (NLCP).

Testing Procedures – Pre-Employment

Any offer of employment is deemed conditional upon the potential employee having a negative test result for drugs.

Pre-employment Drug testing will be scheduled by the hiring supervisor directly with the third-party service provider immediately upon acceptance by the candidate of a conditional offer of employment. Testing will be done in a location most likely to ensure timely receipt of the results. Pre-employment test results will be reported by the Medical Review Officer.

Testing Procedures - Employees

Any person who requires an employee to be tested for Alcohol or Drugs must tell the employee beforehand why the test is being requested. Any employee who refuses a request to be tested is in breach of this policy and may be subject to disciplinary action that may include termination of employment.

When testing for either Alcohol or Drugs is to occur, GTG Automation, Inc. will direct the employee to a sample collection site designated by a third-party service provider and provide transportation to the site. At GTG Automation, Inc. discretion, a qualified technician may be brought to the worksite to conduct the testing.

Safe Work Practices

GTG Automation, Inc. will ensure that all employees are informed of safe work practices and procedures in the workplace. Examples might include:

- Lockout/Tagout
- Process Safety Management
- Asbestos Awareness
- Electrical safety, etc.

Prescription and Over-the-Counter Medications

It is the policy of GTG Automation, Inc. that all employees must notify their supervisor when taking any prescription or over-the-counter medication that could impair their ability to work safely.

Over-the Counter medications such as allergy or cold and flu medications could also impair one's ability to perform safely and must be reported to their supervisor.

Employee Monitoring

To determine if an employee will be removed from the work site, GTG Automation, Inc. will monitor employee behaviors and activities based on the Behavior Based Safety Policy.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has adopted this policy for Subcontractor Management from industry standards and best practices.

RESPONSIBILITIES

Greg Griffin is the assigned Company Supervisor responsible for ensuring the following procedures, practices, and rules are implemented and enforced.

PROCEDURES

Prequalification

Greg Griffin will ensure that all prospective subcontractors have an acceptable safety program and pre-qualify through the review of their lagging safety metrics for past safety performances, safety statistics, ensure that the subcontractors' policies and procedures adhere to regulatory and contractual requirements and that the subcontractor's employees are properly trained in the appropriate safety topics

Proposed subcontractors will complete and submit a Contractors Prequalification Form from which a Subcontractor/Supplier Quality Rating Report will be completed. The Contractor's Prequalification Form must be complete, and all requested attachments provided.

Selection

Prior to awarding work, Greg Griffin will utilize and evaluate the following lagging indicators of the potential subcontractor as criterion for selection:

- Prior working relationships
- Experienced modification rate (EMR)
- Total recordable injury rate (TRIR)
- Days away, restricted, or transferred rate (DART)
- Audits of current work in progress
- Availability of contractors in the area

GTG Automation, Inc. will communicate the minimum performance metrics, which may include an EMR less than or equal to 1.0 or a TRIR less than 1.5, that must be met prior to awarding work to potential subcontractors.

GTG Automation, Inc. must obtain a copy of the potential subcontractor's OSHA 300 logs and compare them to others in their industry. Subcontractors that outperform their industry counterparts in safety statistics will be utilized whenever it is practicable.

Pre-Job

The selected subcontractor will provide a training matrix with individual employee names and the areas of completed training for employees. The subcontractor will also identify Competent Persons and the areas of their competency. The subcontractor will be included in pre-job meetings or kick-off meetings, and safety orientations.

On-Site

The subcontractor will notify GTG Automation, Inc. Site Safety a minimum of 24 hours prior to the arrival of new employees on-site so that arrangements can be made to provide the required orientations. Employees must meet all of the requirements of the Site Safety Plan, including the training and orientation.

The Subcontractor will be required to meet all hazard analysis requirements and request the safe work permits as required by this plan. The subcontractor will be included in the audits and inspections on-site and are expected to immediately correct any "At Risk" behaviors or hazards identified that are within the subcontractor's scope of work and ability to correct. Employees of subcontractors have the right to refuse any work they deem to be hazardous.

Subcontractors shall be included and must attend the following:

- Pre-job and/or tailgate meetings
- Job safety analysis development
- Hazard and risk assessments
- Any applicable job site audits and/or safety inspections

The subcontractor will be required to adjust their "safe work practices" in order to prevent excessive near hits and/or near misses. If the subcontractor is unable to perform their scope of work without "At Risk" behavior or creating hazardous working conditions on the site, the subcontractor's working element will be required to leave the site until an abatement plan can be prepared and agreed upon.

Injury/Illness Reporting and Recordkeeping

Subcontractors must report all incidents and accidents to Greg Griffin in a prompt and timely manner. Subcontractors involved in an incident or accident are required to perform an incident investigation, identify the root cause and casual factors, develop corrective actions and determine the most effective method to implement them.

GTG Automation, Inc. will ensure that all subcontractors follow the GTG Automation, Inc. policy on Injury and Illness Recordkeeping. The only exemption to this requirement is if the subcontractor already has an Injury and Illness Recordkeeping policy in place that is more stringent than the one used by GTG Automation, Inc..

Post-Contract

Upon completion of the work, GTG Automation, Inc. shall conduct a post-job performance review for all subcontractors to determine the safety performance of the subcontractor and provide reference for future job consideration. The review will include various factors such as housekeeping, costs, and the quality and safety of the work.

Management of Change

GTG Automation, Inc. will conduct a hazard assessment when a change occurs in the construction plan or external influences impact the manner in which the work will be conducted. This includes, but is not limited to:

- Changes in policy or objectives
- Operating licenses and permits, legal, and regulatory requirements
- Changes in procedures, practices, and rules
- Changes to controlled documentation
- Work processes or methods
- Changes other than exact replacement in kind to equipment, processes, hardware, or software
- Changes to operating boundaries, e.g., operating envelopes
- Temporary changes that specify the period of time a change will be in effect

All employees affected by any temporary or permanent operational changes will be informed and trained in prior to the start of any new work.

The management of change process covers all activities including the initial request, implementation, review, and closure of a change. Any proposed changes will be managed by Greg Griffin and forwarded, in writing, to the Owner's management for approval or disapproval.

The following items will be included in the management of change proposal:

- Technical basis for the change
- Impact of the change on the health and safety of personnel
- Impact of change on the supplied tools and equipment
- Necessary modifications to existing or new operating procedures
- Methodology used to analyze the impact of the change

When revisions are necessary, affected employees will be consulted regarding the development and implementation of the newly revised procedures.

Open Letter to All Subcontractors

Date: _____

Greetings Prospective Subcontractor:

As part of GTG Automation, Inc.'s continuing commitment to safety, we are assessing our potential subcontractors' compliance with all applicable safety requirements. Enclosed are the materials you will need to complete this process, including a questionnaire that will assist us in assessing your safety programs. We are asking all subcontractors "Invited to Bid" to complete the attached questionnaire. The matrix included in this package is designed to assist you in determining which programs are applicable to your operations.

Please contact _____ with any questions or concerns. Forward the completed forms to the address below and attach a copy of your safety manual by: _____

Regards,

Construction Manager

Company

Attn:

Address:

City:

State:

ZIP:

Email:

Phone:

Fax:

SUBCONTRACTOR SAFETY & HEALTH QUESTIONNAIRE

Company Contact		Title		Date	
Company Name					
Address					
City				State	ZIP
# of Employees		Phone		Fax	
Form Completed by					
Signature					
Please describe the services that your company provides:					
1.) Has your company received any inspections from a regulatory agency in the last 3 years?				☐ Yes	☐ No
	If yes, provide details:				
2.) Has your company received any citations from a regulatory agency in the last 3 years?				☐ Yes	☐ No
3.) Does your company have regularly scheduled, documented employee safety meetings?				☐ Yes	☐ No
	If yes, how often are they held and what is covered at the safety meetings?				
4.) Does your company perform equipment checks on all equipment?				☐ Yes	☐ No
	If yes, are records maintained?				☐ Yes ☐ No
5.) Does your company perform Job Hazard Analysis (JHA)?				☐ Yes	☐ No
6.) Does your company provide and require the use of any of the listed personal protective equipment below?					
☐ Yes	☐ No	Hard Hats	Safety Shoes/Boots	☐ Yes	☐ No
☐ Yes	☐ No	Hand Protection	Hearing Protection	☐ Yes	☐ No
☐ Yes	☐ No	Eye Protection	Fall Protection	☐ Yes	☐ No
☐ Yes	☐ No	Face Protection	Respiratory Protection	☐ Yes	☐ No
7.) What other regulatory personal protective equipment is required or supplied if any?					
8.) Indicate the circumstances in which your employees may be subject to an alcohol/drug screening:					
☐ Never		☐ Reasonable Cause		☐ Periodic	
☐ Post-Accident		☐ Follow Up		☐ Return to Duty	
				☐ Random	
Do you have a documents Substance Abuse Prevention Program available for review?				☐ Yes	☐ No
9.) Does your Company have a policy requiring written accident/incident reports?				☐ Yes	☐ No
10.) Does your Company document, investigate, and discuss "Near Miss Incidents"?				☐ Yes	☐ No

11.) Please respond to all items below with YES, NO or N/A (not applicable). Do not leave any unanswered.				
OSHA Programs/Training	Program Written & Documented?	Training Conducted By (In-House or Outsourced)	Frequency of Employee Training	Documented Individual Employee Training?
OSHA Programs				
Confined Spaces				
Electrical Safety (qualified)				
Electrical Safety (non-qualified)				
Excavation & Shoring				
Fire Protection & Prevention				
Fall Protection				
First Aid/CPR				
HAZCOM				
Heat Stress Prevention				
Lifting/Mobile Equipment				
Lockout/Tagout				
Noise/Hearing Conservation				
PPE				
Respiratory				
Scaffolds/Ladders				
Trenching/Shoring				
Welding, Cutting, & Hot Work				

12.) Please provide any additional information on other industry-specific programs or training, including written procedures, which your Company provides to employees:		
13.) Does your company have a Safety & Health Program with clearly written safety policies that are endorsed and enforced by upper management?	☐ Yes	☐ No
14.) Does your Company perform documented safety audits/reviews?	☐ Yes	☐ No
15.) Who in your Company is responsible for coordinating your health, safety, and environmental program?		
16.) If your Company has more than 10 employees, please attach with this questionnaire your Company's OSHA 300 Log for the last 3 years.		
17.) Does your Company use subcontractors?	☐ Yes	☐ No
	If yes, explain:	
	Are your Subcontractor's written safety programs and procedures available for review?	☐ Yes ☐ No
18.) Are all documents & records pertaining to this questionnaire available for audit?	☐ Yes	☐ No
	If no, please explain:	
19.) Please attach your current/completed Health and Safety Program along with other written safety programs for review. A disk or CD-ROM is acceptable.		
Comments:		

SAFETY CONTRACT

Following are Safety Requirements as stated in your subcontract agreement: Subcontractor agrees to comply with prevailing safety regulations, whether OSHA, Contractor Policies, Owner Policies, or otherwise imposed while working on the project. Subcontractor also agrees to be bound by any rule or regulation needed during the course of the project. Subcontractor further agrees:

- To provide a safe work area to all his employees by providing, and requiring the use of, the required Personal Protective Equipment such as: hard hats, safety glasses, respirators, dust masks, face shields, etc.
- Subcontractor's employees will wear long or short sleeve shirts, long pants, and sturdy work shoes, boots, or when required, steel-toed boots
- To provide this Contractor with proper documentation on employee training for specific tools and equipment such as powder actuated tools, air guns (nail guns), forklifts, scaffolding, scissors lifts, boom lifts, and any safety plan applicable to their scope of work
- Be responsible for implementing and administering their safety program and must provide a copy of said program to this Contractor including a Job Hazard Analysis (inspections) and documentation on weekly job site safety meetings with its employees
- To implement daily hazard recognition for its employees by using a Pre-Task Planner form for their daily scope of work
- To provide its employees with safe tools and equipment and to safely perform the work under this agreement with high regard for the safety of its employees and others
- To provide a designated person for a weekly contractor safety coordination meeting

Subcontractor will:

- Immediately report to this Contractor in writing and remedy any accidents/illness, near misses, or unsafe conditions brought to its attention or discovered by subcontractor employees, involving its work and/or posing a danger to persons or property
- Not permit its employees at the project to use publicly audible radios or to wear headsets except as are used for job site communications
- Prior to bringing on site a substance or material for which a Safety Data Sheet (SDS) is required by federal, state, and local regulations, subcontractor will provide said SDS to Contractor

This Contractor is a Drug-free Company & provides such a workplace for its employees.

Subcontractor will provide this Contractor, prior to beginning scope of work, with current documentation of subcontractor's drug testing policy or program (i.e., pre-hire and random testing). The subcontractor will conduct random drug testing for all of their employees throughout the course of the project. All subcontractors' employees will attend a Project Safety Orientation on the first day of work on the job site.

Subcontractor Name	Signature	Title	Date
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POLICY

GTG Automation, Inc. has established a rigorous Housekeeping and Sanitation policy to ensure a safe, healthy and productive work environment. Good housekeeping and sanitation practices reflect employee pride in the workplace and must be practiced by all to ensure a safe working environment.

REFERENCES

- 29 Coded Federal Regulations:
 - §1910.22 – General Requirements
 - §1926.25 – Housekeeping
 - §1910.141 – Sanitation
 - §1926.51 – Sanitation

RESPONSIBILITIES

Employer

- Train all employees on our safe housekeeping and sanitation practices; including the potential hazards of relevant microbes prior to work
- Provide and maintain proper sanitation facilities to promote worker health
- Maintain all necessary waste removal and storage procedures and facilities
- Provide employees with the necessary tools and supplies to maintain a safe working environment
- Provide any needed personal protective equipment (PPE)
- Maintain up-to-date information on OSHA Permissible Exposure Limits (PELs) for microbial contamination (microbes) of environmental surfaces and air (e.g., OSHA has a PEL for airborne total dust not to exceed 15 mg per cubic meter (mg/m³) over an 8-hour time-weighted average limit for workplace exposures to total dust.

Employee

- Adhere to GTG Automation, Inc. 's safe housekeeping and sanitation practices
- Maintain a clean and disinfected work area
- Report any hazardous or unsafe conditions or acts immediately
- Use and maintain any required PPE

HAZARDS

The hazards associated with poor housekeeping and sanitation include:

- Injuries from slips, trips, and falls
- Illnesses from unsanitary workplace conditions
- Exposure to hazardous materials and/or vermin
- Exposure to relevant microbes above their respective Permissible Exposure Limits (PELs) prior to work

There are several common workplace hazards that are avoidable if proper housekeeping practices are followed. These include, but are not limited to:

- Tripping on items left on floors or stairs and slipping on soiled surfaces
- Being struck by falling objects
- Running into piles of material or protrusions
- Health hazards presented by unsanitary conditions
- Impeded access to exit routes in case of a fire or other emergency
- Fire hazards presented by improper disposal of flammable or combustible materials

By ensuring good housekeeping practices at the worksite, the employer reduces certain hazards, and provides a range of benefits, including:

- More efficient materials handling
- Greater control over workplace materials and inventory
- Streamlined maintenance routines and reduced janitorial workload
- Efficient use of space
- Greater employee morale and productivity

SAFE PRACTICES

Planning

To be effectively implemented, good housekeeping practices must be built into everyday work procedures and be complemented by a work environment that encourages organization, cleanliness and a systematic, efficient means to store, move, use and dispose of materials. In addition, an assessment will be conducted to determine which cleaning and/or disinfection method is most appropriate for the work to be performed.

Poor housekeeping can block exits and access to emergency equipment. Failure to remove trash and other debris also increases the risk of fire/explosion, and the presence of pests.

In the interest of safe housekeeping, the following requirements will be met by GTG Automation, Inc. 's housekeeping plan:

- Workers will participate in jobsite cleanup during their shift
- Workers will dispose of rubbish quickly and properly
- Materials, tools, and equipment will be stored to prevent tipping, and away from walkways, ceilings and power lines
- Work and travel areas must remain tidy, well-lit, and well-ventilated
- Any hazardous areas or conditions must be marked with a sign to prevent injury or illness
- Daily, weekly and monthly cleaning procedures should be implemented to help establish routines that maintain workplace cleanliness and organization

General Housekeeping

- All work areas, aisles, passageways, storerooms and service rooms must be kept clean and orderly
- Aisles and passageways will be marked or otherwise identified, and when mobile equipment and employees use the same aisle or passageway, clearances must be provided and maintained to ensure safe passage
- Materials, including scrap and debris, will be piled, stacked or placed in a container to prevent injury
- Workplaces and passageways that are slippery from oil or grease, other substances, or other causes will be cleaned or covered with sand, sawdust, or other material to prevent slipping
- Where any wet process, such as food-processing or car-washing, is performed, adequate drainage will be maintained or false floors, platforms or mats used
- Every workroom shall be maintained, so far as practicable, in a dry condition. Where an employee is required to work on a wet surface in a wet process, the surface will be slip-resistant
- Guardrails temporarily removed for materials delivery will be immediately replaced when work is done and involved workers must wear fall protection until guardrails are back in place
- Keep electrical cords away from areas where people could trip over them
- Keep electrical cords away from wet areas. Never let a cord sit in water
- Working surfaces will be kept in good repair and level.
- Keep floors and passageways free from protruding nails, electrical cords, splinters, holes or loose boards
- Kitchens must be furnished with sufficient trash receptacles
- Garbage capable of rotting or becoming putrid must be placed in a covered container.
- Container contents will be disposed of at frequent and regular intervals
- Refrigerators must be cleaned out each week, and counters, microwaves and sinks should be cleaned each day
- Workers are discouraged from eating at desks or anywhere not designated for eating
- Ensure restrooms are cleaned and sanitized daily. Adequate stock of paper goods and soap must be maintained at all times to ensure a hygienic workplace
- Hose and electric conductors must be elevated over or placed under the walkway or working surfaces or be covered by adequate crossover planks
- Access to exits, fire alarm boxes and fire-extinguishing equipment will be maintained at all times
- Oils, paints thinners, solvents, waste, rags or other flammable substances must be kept in fire-resistant covered containers when not in use
- During construction, alteration or repairs, form and scrap lumber with protruding nails, and all other debris, must be kept cleared from work areas, passageways, and stairs in and around buildings or other structures
- Combustible scrap and debris must be removed at regular intervals during construction. Safe methods will be provided for such removal
- Containers must be provided for the collection and separation of waste, trash, oily and used rags and other refuse
- Containers used for garbage and other oily, flammable, or hazardous wastes, such as caustics, acids or harmful dusts must be equipped with covers
- Garbage and other waste must be disposed of at frequent and regular intervals
- Where vegetation is a hazard, employees will be protected by vegetation control or other means of protection, such as, but not limited to, a barrier, PPE, or medication

Sanitation

The Company will ensure that all requirements regarding potable water, toilet and washing facilities, food and eating areas and temporary sleeping areas (if applicable) will meet the required relevant regulations.

Microbes

GTG Automation, Inc. will ensure that all relevant safety measures are implemented to protect employees from potential exposure to microbes, including monitoring, evacuation, PPE, disinfection, ventilation, etc. PELs are based upon an 8-hour time-weighted average (TWA) exposure limit, a short-term exposure limit (STEL) or a ceiling exposure limit. Some contaminants may have multiple exposure limits depending upon the nature of the hazardous material. For workers who work an 8-hour work shift, to evaluate their 8-hour TWA exposure level, if the first screening of the exposure level appears to be in excess of 50% of the PEL, management would then conduct personal air monitoring. In sampling a worker, management will, as conditions permit, sample for at least seven hours of the 8-hour work shift. The exposure level for comparison with the PEL is calculated based upon an 8-hour exposure. The balance of the exposure period (the last hour) is then calculated as a zero-exposure level.

The sanitation method used will also be taken into consideration in the monitoring for PELs. All cleaning and/or disinfection products used will be identified as EPA-registered disinfectants. Also, management will ensure that employees have clean and sanitary PPE available at all times and that any contaminated cleaning materials are properly disposed of immediately once the applicable work is completed.

Potable Water

Potable (safe to drink) water must be provided and placed in locations readily accessible to all employees. The water must be suitably cool and available continuously in sufficient amounts to keep all workers hydrated, taking into account the air temperature, humidity and nature of the work performed. The water will be dispensed in sanitary single use drinking cups, or by fountains. Common drinking cups are prohibited.

Portable containers used to dispense drinking water must be tightly covered, regularly cleaned and refilled at least daily. Containers must have a tap, and water must not be dipped from containers. The containers must be clearly marked as to the nature of their contents, made of a material that maintains water quality, and not used for any other purpose.

Potable drinking water, as well as toilet and hand-washing facilities, must be maintained in accordance with appropriate public health sanitation practices.

Non-Potable Water

Outlets for non-potable water, such as water for industrial or firefighting purposes only, will be identified by signs that clearly indicate the water is unsafe, and is not to be used for drinking, washing, or cooking purposes. There will be no cross-connection, open or potential, between a system that furnishes potable water and a system that furnishes non-potable water.

Jobsite Toilets

Toilets at construction jobsites must be provided for employees according to the table below table. Toilet facilities must be adequately ventilated, readily accessible, and maintained in a clean and sanitary condition. Mobile crews may be provided transportation to nearby toilet facilities.

Number of Toilet Facilities Required at Job Sites Per Number of Employees	
<i>Number of Employees</i>	<i>Facilities Required</i>
20 or less	1
20 or more	1 toilet seat and 1 urinal per 40 employees
200 or more	1 toilet seat and 1 urinal per 50 employees

Job sites not provided with a sanitary sewer will be provided with one of the following toilet facilities unless prohibited by local codes:

- Privies (where their use will not contaminate ground or surface water)
- Chemical toilets
- Recirculating toilets
- Combustion toilets

Gender Considerations

Access to sanitary facilities can be challenging on some construction sites. Temporary facilities are usually unisex, and often overused or not well-maintained. Where practicable, employers should consider establishing gender-specific facilities or facilities with internal and external locking systems.

Permanent Work Location Toilets

Employees working in a permanent location (factory or office) must be provided toilet facilities, in toilet rooms separate for each sex according to the table below. The number of facilities to be provided for each sex will be based on the number of employees of that sex for whom the facilities are furnished.

Where toilet rooms can only be occupied by one person at a time, can be locked from the inside, and contain at least one water closet, separate toilet rooms for each sex are not required. Where such single-occupancy rooms have more than one toilet facility, only one such facility in each toilet room will be counted.

Number of Toilet Facilities Required at Permanent Sites Per Employee	
<i>Number of employees</i>	<i>Minimum number of facilities¹</i>
1 to 15	1
16 to 35	2
36 to 55	3
56 to 80	4
81 to 110	5
111 to 150	6
Over 150	See table footnote ²
¹ Where toilet facilities will not be used by women, urinals may be provided instead of water closets, except that the number of water closets in such cases may not be reduced to less than 2/3 of the minimum specified	
² One additional fixture for every 40 additional employees	

Each lavatory must have:

- Hot and cold running water, or tepid running water
- Hand soap or similar cleansing agents
- Individual hand towels, or sections thereof, of cloth or paper, air blowers or clean individual sections of continuous cloth toweling, convenient to the lavatories

Washing Facilities

Employers must provide onsite general washing facilities (one per 20 employees) for construction projects, must keep them in sanitary condition, and must provide suitable cleaning agents/single-use towels for the removal of hazardous and other substances.

Whenever showers are required by a standard, the showers will provide: One shower for each 10 employees of each sex, or numerical fraction thereof, who are required to shower during the same shift

- Body soap or other appropriate cleansing agents convenient to the showers
- Hot and cold water feeding a common discharge line
- Individual clean towels for all employees who use the showers

Eating and Drinking Areas (Break Areas)

No employee will be permitted to consume food or beverages in a toilet room or in any area exposed to a toxic material.

All employees' food service facilities and operations will meet the applicable laws, ordinances and regulations of the jurisdictions in which they are located.

Receptacles constructed of smooth, corrosion resistant, easily cleanable, or disposable materials will be provided and used for the disposal of waste food. The number, size and location of such receptacles must be adequate to encourage their use and not result in overfilling. These receptacles must be emptied at least once each working day, unless unused, and will be maintained in a clean and sanitary condition. Receptacles will have a solid tight-fitting cover unless sanitary conditions can be maintained without use of a cover.

No food or beverages may be stored in toilet rooms or in an area exposed to a toxic material. All employee food service facilities and operations will be carried according to sound hygienic principles.

In all places of employment where all or part of the food service is provided, the food dispensed will be wholesome, free from spoilage, and be processed, prepared, handled and stored in such a manner as to be protected against contamination.

Vermin Control

Every enclosed workplace will be constructed, equipped and maintained, so far as reasonably practicable, as to prevent the entrance or harborage of rodents, insects, and other vermin. A continuing and effective extermination program will be instituted where their presence is detected.

PERSONAL PROTECTIVE EQUIPMENT

All employees will use their required PPE, which can include:

- Safety shoes or boots
- Safety glasses or goggles as needed
- Rubber or work gloves as required
- Dust masks if needed

TRAINING

GTG Automation, Inc. will verify that all employees are trained on:

- Our housekeeping and sanitation policy
- How to avoid slips, trips and falls
- Proper waste disposal procedures and storage locations

Training Records

Training records will include the following information and/or requirements:

- The dates of the training sessions
- The contents or a summary of the training sessions
- The names and qualifications of persons conducting the training
- The names and job titles of all persons attending the training sessions
- Employee training records will be retained for the duration of employment.
- Reinforcement to prevent creating hazards to employees, with reiteration as often as necessary, to keep work and travel areas orderly
- Loose materials not being used will not be allowed to accumulate
- Keep equipment and areas around equipment clear of scrap and waste
- Do not drop material or rubbish freely from any level; use chutes or other approved devices

Sufficient inventories of cleaning supplies will be kept on site. Cleaning chemicals must be stored in spill-proof containers away from toxic or reactive chemicals.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. has developed this ISO 26000 – The Environment policy to encourage social responsibility by limiting greenhouse gasses, environmental impact and material waste, while encouraging energy conservation. GTG Automation, Inc. is committed to the protection of the environment, including the prevention of pollution.

ROLES AND RESPONSIBILITIES

GTG Automation, Inc. is responsible for:

- Forming a team consisting of human resources, purchasing, operations, executive management and health, safety and environment personnel to oversee compliance with the ISO 26000 program
- Ensuring the ISO 26000 program is run as designed
- Establish annual ISO 26000 improvement goals

Committee members are responsible for:

- Designate waste containers for recycling
- Promote the ISO 26000 principles in use at GTG Automation, Inc.
- Report progress/successes quarterly to GTG Automation, Inc. leadership and GTG Automation, Inc. employees
- Use ISO 26000 principles when purchasing products and services

Employees are responsible for:

- Discarding waste in designated containers (recyclable metal, recyclable construction material, garbage, etc.)
- Following energy conservation and waste minimization expectation
- Complying with the efficient use of vehicles and equipment principles

TRAINING

All employees will receive training in ISO 26000 requirements and the programs and goals established at GTG Automation, Inc.. Training will be provided when ISO 26000 is implemented and to all new employees.

PROCEDURES

Climate Change Mitigation

To mitigate climate change impact, GTG Automation, Inc. will take the following steps:

- Identify the sources of direct and indirect accumulated Greenhouse gasses (GHG). This includes defining the boundaries (scope) of its responsibility.
- Measure, record and report on its significant GHG emissions using well-defined methods in internationally agreed standards.
- Implement optimized measures to progressively reduce and minimize the direct and indirect GHG emissions within its control and encourage similar actions within its sphere of influence.
- Review the quantity and type of significant fuel usage within the organization and implement programs to improve efficiency and effectiveness.
- Take a life cycle approach to ensure net reduction in GHG emissions, even when low-emissions technologies and renewable energies are considered.

- Prevent or reduce the release of GHG emissions (particularly those also causing ozone depletion) from land use and land use change, processes, or equipment, including but not limited to heating, ventilation and air conditioning units.
- Realize energy savings wherever possible in the organization, by purchasing energy-efficient goods and developing energy-efficient products and services.
- Aim for carbon neutrality by implementing measures to offset remaining GHG emissions. For example, through supporting reliable emissions reduction programs that operate transparently, carbon capture and storage or carbon sequestration.

Consider Environmental Impact When Purchasing Products

GTG AUTOMATION, INC. will consider the impact a product has on the environment before purchasing and give preference to products that have a lesser impact on the environment. Examples include recycled products, renewable material and energy efficiency.

This is known as sustainable procurement, where GTG AUTOMATION, INC. will take into account the environmental, social and ethical performance of the products or services being procured, over their entire life cycles. Where possible, it will give preference to products or services with minimized impacts, making use of reliable and effective independently verified labeling schemes or other verification schemes, such as eco-labeling or auditing activities.

GTG AUTOMATION, INC. will ensure job-specific training is provided for new or transferred employees. All employees will be trained in the tasks they perform regularly.

Efficient use of Vehicles and Equipment

GTG Automation, Inc. will keep vehicles and equipment in good condition to minimize environmental impact with up-to-date preventative maintenance by avoiding unnecessary idling, using alternative fuels when possible and running the most efficient vehicles and equipment when possible.

Local Habitat

GTG Automation, Inc. will act to protect and restore natural habitats and the various functions and services ecosystems provide. GTG Automation, Inc. will evaluate company activities and their impacts on the local plant or animal populations and habitats and formulate a plan to minimize negative environmental impacts. Accordingly, GTG Automation, Inc.'s plan to minimize environmental impact will:

- Identify potential adverse impacts on biodiversity and ecosystem services and take measures to eliminate or minimize these impacts.
- Where feasible and appropriate, participate in market mechanisms to internalize the cost of its environmental impacts and create economic value in protecting ecosystem services.
- Give the highest priority to avoiding the loss of natural ecosystems, second to restoring ecosystems and finally, if the former two (2) actions are not possible or fully effective, to compensating for losses through actions that will lead to a net gain in ecosystem services over time.
- Establish and implement an integrated strategy for the administration of land, water and ecosystems that promotes conservation and sustainable use in a socially equitable way.
- Take measures to preserve any endemic, threatened, or endangered species or habitat that may be adversely affected.
- Implement planning, design and operating practices as a way to minimize the possible environmental impacts resulting from its decisions on land use, including decisions related to agricultural and urban development.

- Incorporate the protection of natural habitat, wetlands, forest, wildlife corridors, protected areas and agricultural lands into the development of buildings and construction works.
- Adopt sustainable agricultural, fishing and forestry practices including aspects related to animal welfare, for example, as defined in leading standards and certification schemes.
- Progressively use a greater proportion of products from suppliers using more sustainable technologies and processes.
- Consider that wild animals and their habitats are part of our natural ecosystems and will therefore be valued and protected and their welfare considered.
- Avoid approaches that threaten the survival or lead to the global, regional, or local extinction of species or that allow the distribution or proliferation of invasive species.

Energy Conservation, Efficiency and Waste Minimization

GTG Automation, Inc. seeks to reduce the impact of its activities on the environment and ensure the future availability of resources by conserving energy and limiting the amount of materials it uses, wastes, or transports. GTG Automation, Inc. can make progress towards sustainable resource expenditure by using electricity, fuels, raw and processed materials, land and water more responsibly and by combining or replacing non-renewable resources with sustainable, renewable resources.

In relation to all its activities, GTG Automation, Inc. will:

- Identify the sources of energy, water and other resources used.
- Measure, record and report on significant uses of energy, water and other resources.
- Implement resource efficiency measures to reduce the use of energy, water and other resources, considering best practice indicators and other benchmarks.
- Complement or replace non-renewable resources where possible with alternative sustainable, renewable and low-impact sources.
- Use recycled materials and reuse water as much as possible.
- Manage water resources to ensure fair access for all users within a watershed.
- Promote sustainable procurement.
- Consider adopting extended producer responsibility.
- Promote sustainable consumption.

Example energy conservation measures:

- Shutting down equipment not in use
- Using energy-efficient light bulbs
- Using energy-efficient technology
- Using equipment with an energy star mark

Water Conservation

GTG Automation, Inc. takes special measures to include water conservation whenever possible by incorporating the following examples:

- Preventative maintenance
- Repairing equipment leaking water
- Alternative cleaning methods
- Using a broom instead of a hose to clean
- Upgrading equipment efficiency
- Educating employees

ENVIRONMENTAL MANAGEMENT SYSTEM

An Environmental Management System will be in place to help GTG Automation, Inc. identify, manage and mitigate risks and opportunities related to environmental impacts and performance, which follows the “plan-do-check-act” format. This system will address the following:

11. Collection of information related to environmental, health and safety
12. Tracking of environmental targets with associated data and
13. Monitoring of progress towards objectives

In conjunction with the Environmental Management System, GTG Automation, Inc. will conform to applicable environmental legislation and other environmental compliance obligations. *(The Environmental Management System will assist the company in fulfilling any legal requirements and compliance requirements that it may be subject to.)*

GTG Automation, Inc. will also maintain a process for continual improvement of the environmental management system, including the establishment of targets that improve its environmental performance and management system to meet changing business and regulatory needs.

Key Performance Indicators (KPIs) related to environmental performance will be established, measured, tracked, recorded and reported. These may include the following:

14. Greenhouse gas (GHG) emissions from company activities
15. Water Use
16. Electricity Use
17. Waste Generated
18. Any other Environmental Performance Metrics relevant to the company

GTG Automation, Inc. will ensure that activities from their operations do not cause harm to the environment (including the surrounding communities). Company measures to prevent pollution may include emissions, discharges to water, waste management, use and disposal of chemicals, etc. The Company will inform the public and the community on any environmental, health and safety impacts to them from the operations of the organization via public posts, media and other modes of communication.

ENVIRONMENTAL SUSTAINABILITY

GTG Automation, Inc. will put in place practices to promote environmental responsibility, including the following:

- Redefine company vision, policies and strategies to include the “triple bottom line” of sustainable development – economic prosperity, environmental quality and social equity.
- Develop sustainability targets and indicators (economic, environmental, social).
- Establish a sustainable production and consumption program with clear performance objectives to take the organization beyond compliance in the long-term.
- Work with suppliers to improve environmental performance, extending responsibility up the product chain and down the supply chain.
- Adopt voluntary charters, codes of conduct or practice internally as well as through industrial and international initiatives to confirm acceptable behavior and performance.
- Foster new technologies and operating procedures and development of new products/services with no or limited environmental impact.
- Measure, track and communicate progress in incorporating sustainability principles into business practices, including reporting against global operating standards.

- Conduct employee training on environmental issues and potential impacts from company operations..

Communication of Environmental Policy Stakeholders

The company's environmental policy intends to ensure the involvement and commitment of employees and external parties in the environmental management system. Employees need to be made aware of the effects of environmental management on the quality of their work environment and will be encouraged to contribute actively to environmental management. GTG Automation, Inc. will make information available to stakeholders that illustrates its environmental performance. Including applicable collaborations with other organizations and local, state, or federal governments.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training:	
Attendees	
Print Name:	Signature:

POLICY

GTG Automation, Inc. is committed to the safety and health of our employees. Therefore, the following Jobsite Security provisions have been adopted.

RESPONSIBILITIES

GTG Automation, Inc. commits to the prevention and/or reduction of security breaches/incidents. Greg Griffin is responsible for the implementation and enforcement of the following safety rules. Disciplinary procedures will be enforced.

TRAINING

Greg Griffin will ensure that all employees are trained in job site security procedures upon hire and retrained as frequently as needed thereafter.

SAFE PRACTICES

To maintain effective job site security, GTG Automation, Inc. will enact the following safe practices at the job site:

- Assess the risk of security incidents. A general Risk Assessment will be performed at the company level to address common risks across job sites. Security will also be addressed at each job site during pre-job meetings/toolbox talks/hazard assessments (JSA). Affected employees will be provided an opportunity to participate in risk assessments.
- Implement control measures to reduce or eliminate security incidents. This may include but is not limited to, posted signage, restricted access to work areas, locked doors, keycards, security cameras, alarms, fencing, lighting, personal protective devices, security guards, background checks, time-lock safes and other robbery prevention measures.
- Ensure security breaches/incidents are reported immediately. If the incident occurred at a client site, the client host will be notified immediately.
- Ensure an incident investigation will be completed when a job site security incident occurs. The goal of the investigation is to identify root causes and take corrective action to reduce the potential for future incidents.
- Ensure employees are trained on policies, procedures and workplace arrangements to prevent security incidents, the appropriate response (including how to obtain assistance) and procedures for reporting, investigating and documenting security incidents. Retraining will be provided any time these policies or procedures are changed or updated.

POLICY

GTG Automation, Inc. has adopted this policy to identify and control hazards associated with changes, such as changes in equipment, procedures, materials, or employees. This policy outlines the triggers that will initiate the formal Management of Change (MOC) process, as well as the methods for initiating, tracking, completing, and documenting such changes. It ensures that changes are assessed to maintain safety, environmental standards, and operational integrity.

This policy will also outline how MOC procedures apply during employee changes and how employees will be protected from hazards that may arise from these changes.

The primary goal of this policy is to ensure that all modifications to equipment, processes, facilities, and employees are thoroughly reviewed and managed to prevent accidents, safeguard employee health, and ensure the integrity of Company operations. The MOC process ensures that hazards introduced by changes are identified, assessed, and controlled before implementation.

RESPONSIBILITIES

GTG Automation, Inc. is responsible for developing and maintaining emergency control plans that are ready to implement for any proposed changes prior to initiating work.

GTG Automation, Inc. is responsible for maintaining a written log of any changes to the original work order while services are being performed. If new hazards are introduced, a new job hazard analysis (JHA) will be completed prior to any further work being performed.

Greg Griffin is responsible for developing and implementing written MOC procedures for changes related to facilities, operating procedures, and employees.

Greg Griffin is also responsible for establishing a formal communication process to consult and inform all affected employees of any proposed changes and their potential consequences.

TRAINING

Greg Griffin will ensure that employees affected by operational changes are properly trained and informed before the start of operations. This training will cover:

- The benefits of managing change.
- The role of the MOC program in protecting employee safety, operational integrity, and the environment.

On-site employees will be trained on the current MOC and JHA processes, notified of new tasks that introduce new hazards, and assured that no work will begin until all new hazards are thoroughly assessed and documented.

PROCEDURES

MOC Process

The MOC process will be triggered under the following circumstances:

- Any organizational change in supervisory employees or significant changes in the structure of employees. Routine vacancies, replacements, rotations, and shift changes will not trigger the MOC process unless they introduce new hazards or responsibilities.
- Changes in Company work processes, equipment, or facilities.
- Revisions to Company operating procedures, safe work practices, or training programs.

Before making any proposed changes, GTG Automation, Inc. will consult with all affected employees.

Pre-Project Review

Before initiating any changes to facilities, equipment, or work processes, a review will be completed to ensure that safety, health, environmental, and quality standards are upheld while staying within budget.

Pre-Startup Review

Before placing any changes into service, a pre-startup review will be conducted to confirm that all conditions outlined in the pre-project review are met. This review will also assess any remaining hazardous conditions and potential risks.

Hazard Assessment for New Hazards

Whenever there is a change to the work order or when external factors influence how the work will be conducted, GTG Automation, Inc. will conduct a thorough hazard assessment. This includes, but is not limited to:

- Changes in policy or objectives.
- Changes in operating licenses and permits, legal and regulatory requirements.
- Changes in procedures, practices, or rules.
- Changes to controlled documentation.
- Modifications to work processes or methods.
- Any changes other than exact replacement in kind for equipment, processes, hardware, or software.
- Changes to operating boundaries, such as operational envelopes.
- Temporary changes that specify the period the change will remain in effect.

The MOC process will cover the entire lifecycle of a change, from the initial request through implementation, review, and closure. Proposed changes will be managed by Greg Griffin and submitted to company management for approval or rejection.

- The following elements will be included in the MOC proposal:
 - Technical basis for the change.
 - Impact of the change on employee health and safety.
 - Impact on supplied tools and equipment.
 - Necessary modifications to existing or new operating procedures.
 - Methodology used to analyze the impact of the change.
 - Safety, health, and environmental considerations.
 - Communication of the proposed change and its consequences to the appropriate employees.

Employee Changes and MOC Implementation

MOC procedures will be initiated for any significant changes affecting employees, including changes in supervisory positions or departmental restructuring. Routine employees' vacancies, replacements, rotations, and shift changes will not trigger the MOC process unless they introduce new risks or alter responsibilities that may affect safety or operational integrity.

Procedures For Protecting Employees from New Hazards

Whenever a change in employees, work processes, or equipment introduces new hazards, the following measures will be enforced for protection:

A new JHA will be conducted to evaluate and mitigate the newly introduced risks before any further work begins.

All employees will be notified and trained on the new hazards, including any changes to safety protocols or the use of personal protective equipment (PPE).

Work will not proceed until all identified safety measures are implemented, and all affected employees are trained and informed of their responsibilities regarding the new hazards.

Participation

GTG Automation, Inc. will ensure that all employees whose tasks are affected by any operational change are informed and trained through the pre-project and pre-startup review processes.

This may involve, but is not limited to, staff from the following departments:

- Operations
- Engineering
- Information Technology
- Sales/Marketing
- Quality Assurance

Monitoring and Review

All MOC procedures will be continuously monitored to ensure their effectiveness. Periodic reviews will be conducted to confirm that any new risks or hazards are adequately controlled, and corrective actions will be taken when necessary.

TRAINING RECORD

Trainer:	
Signature:	
Date:	
Content of Training	
Attendees	
Print Name:	Signature:

DISCLAIMER

OSHA's "Safety and Health Regulations" are continuously being reinterpreted. Therefore, Safety Services Company is unable to completely guarantee the exactness of the information conveyed in this publication. Safety Services Company assumes no responsibility and shall be held harmless for any inaccuracies or omissions contained within this manual and shall not be held liable to any extent or form for any injury or loss resulting from the manner in which this information is interpreted and/or applied.

Careful effort has been dedicated in order to provide a simplified, understandable explanation of OSHA regulations based on currently available information. This "Safety and Health Manual" is distributed with the agreement that Safety Services Company is not employed in providing legal or other specialized business services. Should expert assistance be required, retain the services of a competent professional.

Safety Services Company

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[illegible]

This image shows a full page of blank, lined paper. It features approximately 28 horizontal black lines spaced evenly across the page, typical of standard notebook paper. The lines are thin and extend from the left edge to the right edge. There are no margins, text, or other markings on the page.

EMPLOYEE SIGNOFF

This is to certify that I have received a copy of the Company Health, Safety and Environment Manual.

I have read these instructions, understand them, and will comply with them while working for the Company.

I understand that failure to abide by these rules may result in disciplinary action and possible termination of my employment with GTG Automation, Inc.

I also understand that I am to report any injury to my foreman or superintendent immediately and report all safety hazards.

I further understand that I have the following "Safety Rights":

- I am not required to work in any area I feel is not safe.
- I am entitled to information on any hazardous material or chemical I am exposed to while working.
- I will not be discriminated against for reporting safety concerns.

Employee Name

Signature

Date

Supervisor Name

Signature

Date

cc: Employee File