



A DBA of Graco Fishing & Rental Tools, Inc.
GRACO OILFIELD SERVICES
Moving Forward, Honoring the Past

OFFICIAL

GRACO OILFIELD SERVICES

SAFETY POLICY

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Welcome New Employee,

The personal safety and health of each employee of Graco Oilfield Services is of primary importance. The prevention of occupational-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 facilities required for personal safety and health in keeping with the highest standards.

Graco Oilfield Services 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 both 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/her fellow workers.

Graco Oilfield Services's objective is a safety and health program that will reduce the number of disabling injuries and illnesses to a minimum, not merely in keeping with, but surpassing, the best experience of other operations similar to ours. Our goal is **ZERO** accidents and injuries. Our safety and health program will include:

- Providing mechanical and physical safeguards to the maximum extent that is possible.
- Conducting a program of safety and health inspections to identify 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.
- Developing and enforcing safety and health rules and requiring that employees cooperate with these rules as a condition of employment.
- Thoroughly and promptly investigating every accident to determine the cause, correct the problem and prevent recurrence.

Accidents can be avoided by the use of good judgment, common sense and adherence to Graco Oilfield Services Safety Program. We solicit your full cooperation in implementing the safety rules outlined in the following pages as we look forward to accepting you aboard Graco Oilfield Services

Sincerely,

Dan Rambo

1.0 GRACO WORKPLACE PRINCIPLES & POLICIES

1.1 Injury and Illness Prevention Program

Agreement to Participate

Every employer is required to provide a safe and healthful workplace. Graco Oilfield Services is committed to fulfilling this requirement. A safe and healthful workplace is one of the highest priorities of Graco Oilfield Services. The information in this manual constitutes a written injury and illness prevention program. While Graco Oilfield Services cannot anticipate every workplace hazard, the following general principals should guide your conduct.

1. To be safe, you must never stop being safety conscious.
2. Study the guidelines contained in this manual.
3. Discuss the workplace situation with the Store Manager/Supervisor.
4. Attend all company sponsored training and safety meetings.
5. Read all posters and warnings.
6. Listen to instructions carefully.
7. Participate in accident investigations as requested.
8. Accept responsibility for the safety of others.
9. Maintain all required documentation.

By signing the acknowledgement at the front of this handbook, each employee promises to read and implement this injury and illness prevention program. If certain aspects and/or individual pieces of this program are difficult to understand, please speak with your supervisor.

Written Plan

Every employer should have a written Injury and Illness Prevention plan. This is our plan. Please read it carefully. While no plan can guarantee an accident free work place, following the safety procedures set forth in this manual will significantly reduce the risk of danger to you and your co-workers. Thank you for all our safety.

Introduction to Our Program

State and federal law, as well as company policy, makes the safety and health of our employees the first consideration in operating our business. Safety and health in our business must be a part of every operation, and every employee's responsibility at all levels. It is the intent of Graco Oilfield Services to comply with all laws concerning the operation of the business and the health and safety of our employees and the public. To do this, we must constantly be aware of conditions in all work areas that can produce or lead to injuries. No employee is required to work at a job known to be unsafe or dangerous to their health. Your cooperation in detecting hazards, reporting dangerous conditions and controlling workplace hazards is a condition of employment. Inform your supervisor immediately of any situation beyond your ability or authority to correct. Employees will not be disciplined or suffer any retaliation for reporting a safety violation in good faith.

Safety First Priority

The personal safety and health of each employee is of primary importance. Prevention of occupationally-induced injuries and illnesses is of such consequence that it will be given precedence over operating productivity. To the greatest degree possible, management will provide all mechanical and physical protection required for personal safety and health, but our employees must bear primary responsibility for working safely. A little common sense and caution can prevent most accidents from occurring.

Individual Cooperation Necessary

Graco Oilfield Services maintains a safety and health program conforming to the best practices of our field. To be successful, such a program must embody proper attitudes towards injury and illness prevention on the part of supervisors and employees. It requires the cooperation in all safety and health matters, not only of the employer and employee, but between the employee and all co-workers. Only through such a cooperative effort can a safety program in the best interest of all be established and preserved. Safety is no accident; think safety and the job will be safer.

Health and Safety Responsibilities

The goal of Graco Oilfield Services is to protect employees from injury while working for the company. This will receive top priority from everyone. Duties and responsibilities of personnel under our health and safety program are as follows:

President/Owner & Responsible Safety Officer: The following duties may be delegated to other staff or assigned to a third party contractually.

1. Administers the occupational health and safety program.
2. Develops programs and technical guidance to identify and remove physical, chemical, and biological hazards from facilities, operations, and sites.
3. Assists management and supervisors in the health and safety training of employees.
4. Conducts inspections to identify unhealthy or unsafe conditions or work practices, plus completes written reports of inspections.
5. Recommends processes and activities that will develop and maintain incentives for and motivation of employees in health and safety.
6. Recommends disciplinary action for violators of health and safety rules.
7. Maintains the state health and safety poster, emergency telephone numbers, OSHA Form 200/300, and other required notices. Ensures this information is posted in places where employees can see them on each job.
8. Develops and maintains accident and incident investigation and reporting procedures and systems. Investigates serious or reportable injuries and takes action to eliminate injury causes. Reportable incidents consist of fatalities, lost workday cases, and without lost workdays requiring medical treatment. Keeps management informed of findings.
9. Report injuries that result in an occupational fatality or three or more hospitalized workers to appropriate OSHA personnel within eight (8) hours of occurrence.

Store Manager:

1. Familiarizes him/her-self with health and safety regulations related to his/her area of responsibility.
2. Directs, implements, and coordinates health and safety program elements and activities within area of responsibility.
3. Ensures that all employees in area use personal protective equipment and safety devices.
4. Ensures that safety equipment is available, maintained, used, and stored correctly.
5. Ensures that all persons within area receive job safety and health training as required.
6. Conducts monthly health and safety inspections of work area.
7. Reviews monthly safety briefings/safety meetings with all workers.
8. Ensures that supervisors are aware of and comply with requirements for safe work practices.
9. Investigates all injuries within area of responsibility. Reviews all injuries/incidents with supervisors and workers involved. Ensures reports and Workers' Compensation forms are completed and submitted as appropriate. Insures corrective action is taken immediately to eliminate the cause of the injury/incident.
10. Requires all subcontractors and subcontractor personnel working within the company's facilities to comply with health and safety regulations.
11. Maintains copies of applicable programs and Workers' Safety forms in the work area, in accordance with company practice and policy. For example, the hazard communication program, material data safety sheets, OSHA 300 Injury Log if the work area is not located near/with the central office.

Foreman/Supervisor:

1. Understand, explain, and enforce health and safety regulations that apply to company operations within his/her area of responsibility.
2. Ensures that persons under his/her supervision use safety devices and personal protective equipment.
3. Instructs and trains all persons within area of responsibility in job health and safety requirements, and ensures compliance by workers with the safety rules.
4. Conducts daily pre-job safety briefings with all workers under his/her supervision.
5. Ensures that injuries are treated promptly and reported properly.
6. If needed, transports victims to the hospital.
7. Investigates all injuries/incidents, obtains all pertinent data, and initiates/takes corrective action.
8. Acts on reports of hazards or hazardous conditions reported to him/her by employees.

Office Manager/Responsible Safety Officer:

1. Maintains all records and reports of accidents that have taken place during company operations. These forms and reports may include the OSHA Form 300 Injury/Illness Log, and/or the OSHA Form 101 Supplementary Record of Occupational Injury and Illnesses.
2. Ensures that employee's Report of Occupational Injury or Disease report is filed with the Workers' Compensation office within ten days of employee's notification of an occupational injury or disease.
3. Processes all paperwork associated with accidents, on-site inspections and in-house audits while maintaining permanent record for company files.
4. Maintains all medical records, evaluations and exposure monitoring records for a period of 30 years.
5. Maintains all training records for a minimum of three (3) years.

All Employees:

1. Will be familiar with and comply with proper health and safety practices.
2. Will use the required safety devices and proper personal protective safety equipment.
3. Will notify supervisor immediately of unsafe conditions/acts, incidents, and injuries after assuring that no one will be injured while notifying the supervisor.
4. Will inform his/her supervisor if they are uncertain how to conduct a task in a safe manner.
5. Will assist supervisors/management in all efforts to provide and maintain a safe workplace.

Safety Program Goals

The objective of Graco Oilfield Services 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 similar operations by others. Our goal is zero accidents and injuries.

Safety Policy Statement

It is the policy of Graco Oilfield Services that accident prevention shall be considered of primary importance in all phases of operation and administration. It is the intention of Graco Oilfield Services's management to provide safe and healthy working conditions and to establish and insist upon safe practices at all times by all employees. The prevention of accidents is an objective affecting all levels of our company and its operations. It is, therefore, a basic requirement that each supervisor make the safety of all employees an integral part of his or her regular management function. It is equally the duty of each employee to accept and follow established safety regulations and procedures. Every effort will be made to provide adequate training to employees. However, if an employee is ever in doubt about how to do a job or task safely, it is his or her duty to ask a qualified person for assistance. Employees are expected to assist management in accident prevention activities. Unsafe conditions must be reported immediately. Fellow employees that need help should be assisted. Everyone is responsible for the housekeeping duties that pertain to their jobs. Every injury that occurs on the job, even a slight cut or strain, must be reported to management and/or the Responsible Safety Officer as soon as possible. Under no circumstances, except emergency trips to the hospital, should an employee leave the work site without reporting an injury. When you have an accident, everyone is hurt. Please work safely. Safety is everyone's business.

Safety Rules for All Employees

It is the policy of Graco Oilfield Services that everything possible will be done to protect you from accidents, injuries and/or occupational disease while on the job. Safety is a cooperative undertaking requiring an ever-present safety consciousness on the part of every employee. If an employee is injured, positive action must be taken promptly to see that the employee receives adequate treatment. No one likes to see a fellow employee injured by an accident. Therefore, all operations must be planned to prevent accidents. To carry out this policy, the following rules will apply:

1. Employees must follow the safe practices and rules contained in this manual and such other rules and practices communicated on the job. All employees must report all unsafe conditions or practices to the proper authority, including the supervision on the project, and, if corrective action is not taken immediately, a governmental authority with proper jurisdiction over such practices.
2. The Store Manager/Supervisor is responsible for implementing these policies by insisting that employees observe and obey all rules and regulations necessary to maintain a safe work place and safe work habits and practices.
3. Good housekeeping must be practiced at all times in the work area. Clean up all waste and eliminate any dangers in the work area.
4. Suitable clothing and footwear must be worn at all times. Personal protection equipment (hardhats, respirators, eye protection) will be worn whenever needed.
5. All employees will participate in a safety meeting conducted by their supervisor once every (30) thirty days.
6. Anyone under the influence of intoxicating liquor or drugs, including prescription drugs which might impair motor skills and judgment, will not be allowed on the job.
7. Horseplay, scuffling, and other acts which tend to have an adverse influence on safety or well-being of other employees are prohibited.
8. Work must be well planned and supervised to avoid injuries in the handling of heavy materials and while using equipment.
9. No one will be permitted to work while the employee's ability or alertness is so impaired by fatigue, illness, or other causes that it might expose the employee or others to injury.
10. There will be no consumption of alcohol and/or beer on the job.
11. Employees should be alert to see that all guards and other protective devices are in proper places and adjusted, and will report deficiencies promptly to the Store Manager/Supervisor.
12. Employees must 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 specific instructions.
13. All injuries must be reported to the Store Manager/Supervisor so that arrangements can be made for medical or first aid treatment.
14. When lifting heavy objects, use the large muscles of the leg instead of the smaller muscles of the back.
15. Do not throw things, especially material and equipment. Dispose of all waste properly and carefully. Bend all exposed nails so they do not hurt anyone removing the waste.
16. Do not wear shoes with thin or torn soles.

Training

Employee safety training is another requirement of an effective injury and illness prevention program. While Graco Oilfield Services believes in skills training, we also want to emphasize safety training. All employees should start the safety training by reading this manual and discussing any problems or safety concerns with your direct supervisor. You may wish to make notes in the margins of this manual where it applies to your work.

Safety and Health Training

Training is one of the most important elements of any injury and illness prevention program. Such training is designed to enable employees to learn their jobs properly, bring new ideas to the workplace, reinforce existing safety policies and put the injury and illness prevention program into action. Training is required for both supervision and employees alike. The content of each training session will vary, but each session will attempt to teach the following:

1. The success of Graco Oilfield Services's injury and illness prevention program depends on the actions of individual employees as well as a commitment by the Company.
2. Each employee's immediate supervisor will review the safe work procedures unique to that employee's job, and how these safe work procedures protect against risk and danger.
3. Each employee will learn when personal protective equipment is required or necessary, and how to use and maintain the equipment in good condition.
4. Each employee will learn what to do in case of emergencies occurring in the workplace.

Supervisors are also vested with special duties concerning the safety of employees. The supervisors are key figures in the establishment and success of Graco Oilfield Services's injury and illness prevention program. They have primary responsibility for actually implementing the injury and illness prevention program, especially as it relates directly to the workplace. Supervisors are responsible for being familiar with safety and health hazards to which employees are exposed, how to recognize them, the potential effects of these hazards, and rules and procedures for maintaining a safe workplace. Supervisors shall convey this information to the employees at the workplace, and shall investigate accidents according to the accident investigation policies contained in this manual.

Periodic Safety Training Meetings

Graco Oilfield Services has safety meetings every month. The purpose of the meeting is to convey safety information and answer employee questions. The format of most meetings will be to review, in language understandable to every employee, the content of the injury prevention program, special work site hazards, serious concealed dangers, and material safety data sheets. Each month, the Store Manager/Supervisor will review a portion of the company's safe work practices contained in this booklet, or other safety related information. Whenever a new practice or procedure is introduced into the workplace, it will be thoroughly reviewed for safety. A sign-up sheet will be passed around each meeting, and each employee must sign his/her name. Notes of the meeting are available, upon request. Employee attendance is mandatory.

Employee Responsibility for Training

Teaching safety is a two-way street. Graco Oilfield Services can preach safety, but only employees can practice safety. Safety education requires employee participation. Every month, a meeting of all employees will be conducted for the purpose of safety instruction. The employees will discuss the application of the Company's injury and illness prevention program to actual job assignments. Reading and discussing a section of the manual and then reviewing application of general safety rules to specific situations, can also be included. Remember, the following general rules apply in all situations:

1. An employee should never undertake a job that appears to be unsafe.
2. An employee isn't expected to undertake a job until he/she has received adequate safety instructions, and is authorized to perform the task.
3. An employee will not use chemicals without fully understanding their toxic properties and without the knowledge required to work with these chemicals safely.
4. Mechanical safeguards must be kept in place.
5. Employees must report any unsafe conditions to the job site supervisor and the Responsible Safety Officer.
6. Any work-related injury or illness must be reported to management at once.
7. Personal Protective Equipment must be used when and where required. All such equipment must be properly maintained.

Communication

Employers should communicate to employees their commitment to safety and to make sure that employees are familiar with the elements of the safety program. Graco Oilfield Services communicates with its employees orally, in the form of directions and statements from your supervisor, written, in the form of directives and this manual, and by example. If you see a supervisor or management do something unsafe, please tell that person. We sometimes forget actions speak louder than words.

Accident Prevention Policy Posting

Each employee has a personal responsibility to prevent accidents. You have a responsibility to your family, to your fellow workers and to the Company. You will be expected to observe safe practice rules and instructions relating to the efficient handling of your work. Your responsibilities include the following:

1. Incorporate safety into every job procedure. No job is done efficiently unless it has been done safely.
2. Know and obey safe practice rules.
3. Know that disciplinary action may result from a violation of the safety rules.
4. Report all injuries immediately, no matter how slight the injury may be.
5. Caution fellow workers when they perform unsafe acts.

6. Don't take chances.
7. Ask questions when there is any doubt concerning safety.
8. Don't tamper with anything you do not understand.
9. Report all unsafe conditions or equipment to your supervisor immediately.

A copy of this manual will be posted in the work area. It is the policy of Graco Oilfield Services to provide a safe and clean workplace and to maintain sound operating practices. Concentrated efforts shall produce safe working conditions and result in efficient, productive operations. Safeguarding the health and welfare of our employees cannot be stressed too strongly.

Accident prevention is the responsibility of all of us. Department heads and supervisors at all levels shall be responsible for continuous efforts directed toward the prevention of accidents. Employees are responsible for performing their jobs in a safe manner. The observance of safe and clean work practices, coupled with ongoing compliance of all established safety standards and codes, will reduce accidents and make our Company a better place to work.

Hazard Identification & Abatement

This written safety and health plan sets out a system for identifying workplace hazards and correcting them in a timely fashion. Please review it carefully with your supervisor. Remember, safety is everyone's responsibility.

Safety Audits

The best method to establish a safer workplace is to study past accidents and worker compensation complaints. By focusing on past injuries, Graco Oilfield Services hopes to avoid similar problems in the future. Therefore, whenever there is an accident, and in many cases upon review of past accidents, you may be requested to participate in a safety audit interview. During the interview, there will be questions about the nature of the investigation and the workplace safety related to the incident. Please answer these questions honestly and completely. Also, please volunteer any personal observations and/or suggestions for improved workplace safety.

Based upon the study of past accidents and industry recommendations, a safety training program has been implemented. In addition to other preventative practices, there will be a group discussion of the cause of the accident and methods to avoid the type of accidents and injury situations experienced in the past. Work rules will be reviewed and modified based upon the study of these accidents.

In addition to historical information, workplace safety depends on workplace observation. Your supervisor is responsible for inspecting your working area daily before and while you are working. But, this does not mean that you are no longer responsible for inspecting the workplace also. Each day, before you begin work, inspect the area for any dangerous conditions. Inform your supervisor of anything significant, so other employees and guests are advised.

You may also be given written communications regarding unsafe conditions or serious concealed dangers. Review this communication carefully and adjust your workplace behavior to avoid any danger or hazards. If you are unclear or unsure of the significance of this written communication, contact your supervisor and review your planned actions before starting to work. It is better to wait and check, then to go ahead and possibly cause an injury to yourself and others.

Managers must provide written notice to employees of any serious concealed dangers of which they have actual knowledge. In addition to providing written notice of all serious concealed dangers to employees managers are required to report serious concealed dangers to either OSHA or an appropriate administrative agency within fifteen days, or immediately if such danger would cause imminent harm, unless the danger is abated. Merely identifying the problem is not sufficient. The danger must be reported to the appropriate supervisor and Responsible Safety Officer, who then will correct the problem. If the danger cannot be corrected, then all employees will be warned to take protective action so that the danger will not result in any injuries.

Workplace Inspections

In addition to the examination of records, work place safety inspections will occur periodically every 3 months, when conditions change, or when a new process or procedure is implemented. During these inspections, there will be a review of the injury and illness prevention policy and Graco Oilfield Services code of safe work practices.

Accident Investigation

A primary tool used by Graco Oilfield Services to identify the areas responsible for accidents is a thorough and properly completed accident investigation. The results of each investigation will be reduced to writing and submitted for review by management and Graco Oilfield Services insurance risk management advisors, and, if the accident resulted in serious injury, to Company attorneys. If the accident resulted in serious injury, the procedure will be directed by the attorneys to provide the

most reliable evidence or description legally permissible. All investigations pursuant to the directions of legal counsel will be protected by all applicable privileges, if any. The attorney will provide more detail on this topic during the investigation.

1. A written report should be prepared from notes and diagrams made at the scene, or a portable tape recorder will be used to record direct eyewitness statements as near to the actual time of observation as possible.
2. All statements should include the time, date, town, or county where the statement was made.
3. If the statement is intended to be used in court proceedings, a suitable jurat's is required, otherwise, a simple statement that the description is sworn to be true under penalty of perjury with the date, place, and time should be included.
4. All pictures should be similarly identified.
5. Let people know on tape that they are being recorded.
6. Also, make sure that the names and addresses and day and evening phone numbers of all eye witnesses are noted or recorded.

If a formal police report or other official investigation is conducted by any government agency, get the name and badge number of the official, or a business card, and find out when a copy of the official report will be available to the public. If you are requested to make a statement, you have the right to have the Company lawyer attend your statement at no cost to you. A satisfactory accident report will answer the following questions:

1. What happened? The investigation report should begin by describing the accident, the injury sustained, the eyewitnesses, the date, time, and location of the incident, and the date and time of the report. **Remember:** who, what, when, where and how are the questions that the report must answer.
2. Why did the accident occur? The ultimate cause of the accident may not be known for several days after all the data are analyzed. However, if an obvious cause suggests itself, include your conclusions as a hypothesis at the time you give your information to the person in charge of the investigation.
3. What should be done? Once a report determines the cause of the accident, it should suggest a method for avoiding future accidents of a similar character. This is a decision by the Responsible Safety Officer and the supervisor on the project, as well as top management. Once a solution has been adopted, it is everyone's responsibility to implement it.
4. What has been done? A follow up report will be issued after a reasonable amount of time to determine if the suggested solution was implemented, and if so, whether the likelihood of accident has been reduced.

Records

Graco Oilfield Services maintains records of employee training, hazard identification and abatement, and accident investigation.

OSHA Records Required

Copies of required accident investigations and certification of employee safety training shall be maintained by the Responsible Safety Officer. A written report will be maintained on each accident, injury or on-the-job illness requiring medical treatment. A record of each such injury or illness is recorded on OSHA Log of Work-Related Injuries & Illnesses, Form 300 according to its instructions. Supplemental records of each injury are maintained on OSHA Form 301, Injury & Illness Incident Report. Every year, a summary of all reported injuries or illnesses is posted no later than February 1, for three months, until April 30th, on OSHA Form 300A. These records are maintained for five years from the date of preparation.

General Statement on Safety

Graco Oilfield Services strives to maintain a safe place to work and to employ safe workers. It is your responsibility to conduct your work in a safe, responsible manner. Immediately report all accidents occurring on Company premises to your supervisor.

Each employee has an individual responsibility to prevent accidents. It is to the benefit of all employees and Graco Oilfield Services that you report any situation or condition you believe may present a safety hazard, including any known or concealed dangers in your work area. Graco Oilfield Services encourages you to report your concern either to your immediate supervisor or to the Responsible Safety Officer. The Responsible Safety Officer will take immediate action to investigate the matter.

Safety Equipment

Proper safety equipment is necessary for your protection. The Company provides the best protective equipment it is possible to obtain. Use all safeguards, safety appliances, or devices furnished for your protection and comply with all regulations that may concern or affect your safety. Wear your gear properly -- all snaps and straps fastened, cuffs not cut or rolled. Your supervisor will advise you as to what protective equipment is required for your job. Certain jobs require standard safety apparel and appliances for the protection of the employee. Your supervisor is aware of the requirements and will furnish you with the necessary approved protective appliances. These items shall be worn and effectively maintained as a condition of your continued employment and part of our mutual obligation to comply with the Occupational Safety and Health Act.

1. Safety goggles, glasses and face shields shall correspond to the degree of hazard, i.e., chemical splashes, welding flashes, impact hazard, dust, etc.
2. Do not alter or replace an approved appliance without permission from your supervisor.

3. Rubber gloves and rubber aprons shall be worn when working with acids, caustics or other corrosive materials.
4. Specified footwear must be worn.
5. No jewelry shall be worn around power equipment.
6. Hearing protection appliances (approved muffs or plugs) shall be worn by all employees working within any area identified as having excess noise levels.
7. Your supervisor will instruct you in the proper use of the appliance.

Fire Safety

Fire is one of the worst enemies of any facility. Learn the location of the fire extinguishers. Learn how to use them. You can help prevent fires by observing all fire safety rules:

Reporting

All serious accidents must be reported to OSHA. In cases of hospitalization or death, a full investigation with copies to governmental authorities will be required. In less serious cases, the investigation report must be presented to the company for disclosure to its insurance carrier and for remedial action at the work site.

Workers' Compensation Claims Management

The following actions will be taken/followed on all accidents/injuries being submitted as a Workers' Compensation claim.

1. Injured employees must report their injury to their supervisor immediately or as soon as possible and within 72 hours, who in turn will notify other appropriate company officials, such as the Responsible Safety Officer or supervisor to determine the facts and take corrective action/s to prevent future recurrences.
2. Employees, within ten (10) days after notification to the employer, will complete the Worker Information section only of the Workers' Safety and Compensation Report of Occupational Injury or Disease forms package.
3. The supervisor or store manager will complete the Employer's Information section of the same report within ten days of the notification.
4. The store manager will ensure that the Workers' Safety and Compensation Division is notified as appropriate by filing the above report within ten days of the notification.
5. The accident investigation must confirm that the injury was job related for the resultant claim to be valid.
6. Injured employees will be entered into a modified job program, i.e., light duty, restricted duty, part time duty, when such is recommended by the attending physician.

1.2 Professional Conduct

Graco has respect for every individual who works for our company and we expect our employees to conduct themselves in a professional manner. Horseplay, practical jokes, foul language and gestures, and harassment are not allowed. This means, no form of harassment will be tolerated when employed by Graco.

1.3 Drug, Alcohol, and Contraband Abuse Policy

Statement of Policy

It is the policy of Graco Oilfield Services to provide a safe workplace for all its employees. Consistent with this policy is the Company's commitment to maintain a workplace that is free from the effects of alcohol, drugs, and contraband.

The Company prohibits the following acts, which are violations of this Policy.

1. Selling, possessing, using, transferring, or purchasing drugs or alcohol on Company time or property or while in a Company vehicle.
2. Selling, possessing, using, transferring, or purchasing contraband, including firearms, ammunition, explosives, and weapons.
3. Working while under the influence of drugs/alcohol or not being free from the presence of drugs.
4. The sale of drug paraphernalia on Company property.

For the purposes of this Policy, the term "drugs" includes the controlled substances listed below, synthetic drugs, and prescription drugs, excepting only prescription drugs approved by and used in accordance with the directions of an employee's attending physician:

Marijuana (Cannabinoids)
Cocaine
Opiates
Phencyclidine
Amphetamines

Barbiturates
Benzodiazepines
Propoxyphene
Methadone

Any employee using a prescription drug should consult with their physician regarding the effects of the medication in relation to the performance of the employee's job responsibilities. Employees taking prescription medications that may cause drowsiness or mood alteration must notify their supervisor who may restrict work activities.

Testing

The Company reserves the right to test employees or prospective employees for the presence of drugs or alcohol, in accordance with the provisions of this policy, or as a condition of employment or continued employment. This policy includes the testing of management on a periodic basis.

The Company requires, as a condition of continued employment, that employees submit to a drug and/or alcohol test under any of the following circumstances:

1. When the Company has a reasonable suspicion that an employee is under the influence or is impaired by drugs or alcohol while on Company property or in a Company vehicle. A reasonable suspicion must be based upon specific, personal observations that a supervisory employee can articulate concerning the appearance, behavior, speech or body odors of the employee.
2. When an employee may have contributed to an accident involving a fatality, bodily injury, or damage to property.
3. When testing is required to comply with applicable law.
4. Pre-employment testing.
5. Random

Any positive drug or alcohol test or any refusal to submit to such test is a violation of this Policy. Furthermore, Any switching or adulterating of any urine, blood or other samples collected for the purpose of a drug test is strictly forbidden. Any employee testing positive shall have the right to have the secured portion of the urine or blood sample that tested positive, independently analyzed by a Department of Health and Human Services certified laboratory of his or her choice and at his or her expense for up to one year. If the independent test is negative, the employee shall be reimbursed for the cost of such independent test.

Exception for Medical Treatment

In the case of a positive test result, the employee shall be so advised by a representative of the Company on a confidential basis, and the employee shall have the right to discuss and explain the results, including the right to advise the medical review officer of any medication prescribed by the employee's physician, which may have affected the results of the test.

If it is determined that there is a legitimated medical explanation for a positive test result, the company shall regard the results as consistent with legal drug use and take no further action.

Laboratory Records

All relevant records shall be available for inspection by any employee who has been tested, upon the employee's request. Such records will be treated as confidential and released only to the employee or the employee's designee or to Company personnel designated as having a bona fide need to know.

Laboratory Selection

The Company will identify and contract with a laboratory certified by the Department of Health and Human Services to perform drug tests.

Company Action

Upon receipt of a verified or confirmed positive drug or alcohol test result which indicates a violation of this policy, or upon the refusal of an employee or prospective employee to provide a sample as requested, the company may use that test result or refusal as a basis for disciplinary or rehabilitative action which may include the following:

1. Suspension of the employee with or without pay for a period of time;
2. A requirement that the employee enroll in a company approved rehabilitation treatment or counseling program which may include additional drug and alcohol testing as a condition of continued employment;
3. Termination of employment;
4. Refusal to hire a prospective employee; or
5. Other disciplinary measures as determined by the Company in accordance with established laws and/or guidelines.

Confidentiality

All information, interviews, reports, statements, memoranda or test results received by the Company through this drug and alcohol-testing program are confidential communications. As such, they will be used only in a proceeding related to an action taken by the Company or in defense of any action brought against the Company.

1. The information described in the above paragraph shall be the property of the Company.
2. The Company is entitled to use a drug or alcohol test result as a basis for action.



1.3.1

EMPLOYEE ACKNOWLEDGEMENT

**Of Graco Oilfield Services
Official Drug & Alcohol Policy**

By signing below, I acknowledge that I have carefully read, understand and agree to abide by the drug and alcohol policy as established by Graco Oilfield Services

EMPLOYEE SIGNATURE

DATE

MANAGEMENT SIGNATURE

TITLE

DATE

1.4 Housekeeping

Graco requires that all work areas, walking surfaces, handrails, equipment, tools, life-saving and fire-fighting equipment be kept in clean condition and free of all obstructions. Employees should appropriately store tools or tie them off so that they do not cause a hazard to other people in the surrounding area.

- Graco requires that employees use approved solvents for cleaning purposes. Gasoline is not allowed for cleaning.
- Discard oily rags separately from regular trash.
- Use plastic buckets appropriately. Don't use plastic buckets to transport any hydrocarbons or flammable liquids.

Properly label all containers (i.e., spray bottles, jugs, etc.) and all transferable metal containers containing any materials.

1.5 Smoking

All Graco facilities are designated as "non-smoking" areas except for the areas specifically designated for smoking. Smoking is permitted only in designated smoking areas. Smoking is not allowed in any common use area such as offices or restrooms. If an employee is in doubt about where they can smoke, they should ask their supervisor.

1.6 Short Service Employee Policy (SSE)

Purpose

The Purpose of this SSE Policy is to ensure that employees with less than six months experience are identified, adequately supervised, trained, and managed so as to prevent injury to themselves or others, property damage, or environmental harm.

SSE Policy

1. Any employee with less than six months service in the same job/position will be considered a Short Service Employee (SSE).

Non-SSE employees who are new to a location should be considered by the supervisor for inclusion in the SSE program based on the different factors of their new assignment, such as;

- a. job responsibilities/duties from previous assignments
- b. work processes/practices from previous assignments
- c. equipment/tools from previous assignments
- d. skill level, familiarity with co-workers

2. A "SSE Form" (available from the Responsible Safety Officer) must be completed by the supervisor for each individual SSE. The form must be submitted and approved by the Responsible Safety Officer.

Crews with 4 persons or less:

- a. Single person "crew" cannot be a SSE.
- b. 2-4 person crews can have only 1 SSE per crew.

Exceptions to these "small crew" requirements require the Responsible Safety Officer approval.

Crew with 5 persons or more:

- a. Crew complements should not exceed 25% SSE.
- b. Crew complements that exceed 25% shall only be permitted by the Responsible Safety Officer.

(For purposes of this policy, a crew is defined as those employees working at a single location.)

3. All SSE personnel must attend a location-specific HSE orientation prior to beginning work on location. Applicable Company and host policies shall be discussed during the orientation.
4. All SSE personnel must be assigned an experienced mentor to assist the employee during his/her "SSE" period. It is the mentor's responsibility to closely supervise the assigned SSE and prevent him/her from performing tasks for which they are not properly trained.
5. SSE personnel will be identified in one of two ways:
 - a. A visible sticker placed on his/her hard hat that must include the letters "SSE".
 - b. A crew may elect to identify its SSE employees by assigning them a different color hard hat that will distinguish them from experienced employees.

6. To be removed from SSE status, an employee must exhibit safe behavior for six months (e.g., incident free performance, proactive participation in HSE programs such as incident reporting including near misses, BBS, JSA development, safety meeting, etc.) and have a general awareness and working knowledge of the Company's and host HSE policies. The Supervisor may recommend a reduction of the six month requirement based on the employee's performance and relevant industry experience. This reduction must be approved by the Responsible Safety Officer. Documentation should be maintained for a period of one year after a contractor employee has been removed from SSE status.
7. Employees who do not qualify for release from SSE status after six months may continue work only with the approval of the Responsible Safety Officer.

1.7 Root Cause Analysis/Incident Investigation (RCA)

Purpose

To investigate and identify root causes of incidents to reduce or eliminate systemic causes to prevent future incidents. It is Graco's desire to have a process in place to report, record and investigate incidents and near misses and correct any deficiencies found.

The Process Will Include:

- A. Root cause analysis for significant events and near misses.
- B. Regular evaluation of incident cause trends to determine where improvements in systems, processes, practices or procedures are warranted.
- C. Sharing of relevant lessons learned.

A RCA is Required For:

- A. Any accident resulting in an OSHA recordable injury.
- B. Any spill of 1 barrel or greater.
- C. All fires.
- D. All preventable motor vehicle crashes (MVC's) that take place on ChevronTexaco property or involve a ChevronTexaco company vehicle.
- E. Any "near miss" or minor incident, which has the potential to result in a serious injury, oil spill, property loss, fire, or MVC.
- F. Incidents that occur frequently.

Root Cause Analysis Investigation Includes These Steps:

- A. All employees will be required to describe what happened, when, and where.
- B. A determination as to the actual and potential loss or losses will be performed.
- C. A determination of the root causes of the incident will be made.
- D. A determination will be made as to the risk of recurrence.
- E. The development of controls to reduce the risk of recurrence.
- F. To communicate the lessons learned from the incident.

Reporting Procedures:

- A. RCA's will originate with the appropriate store manager. Store manager will notify the Chief Safety Officer as soon as possible. He will also consider this a hands on procedure and will give all information and paperwork to the Chief Safety Officer upon completion of the analysis.
- B. All RCA's completed for incidents on ChevronTexaco property must be shared with Graco's ChevronTexaco representative as soon as possible.

1.8 Graco Behavior-Based Safety Process

Introduction & Background

Introduction;

Behavior Based Safety involves engaging all workers in the continuous improvement of safety and the removal of safety barriers through identification of hazards, development of Safe Behavior Inventories (SBI's), observation(s)/data collection of safe and at-risk behaviors and providing immediate positive feedback.

What is Behavior-Based Safety?

Behavior is anything someone says or does. Behavior-based safety is a safety process that focuses on improving behavior as opposed to attitudes or beliefs. That does not mean that beliefs and attitudes are not important. They are, but this process will focus on giving positive recognition for safe behavior and corrective feedback for at-risk behaviors.

Seven Basic Principles of Behavior-Based Safety

- 1.) Focus Intervention of Observable Behavior
- 2.) Look for External Factors to Understand and Improve Behavior
- 3.) Director with Activators and Motivate with Consequences
- 4.) Focus on Positive Consequences to Motivate Behavior
- 5.) Apply the Scientific Method to Improve Intervention
- 6.) Use Theory to Integrate Information, not to Limit Possibilities
- 7.) Design Interventions with Consideration of Internal Feelings and Attitudes

Mission, Vision Statement, and goals

Mission Statement:

The mission of the Graco BBS process is to raise the level of awareness and reduce injuries by changing worker behaviors through defining safe and at-risk behaviors, conducting observations; and providing soon, certain and positive feedback.

Vision Statement:

A primary tool to be used to meet the Graco goal is to create "a safe and healthful, accident-free, and environmentally sound workplace." Behavior Based Safety is a process that provides workers with the tools to create on.

Goals:

1. Have each worker contacted twice per month (Goal to be revisited and revised annually).
2. Conduct monthly meetings with individual groups to review observations, safety issues, action plan on specific issue to the group, etc.
3. Identify and inventory the behaviors critical to safety at all Graco operations.
4. Provide clear and common definitions of safe behavior and performance.
5. Open safety lines of communication between management and workers. Develop a better understanding of what each other does and expects.
6. Reduce injuries.
7. Opportunity to involve senior management personally in the safety of employees.
8. A non-punitive way to address safety performance and prevent injuries.
9. Provide upstream measures of safety which allows us to prevent accidents and injuries instead of reacting to them after the fact.
10. Provide a means for employees to look out for each other's safety. Encourage all employees to strive for and recognize excellence in safety just like they do in other areas of their work.

Roles and Responsibilities

There are a number of individuals involved in the development, implementation and maintenance of the Graco BBS process. Their roles and responsibilities are defined below. There may be changes due to reorganization but this is the current structure.

Observer Roles and Responsibilities:

Observers are employees who are trained to be observers and who conduct observations.

1. The concern is to make the person being observed comfortable. Contact the person to be observed and ask if timing is appropriate. If not now when?
2. Explain the process.
3. Ensure the confidentiality of the individual during and after observations.
4. Ask if they have any concerns or needs.
5. If a customer or visitor is present, explain what you are going to do.
6. Be sure to give some feedback.
7. After observing, take time to write down your notes.
8. In regards to feedback, always begin with the positive safe behaviors.
9. Next, go over the at risk behaviors. Ask the 5 why's to get to bottom line.
10. If the observed person asks you to not submit the observation, tear it up.
11. If there is a safety concern in regards to this request, offer to help employee fill out a safety concern form — take form with you.
12. Close with a thank you.
13. Give all data to the Safety Officer.
14. Act as a safety role model.
15. Act as mentor for new coaches/observers.
16. Attend training, meetings and other Graco functions.
17. Conduct required observations in accordance with the observation schedule.

18. Support the Behavior Based Safety process.
19. Talk positively and enthusiastically about the Graco process with co-workers.
20. Understand the Safe Behavior Inventory (SBI) and definitions.

Observers

Supervisor/Fisherman	Painter	Custodial
Machinist/Sheetmetal	Office Support	Laborers
Hot Shot/Drivers	Electrician	Engineering
Supervisor/Packers	Supervisor/Casing	Supervisor/Laydown

Observers Networking Group Roles and Responsibilities:

The Networking Group consists of one supervisor and worker from each work unit using the Graco BBS process. This group must meet by conference call and/or physically, monthly with the safety officer, or his appointee, at a Graco approved meeting place.

Supervisors and managers who do supervisory work, plus one hourly person from each unit must be in attendance.

The individual responsibilities are as follows,

1. Free up time for observations to be completed
2. Review data received from Safety Officer
3. Develop action plans to address issues within their areas
4. Fix—respond to concerns per employee safety concern form within their available resources
5. Refer appropriate concerns to management through the Safety Officer
6. Give completed safety concern forms to safety officer for review and filing
7. Observer to communicate data to respective work units with support from supervisor
8. Act as safety role model
9. Act as mentor for new observers
10. Attend training, meetings and other Graco BBS functions
11. Insure required observations take place in accordance with the observation schedule
12. Review and implement Behavior Based Safety process for workgroup
13. Review the overview of the Behavior Based Safety process
14. Give input and review the Safe Behavior Inventory (SBI) data sheet
15. Identify and remove barriers which encourage at-risk behaviors
16. Support the Behavior Based Safety process
17. Talk positively and enthusiastically about the Graco BBS process with co-workers

Executive Safety Committee:

1. Meet Monthly Responsibilities:
2. Review SBI data to identify barriers which encourage at-risk behaviors
3. Use observation data for problem solving and action planning
4. Support the Behavior Based Safety process
5. Make suggestions regarding concerns that emerge from working group
6. Act as safety role model
7. Attend training, meetings and other Graco functions
8. Communicate the success of the Graco BBS process
9. Keep overview of the Behavior Based Safety process
10. Give input and review the Safe Behavior Inventory (SBI) data sheet
11. Evaluate unit injury reports periodically to identify the at-risk behaviors not yet identified
12. Talk positively and enthusiastically about the Graco BBS process with co-workers

Facilitator(s) Roles and Responsibilities

The facilitator's role is to coordinate and oversee the process.

Safety Officer

1. Responsibilities:
2. Enter information into data base
3. Develop computer program
4. Disseminate reports
5. Review data sheets for quality and report back to observers
6. Future training of observers
7. Coordinate meetings
8. Act as safety role model
9. Act as "The Driver" of the Graco BBS program
10. Act as the spokesperson for the process

11. Assure observation data is entered into database
12. Assure reports are disseminated to participants within process
13. Communicate the success of the Graco BBS process
14. Assure the implementation proceeds smoothly
15. Ensures the Behavior Based Safety process will not be used as a disciplinary tool
16. Ensure observers have the needed materials for making observations
17. Give feedback on the process
18. Is a resource for working group members and observers
19. Serve as a liaison with Working Group and management sponsors
20. Talk positively and enthusiastically about the Graco BBS process with co-workers
21. Understand the Safe Behavior Inventory (SB1) and definitions
22. Work with Working Group and management sponsors in the resolution of working group issues and concerns
23. Coordinate and facilitate meetings

Supervisors Roles and Responsibilities

Supervisors

1. Action as safety role model
2. Assure employees are qualified to perform work safely
3. Assure roles, responsibilities and authorities are clearly defined and accessible
4. Communicate safety requirements to employees
5. Ensure the Behavior Based Safety process will not be used as a disciplinary tool
6. Provide resources to the Behavior Based Safety process
7. Provide time for observers to perform observations
8. Provide time and coverage for working group members to attend training meetings and other Graco functions.
9. Support the Behavior Based Safety process
10. Talk positively and enthusiastically about the Graco BBS process with co-workers
11. Correct unsafe and unhealthy work conditions within their power, otherwise forward to safety officer and management for resolution

Management Sponsors

Meet as needed

Safety Officer

All Vice Presidents

All District Managers

Responsibilities:

1. Set expectations
2. Provide resources
3. Review outcome from data reports
4. Act as safety role model
5. Ensure supervisors and workers fulfill their roles and responsibilities
6. Ensure the Behavior Based Safety process will not be used as a disciplinary tool
7. Leverage experience across organizational lines
8. Monitor the effectiveness of the process
9. Manage the Behavior Based Safety process for results
10. Provide leadership required for a successful program, including resources and moral support
11. Remove barriers to safe behavior
12. Meeting Agenda:
Who: Safety Officer
Agenda: Report Graco BBS data findings
 - a.) At-risk behaviors
 - b.) Quality of observations
 - c.) Comments and safety concerns reported



1.8.1
Personal Commitment

I am committed to supporting the Graco BBS Process.

(Signature)

(Printed Name)

Date: _____

Safe Behavior Definitions and Graco BBS Data Sheet

Safe Behavior Inventory Data Sheet:

The Safe Behavior Inventory Data Sheet is used for the following two purposes:

1. A guide for the observer. The Critical Behaviors are listed on the data sheet and the list is a reminder to the observer to look for these behaviors.
2. A method of record for what was observed.

There are four parts to a Safe Behavior Inventory Data Sheet:

1. **Observation variable data located in the top section of the data sheet**
Person performing the observation
Date of observation
Time of observation
Number of persons observed
2. **Safe Behavior Inventory**
A list of the Safe Behaviors with a place to record each as safe or at-risk.
3. **Comment Section**
The "what and why" statement
 - a. What Statement: Statement about what the observed was doing at the time the at-risk behavior was performed.
 - b. Why Statement: Statement from the observed explaining why they performed the at-risk behavior.
4. **Feedback Variable Data**
 - a. Barriers - The barriers that led to the at-risk behavior
 - b. Quality - The information in the comments should help point to the root causes of the at-risk behavior.



1.8.2 SAFETY CONCERN FORM

DATE: _____

STORE: _____

LOCATION OF CONCERN: _____

SAFETY CONCERN: _____

WRITTEN BY: _____

RECOMMENDED CURE: _____

NOTES: _____

Safe Behavior Inventory

The Safe Behavior Inventory is one of the vital building blocks to identifying at-risk behavior and removing barriers to safe behavior. The purpose of the Safe Behavior Inventory is to:

1. Create a common vision of safety and exposure
2. Clarify what observers should look for and how to judge what they see
3. Help maintain consistency between observers

Generic Critical Behavior Definitions:

Body Position

Line of Fire

- a. Behavior is considered safe when the worker is positioned out of the line of fire.
- b. Does the worker place all parts of their body so that they won't be pinned, crushed, sprayed or trapped?

Pinch Points

- a. Behavior is considered safe when work is performed at a safe distance from which tools and body parts from the area between moving or stationary parts that are closing or may close together are operating.
- b. Does the worker keep body parts from area between moving or stationary parts that are closing or may close together?

Eyes on Path

- a. I Behavior is considered safe when workers eyes are focused in the direction of travel, looking for hazards to avoid.
- b. Is the worker looking for obstacles in the path of travel?
- c. Is the worker's vision unobstructed when in motion?
- d. Does the worker look in the direction they are moving, walking, cycling or operating mobile equipment?
- e. Is the worker moving at a safe pace appropriate for the conditions?

Eyes on Task/hands

- a. Behavior is considered safe when workers eyes are on their work and their line of sight is not obstructing, nor does turning or looking a way distract them.
- b. Is the worker keeping eyes on work?
- c. Does worker position self to have a view of the task?
- d. Is worker keeping eyes on task when working with machinery?
- e. Does worker look before putting hands into places that cannot be watched?
- f. Does the worker ignore distractions while performing task?

Ascending/descending (Three Point Contact)

- a. Behavior is considered safe when three-point contact is maintained while ascending or descending.
- b. When worker is moving from one level to another, is two-point contact being maintained on stairs?
- c. When ascending/descending ladders does the worker maintain three-point contact?
- d. Is worker facing ladder when moving up or down?

Body Use

Lifting/lowering

- a. Behavior is considered safe when worker holds load close to body while lifting with legs and a straight back, avoiding twisting or changing direction.
- b. Is worker bending at knees?
- c. Is load held closely to body?
- d. Is back straight?
- e. Is worker using legs?
- f. Is worker using lifting/lowering device?
- g. Is worker asking for assistance?
- h. Does worker check weight of object to be lifted?

Pushing/Pulling

- a. Behavior is considered safe when worker pushes with legs, not shoulders or back, and pulling is limited to arm strength.
- b. Does worker assess weight and shape of object to be pushed or pulled?
- c. Does worker push instead of pulling when possible?
- d. Does worker maintain good balance and push with legs instead of back.
- e. Does worker keep load close to body, avoid extending arms and bending at waist?
- f. Does worker clear path for object being pushed or pulled?

Overextended/Cramped

- a. Behavior is considered safe when worker positions self to prevent stretching to full body length while performing tasks.
- b. Does worker position self to prevent stretching to full or body length when performing tasks?
- c. Does worker move from tight or confined spaces and positions to periodically stretch and relax body?

Grip/Force

- a. Behavior is considered safe when worker's manual control of tool is smooth and fluid, avoiding pinching, pounding or jerking motions.
- b. Is worker in manual control of tool?
- c. Is workers technique smooth and fluid?
- d. Does worker avoid forceful motions like pinching, pounding or jerking?

Ergonomics

Relief from Repetitious/Static Work

- a. Behavior is considered safe when deliberate actions are taken to minimize excessive stress to the body.
- b. Does worker take relief from Repetitive/Static work?
- c. Does the worker take sufficient breaks while performing repetitive tasks?
- d. Does the worker stretch muscles prior to performing a repetitive motion?

Posture (Body Position)

- a. Behavior is considered safe when good body position is used.

Twisting

- a. When turning, is the person's whole body turned by moving the feet instead of twisting the torso?

Other Ergonomics

Ergonomic Evaluation

- a. Behavior is considered safe when worker has had an ergonomic evaluation performed on workstation?
- b. Does worker modify and/or adjust their workstation, area, equipment or tools to help them achieve and or support wrist posture?
- c. Does worker modify and/or adjust their workstation, area, equipment or tools to help them achieve and or support neck posture?
- d. Does worker modify and/or adjust their workstation, area, equipment or tools to help them achieve and or support back posture?
- e. Does worker modify and/or adjust their workstation, area, equipment or tools to help them achieve and or support leg posture?

Environment

Walking/Working Surfaces

- a. Behavior is considered safe when worker makes the surface from which the task is going to be performed dry, stable, trip free, solid and providing good traction.
- b. Is the surface, from which the task is being performed, dry, stable, and solid and provide good traction?
- c. Does the worker make unstable surface dry and solid before walking, standing or working on them?
- d. Is it free of slip and/or trip hazards?
- e. Does the worker avoid shortcuts; uneven and slippery surfaces to gain access to work area?

Communication

- a. Behavior is considered safe when worker has clear understanding with others involved.
- b. Is there clear understanding with verbal, signals, and/or devices while job is in progress?

Housekeeping

- a. Behavior is considered safe when the work area is free of debris and tools. Equipment and supplies are properly stored and secured.
- b. Is the work area kept clear of debris and loose objects?
- c. Is the work area maintained in an orderly condition?
- d. Does the worker clean and organize work area at completion of task or before leaving work area?
- e. Does worker place equipment, tools and supplies in a manner to avoid creating clutter or obstructions in the work area?

Adequate Workspace

- a. Behavior is considered safe when worker provides adequate space to avoid causing a danger of tripping, bumping or being trapped into too small an area.
- b. Does the worker have adequate space to avoid causing a danger of tripping, bumping or being trapped into too small an area?

Lighting

- a. Behavior is considered safe when the lighting available is of a level that enhances the workers ability to perform a task safe.
- b. Is the work area lighted such a way that the objects, equipment and people associated with the task are clearly visible?
- c. Is the lighting in the area sufficient to safely perform the task? Is a portable light, including flashlight, used while working in a dark area?

Air Ventilation

- a. Behavior is considered safe when potential hazardous are engineered safe.
- b. Is there sufficient air in the area you are working?
- c. Are there air movers available?
- d. Is the exhaust downwind?

Work Attire

- a. Behavior is considered safe when attire is correct for work location and activities to be preformed.
- b. Is there loose or ragged clothing?
- c. Is worker wearing rings or jewelry in areas where they could be caught on moving objects?

Tools and Equipment

Selection/Condition

- a. Behavior is considered safe when worker selects tools and equipment that are in original condition, clean and free from obvious defects and in good working order.
- b. Does the worker select the correct tool or equipment for the job?
- c. Is the tool clean and free from obvious defects and in good working order with no damage, and free of non-approved modifications?
- d. Is the tool(s) on a routine maintenance program?

Tool Use

- a. Behavior is considered safe when using the tools and equipment for the purpose and manner, which they were designed.
- b. Did the worker select the right tool for the job?
- c. Is the worker using the tool as it was designed to be used?

Equipment Selection/Condition /Use

- a. Behavior is considered safe when the worker selects the equipment designed for the job.
- b. Does the worker select the correct equipment for the job?
- c. Is the equipment clean and free from obvious defects and in good working order without damage?
- d. Is equipment in the original condition and/or free of non-approved modifications?

Barricades and Warnings

- a. Behavior is considered safe when worker provides barricades and warnings in place, clearly visible and in plain view, to prevent entry into temporary hazards.
- b. Are barricades and warnings in place, clearly visible and in plain view, to prevent entry into temporary hazards?
- c. Are barricades and warnings around permanent hazards clearly visible and in good condition?
- d. Is the proper type of barricade or warning device used?
- e. Is the barricade or warning visible and in plain view?

Lifting Equipment

- a. Behavior is considered safe when worker uses mechanical devices when objects are too heavy for one person to lift.
- b. Is the proper lifting device being used?
- c. Is worker using adequate rigging (Slings, Straps, Shackles and Tag Lines) for lifts?
- d. Did the worker perform an operator checklist prior to operation of the lifting device?

Procedures

Lockout and Tag-out

- a. Behavior is considered safe when all energy sources have been properly locked out and tagged out.
- b. Does the lockout/tag-out meet Graco and OSHA definitions and regulations specific to the work area?
- c. Has the stored energy been released, discharged or drained at all points?
- d. Has the equipment been isolated at the main energy source?
- e. Has the worker placed a lockout tag on all energy isolating points?
- f. Is the equipment being worked on in an energy free state?
- g. Is the source of electrical energy isolated and locked and tagged when working on electrical equipment?
- h. Is the source of pressurized fluids and gases isolated, locked and tagged with lines depressurized prior to line opening
- i. Are mechanical energy sources such as springs blocked and locked, tagged before working in the affected area?
- j. After lockout/tag-out, does worker test the start operation of equipment prior to beginning work?
- k. Does the lock have a tag on it identifying the worker's information i.e. name, date, phone # and department per Graco's safety manual?
- l. Do all disciplines working on the equipment have an individual lock and tag isolating all energy sources?

Confined Space

- a. Behavior is considered safe when the confined space has been properly checked for hazards by using the four cell gas monitoring instruments. A safety attendant is required at all times on permit level confined spaces.
- b. Does the Confined Space entry meet Graco and OSHA definitions and regulations specific to the work area?
- c. Has the confined space been prepared for entry according to the Confined Space program?
- d. Is the appropriate permit displayed?
- e. Is the worker wearing the appropriate PPE?
- f. Is entry equipment present and in good working condition?
- g. Is the Confined Space Attendant in place at point of entry and in communication with entrants?

Communications of Hazards

- a. Behavior is considered safe when people involved in the task communicate about the work being performed and the potential hazards.
- b. Are people involved in a task able to see and/or hear each other?
- c. Do people communicate about the work being performed and the potential hazards?
- d. Are appropriate signs or signals being used if people can not hear and/or see each other?
- e. Do people carry and use portable communications equipment when appropriate?
- f. Is the worker asking for help with heavy or awkward objects/material?

Pre-Job Inspection (Planning)

- a. Behavior is considered safe when worker visually inspected area and identified all hazards before beginning work.
- b. Has the worker completed an inspection?
- c. Was a tailgate meeting accomplished?
- e. On complex jobs, was a Job Safety Analysis completed?

Spill Prevention

- a. Behavior is considered safe when worker takes the necessary steps to avoid spills during their task.
- b. Has worker looked for potential spills?
- c. Was worker present at all times when filling lube oil or chemical tanks?
- d. Has worker checked sumps for proper operations?

Fall Protection

- a. Behavior is considered safe when fall protection devices are being worn properly, in good repair, and appropriate for task.
- b. Has worker used the appropriate protection?

Personal Protective Equipment

Head

- a. Behavior is considered safe when the appropriate head protection is being worn for the task being performed.
- b. Is the appropriate head protection being worn for the task being performed?
- c. Is it in good condition?
- d. Is it being worn as designed?

Eyes/Face

- a. Behavior is considered safe when the appropriate eye/face protection is being worn for the task being performed.
- b. Is the appropriate eye/face protection being worn for the task being performed?
- c. Is it in good condition?
- d. Is it being worn as designed?

Hearing

- a. Behavior is considered safe when hearing protection is worn correctly in areas required.
- b. Is the appropriate hearing protection worn in high noise areas?
- c. Is it in good condition and clean?
- d. Is it being worn as designed?

Body Protection

- a. Behavior is considered safe when the worker is wearing properly fitted and designed clothing for the job being performed.
- b. Is the appropriate body protection being worn for the task being performed?
- c. Is it in good condition?
- d. Is it being worn as designed?

Hand

- a. Behavior is considered safe when the appropriate hand protection is being worn for the task being performed.
- b. Is the appropriate hand protection being worn for the task being performed?
- c. Is it in good condition?
- d. Is it being worn as designed?

Foot

- a. Behavior is considered safe when wearing the properly fitted foot wear for the job being performed.
- b. Is the appropriate foot protection being worn for the task being performed?
- c. Is it in good condition?
- d. Is it being worn as designed?

Respiratory Protection

- a. Behavior is considered safe when worker has properly maintained/calibrated monitors and/or appropriate breathing apparatus for the job to be done.
- b. Has the worker had appropriate fit testing for the equipment to be used?
- c. Has worker conducted Positive/Negative Pressure checks prior to entering work zone?
- d. Has worker used appropriate respiratory protection while handling chemicals, grinding, etc.?

H2S Monitor

- a. Behavior is considered safe when worker wears H2S monitor in areas of possible exposure to H2S.
- b. Does the worker have an H2S monitor on and is it operational upon entering a designated H2S area?
- c. Does the employee have an H2S monitor on when in or around oil and gas production or water handling facilities?

Vehicle Operation

Inspection

- a. Behavior is considered safe when worker has done daily inspection and communicated any problems that would cause vehicle to be unsafe to use.
- b. Is the vehicle clean and free from obvious defects and in good working order with no damage?

Vehicle Condition

- a. Behavior is considered safe when vehicle is in the original condition and/or free of non-approved modifications.
- b. Is vehicle in the original condition and/or free of non-approved modifications?

Seat Belts

- a. Behavior is considered safe when the worker is wearing appropriate safety restraints.
- b. Is the worker wearing appropriate safety restraints?

State Vehicle Codes

- a. Behavior is considered safe when the driver is obeying all State Vehicle Codes.
- b. Is the driver obeying the State Vehicle Codes?

Load Secure

- a. Behavior is considered safe when the load is secure
- b. Is the load secure
- c. Is the weight appropriate for vehicle

Defensive Driving

- a. Behavior is considered safe when worker is driving the equipment with cautious/controlled speed, unobstructed vision and properly leveled and load secured
- b. Is driver obeying the posted speed limits?
- c. Is driver warning drivers and pedestrians by sounding horn before rounding blind corners?
- d. Is driver looking behind vehicle/ forklift before backing up?
- e. Is forklift operator driving while keeping load/forks about 4 to 6 inches off the driving surface when traveling?
- f. Is forklift parked without turning off the power, placing all the controls in the neutral position, and setting the brake?

NOTES

Observation Procedures

Rules for Observations

- 1. Do not record the name of the person being observed. This is not a faultfinding process, but rather is fact finding. People need to be convinced the observation process is not to find personal mistakes. The purpose is to study relationships between behavior and environment in order to reduce the possibility of injury.
- 2. Before observing, get permission from the person to be observed. This process needs to build trust, not destroy it. The observation process is not designed to "catch" people performing an at-risk behavior. If people choose to work at risk when no one is looking, "catching" them at it will not improve the situation. If people make a conscious effort to be safe when an observer is completing a CBC, they are practicing what they know to avoid an injury. But even when we are on our best behavior we can still make a mistake. Sometimes we can be "unconsciously incompetent." The observation process provides support for doing certain things right – for being consciously competent. It also provides corrective feedback for continuous improvement.
- 3. Intervene immediately whenever you observe a person performing, or about to perform, an at-risk behavior that threatens his or her safety or health. I've seen observers get so caught up in putting checks in the safe and at-risk columns of a CBC that they let coworkers continue to perform an at-risk behavior. In other words, they complete their checklist while the persons being observed put themselves at risk. In any observation process, a person's safety must come before the numbers. It's always possible to complete an observation process after intervening. In some cases, it's more appropriate to begin the observation process again on another day. Then you can see if safe behavior has been substituted for the at-risk behavior you stopped earlier. This gives you an opportunity to recognize beneficial change.

1.9 Cell Phone Usage While Operating a Motor Vehicle

Cellular telephone use, in either hand-held or hands-free mode, by the driver of a motor vehicle is strictly prohibited while the vehicle is in motion. This includes receiving incoming calls. Cell phones may be left on while driving in order to alert drivers of an incoming call; however, calls should not be answered. Drivers should stop their vehicle in a safe location off the road and away from traffic to retrieve messages and return calls.

2.0 EMERGENCY PROCEDURES

2.1 Emergencies

Organization

Graco Oilfield Services requires that during every emergency an organized effort be made to protect personnel from further injury and to minimize property damage. All of Graco Oilfield Services's resources can be made available to respond to an emergency. Each supervisor must know what to do during an emergency in his/her area and must be certain that his/her employees understand their roles.

Supervisors Responsibilities

During an emergency, the supervisor must:

1. Ensure that those under his or her supervision are familiar with the plan for the building, particularly the recommended exit routes and how to report an emergency.
2. Render assistance to the person in charge during an emergency, as required.
3. Maintain familiarity with the shutdown procedures for all equipment used by those under his or her supervision.
4. Know the location and use of all safety equipment on his or her floor.
5. Keep employees from re-entering an evacuated area until re-entry is safe.

No Loitering Policy

Employees not involved in the emergency must stay away from the scene and follow the instructions issued over the public address system or directly from the person in charge. The sounding of a fire bell means immediate evacuation by the nearest exit. Employees must not reenter an area that they have evacuated until notified that it is safe to return.

Employee Responsibilities

Employees, other than emergency-response groups, involved in any emergency greater than a minor incident are expected to act as follows:

1. If there is threat of further injury or further exposure to hazardous material, remove all injured persons, if possible, and leave the immediate vicinity.
2. If there is no threat of further injury or exposure, leave seriously injured personnel where they are.
3. Report the emergency immediately by phone. State what happened, the specific location, whether anyone was injured, and your name and phone number.
4. Proceed with first aid or attempt to control the incident only if you can do so safely and have been trained in first aid or the emergency response necessary to control the incident.
5. Show the ranking emergency-response officer where the incident occurred, inform him or her of the hazards associated with the area, provide any other information that will help avoid injuries, and do as he or she requests.

2.2 Emergency Response Plan

Purpose

This plan is for the safety and well-being of the employees of Graco Oilfield Services. It 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

Each employee should receive a copy of the Emergency Action Plan for their store location from the Store Manager. A copy will be posted on or near the bulletin board, plus one will be on file at each store location. Any questions concerning this plan should be directed to the Store Manager.

Emergency Policy

It is the policy of this company that all employees should evacuate the premises in case of fire or other emergency. The only exception is that an employee who has received fire extinguisher training may attempt to put out a small fire, after assessing the situation and deeming that it is safe to do so.

Alarm Systems and Notification of Emergencies

In an emergency, employees will be notified by direct verbal communication. This system should provide warning for necessary emergency action and sufficient time for safe escape of employees from the workplace.

Escape Procedures and Exit Routes

All exits will remain unlocked and unobstructed during working hours. All employees must exit the facility in a quiet and orderly manner. Employees will report to the location that is described on each store Emergency Action Plan. If you have questions ask your Supervisor or the Store Manager.

Reporting Emergencies

Any employee, upon discovering an emergency situation, shall immediately notify other employees in the area of the situation and assure that all employees in the building are notified. As soon as safely possible, the situation shall be reported to the appropriate outside emergency personnel. The emergency phone numbers will be prominently posted near each telephone.

Each store will have personnel that will have the duty to insure that outside emergency personnel have been contacted. They are also responsible for coordinating with outside emergency personnel on the scene and provide directions to the site of the emergency. These personnel will be listed in the Emergency Plan in the order of authority and availability. Another list of employees who are trained and certified in both CPR and general first aid will also be found in the Emergency Plan.

Accounting for Employees

After exiting the facility, all employees will assemble for roll call at a location designated by the Store Manager and listed in the Emergency Plan. Any missing employees will be listed and given to the outside emergency personnel along with their last known location.

Critical Operations

In order to minimize the danger or damage from a fire or other type of emergency, each store on its own, has determined that certain critical operations should be shut down immediately if possible and safe to do so. A list of the employee's who are to accomplish the shut down of critical operations is also in the Emergency Plan.

2.3 Incident Reporting Procedures

All incidents, near misses, property damage and fires must be reported as soon as possible to the Responsible Safety Officer. Proper incident/accident reports must be completed and any statements needed for the report must be taken at that time. Failure to report an incident may be cause for disciplinary action.

2.4 Spill Response Plan

If an employee observes or discovers a spill, appropriate personnel must take the following steps:

- **Safety first.** Ensure the safety of all personnel. Anyone who observes the spill should act carefully, cautiously, and reasonably.
- Notify the appropriate supervisor and the store manager in charge. Control the source. Qualified personnel, when feasible, should take actions that may include but are not limited to:
 1. Shutting in the well(s) and/or vessel(s).
 2. Closing the surface and/or sub-surface (automatic or manual) safety device(s).
 3. Actuating blowout prevention (BOP) assembly and well control system(s).

3.0 HES MEETINGS

3.1 Safety Training

Explanation

Graco Oilfield Services believes that our written safety program will not be effective unless it is implemented properly.

Furthermore, the habits and attitudes of our employees can differ from each other. These habits and attitudes can be influenced positively or negatively by supervisors and co-workers and can start forming the day an employee starts work. For these and other reasons, Graco Oilfield Services will require that all employees be trained in our company's safe working procedures and become familiar with our safety philosophy and requirements before the employee is required to begin work.

New Hire Orientation

Each new employee will be required to read through and become familiar with this safety program.

Regular Safety Meetings

Graco holds a scheduled safety meeting each month. In this meeting, employees can bring up safety concerns. Supervisors will also take this opportunity to address safety procedures that employees may not be performing. A short topic will also be shared from this safety program that may need to be reviewed.

Task Training

This training is to provide time for a competent person to train and observe an employee, one-on-one, on a hazardous tool, machine or task. This training may include but is not limited to heavy equipment, power tools, special tasks, etc.

3.2 Onsite HES/Tailgate Meetings

Each employee at the job site for a customer may be required to participate in a tailgate meeting. Tailgate meetings are different from and in addition to JSA's, which shall be conducted throughout the work day as job tasks change. Graco's employee should actively participate in onsite HES meetings as made available. These meetings should include, but not limited to:

1. Reviewing JSA's.
2. Behavior Based Safety observations.
3. Discussing work to be completed and how to safely do the work.
4. Analyzing lessons learned.
5. Sharing incidents and near misses.
6. Recognition.
7. Conducting a learning exercise.
8. Observing trends and discussing the corrective actions tied to those trends.
9. Review of Emergency Response Plans in place and posted for this site.

4.0 PERSONAL PROTECTIVE EQUIPMENT (PPE)

4.1 Protective Equipment

Introduction

All Graco employees shall wear appropriate personal protective equipment (PPE). It is the responsibility of each individual to have and to wear PPE as required by the specific task being performed, the potential hazards that person will be exposed to, and the specifics of the job site. Employees must adhere to the PPE requirements recommended on the Material Safety Data Sheets (MSDS) for material they are handling.

Graco Oilfield Services will provide suitable equipment to protect employees from hazards in the workplace. The Responsible Safety Officer will advise on what protective equipment is required for the task, but the supervisor of the operation must obtain this equipment and see that it is used. Protective clothing is not a substitute for adequate engineering controls.

It is the responsibility of the employee and at the employee's expense, to provide his/her own steel-toed work boots & hard-hat.

Protection Issued

Protective clothing will be issued to employees who work with hazardous material for the purpose of protecting their health and safety. The Responsible Safety Officer is available for consultation as needed.

Protective Shoes

Graco Oilfield Services encourages the wearing of safety shoes. For certain types of work the wearing of safety shoes is required by Company policy or by federal regulations. Examples are when employees are exposed to foot injuries from hot,

corrosive, or poisonous substances; in shops, in equipment handling, or in construction jobs where there is a danger of falling objects; or in abnormally wet locations. Safety shoes must meet or exceed ANSI Z41.1 (Compression and impact ratings).

Head Protection

Graco Oilfield Services encourages the wearing of appropriate head protection devices by employees to protect them from head or other injuries that could result from their working environment. The supervisor must also maintain a sufficient supply of head protection devices for visitors in the area. Hard hats shall meet the minimum requirements set forth by ANSI Z89.1.1997 (Type 1 or 2 – class E).

Hearing Protection

Graco Oilfield Services encourages the wearing of protective hearing devices. Each shop is supplied with appropriate hearing protection. If you are unsure of whether this protection is needed in your work area, contact your supervisor for clarification. Hearing protection must be worn in designated high noise areas (85 dBA or higher). If the high noise area is determined to be 115 dBA or higher, dual protection (inserts and muffs) shall be worn.

Flame Resistant Clothing

Graco Oilfield Services will provide flame resistant clothing when required by location management, PPE hazard assessments or historical data/experience dictate the need. Flame resistant clothing shall meet Federal Test Standard CS-191A (<2.0 second after flame and no more than 6.0 inches char length). Only manufacturer's approved modifications shall be made to garments.

Eye Protection

Graco Oilfield Services provides appropriate eye protection devices for employees assigned to tasks in which an eye-injury hazard exists. The supervisor of the operation is responsible for determining the need for suitable eye-protection devices and for ensuring that the employees use them. Approved safety eyewear with side shields will be worn in field operations and other designated areas. ANSI approved eyewear is to be worn over non-ANSI approved eyewear or any not having side shields. Safety glasses must be equipped with rigid side shields and meet or exceed ANSI Z87.1. Filter lenses are required for arc welding or cutting. The Responsible Safety Officer will assist the supervisor in defining eye-hazard operations and in selecting appropriate eye protection.

The standard sign: **CAUTION, EYE HAZARD AREA, DO NOT ENTER WITHOUT EYE PROTECTION**, must be posted in every area where eye protection is mandatory. All employees who work in such an area must wear the eye protection issued to them. Every visitor to the area must also be provided with suitable eye protection. Eye protection equipment must meet ANSI standard Z87.1 (or any successor regulation). The following table may be used as a guideline for selecting eye protection.

TYPE OF WORK	POSSIBLE DANGER TO EYES	EYE PROTECTION NEEDED
Acetylene-burning	Sparks, harmful rays	Welding goggles
Cutting, or welding	Molten metal, flying particles	Eyecup type-tinted lenses, or Coverspec type – tinted lenses or tinted-plate lenses
Bleeding down a pressure line or vessel	Flying particles	Goggles that are flexible fitting – regular ventilation
Changing a choke	Flying particles	Goggles that are flexible fitting – regular ventilation
Chemical handling	Splash, acid burns, fumes	Splash-proof goggles that are flexible fitting – hooded ventilation and add a face shield. Follow MSDS guidance.
Chipping	Flying particles	Goggles that are flexible fitting – regular ventilation
Cutting wire	Flying particles	Goggles that are flexible fitting – regular ventilation

Electric (Arc) Welding	Sparks, intense rays, molten metal	Welding helmet and spectacles with eyecup-type side shields – tinted lenses
Fire Watch (welding)	Flying particles	Goggles that are flexible fitting – regular ventilation
Grinding	Flying particles	Goggles that are flexible fitting – regular ventilation and Face shield
Hammering	Flying particles	Goggles that are flexible fitting – regular ventilation
Sandblasting	Flying particles	Blasting hood and spectacles – eyecup-type side shields
Wire brushing	Flying particles	Goggles that are flexible fitting – regular ventilation

Hand Protection

Graco Oilfield Services personnel must wear hand protection appropriate for the task when performing work that may cause injury to the hands. Electrical lineman’s gloves are to be worn when working with voltages greater than 50 VAC and replaced or tested every six months by an approved laboratory. Wearers of the lineman’s gloves are to test for holes or leaks before each use. Defective or damaged gloves must not be used. Any glove found defective or damaged shall be destroyed and replaced immediately.

Respiratory Protection

Any operation that generates harmful airborne levels of dusts, fumes, sprays, mists, fogs, smokes, vapors, or gases or that may involve oxygen-deficient atmospheres requires the use of effective safety controls. This must be accomplished, as much as feasible, by accepted engineering control measures (for example, enclosure or confinement of the operation, general and local ventilation, and substitution of less toxic materials). When effective engineering controls are not feasible, or while they are being instituted, appropriate respiratory protection must be used in accordance with Graco Oilfield Services requirements as prescribed by OSHA in ANSI 288.2-1980, Standard Practices for Respiratory Protection.

Responsibilities

To ensure that the respiratory protection program is conducted in accordance with ANSI 288.2-1980, certain responsibilities are required of each employee, supervisor, and the Responsible Safety Officer.

Employees are responsible for:

1. Wearing the proper respirator in accordance with the instructions and training received.
2. Maintaining and storing the respirator in good condition.
3. Returning the respirator at the end of the required use period for overhaul, cleaning, and disinfecting.

Supervisors are responsible for:

1. Identifying those employees who may need to use respiratory protection (Responsible Safety Officer will provide assistance upon request in this determination).
2. Ensuring that their employees have been properly trained and fitted.
3. Ensuring that their employees use the respirators as required.

The Supervisor/Store Manager is responsible for:

1. Providing respiratory equipment.
2. Maintaining the equipment in good condition.
3. Fitting employees with proper respirators and providing training for their use.
4. Evaluating employee exposures and work conditions, including inspection of respirator use.

4.2 Ladders, Scaffolds, and Fall Protection

Ladders

Rules:

1. Ladders must be in good condition, made of suitable material, of proper length, and of the correct type for the use intended.
2. Damaged ladders must never be used; they should be repaired or destroyed.
3. Ladders used near electrical equipment must be made of a non-conducting material.
4. Stored ladders must be easily accessible for inspection and service, kept out of the weather and away from excessive heat, and well supported when stored horizontally.
5. A portable ladder must not be used in a horizontal position as a platform or runway or by more than one person at a time.
6. A portable ladder must not be placed in front of doors that open toward the ladder or on boxes, barrels, or other unstable bases.
7. Ladders must not be used as guys, braces, or skids.
8. The height of a stepladder should be sufficient to reach the work station without using the top or next to the top steps.
9. Bracing on the back legs of stepladders must not be used for climbing.
10. The proper angle (7-1/2 degrees) for a portable straight ladder can be obtained by placing the base of the ladder a distance from the vertical wall equal to one quarter of the vertical distance from base to top of ladder's resting point.
11. Ladders must be ascended or descended facing the ladder with both hands free to grasp the ladder.
12. Tools must be carried in a tool belt or raised with a hand line attached to the top of the ladder.
13. Extension ladders should be tied in place to prevent side slip.

Scaffolds

Rules:

1. All scaffolds, whether fabricated on site, purchased, or rented must conform with the specifications found in ANSI A10.8, Safety Requirements for Scaffolding.
2. Rolling scaffolds must maintain a 3:1 height to base ratio (use smaller dimension of base).
3. The footing or anchorage for a scaffold must be sound, rigid, and capable of carrying the maximum intended load without settling or displacement.
4. Unstable objects such as barrels, boxes, loose brick, or concrete blocks must not be used to support scaffolds or planks.
5. No scaffold may be erected, moved, dismantled, or altered unless supervised by competent persons.
6. Scaffolds and their components must be capable of supporting at least four times the maximum intended load without failure.
7. Guard rails and toe boards must be installed on all open sides and ends of scaffolds and platforms more than 10 ft above the ground or floor.
8. Scaffolds 4 feet to 10 feet in height having a minimum horizontal dimension in either direction of less than 45 inches must have standard installed on all open sides and ends of the platform.
9. Wire, synthetic, or fiber rope used for suspended scaffolds must be capable of supporting at least 6 times the rated load.
10. No riveting, welding, burning, or open flame work may be performed on any staging suspended by means of fiber or synthetic rope.
11. Treated fiber or approved synthetic ropes must not be used for or near any work involving the use of corrosive substances.
12. All scaffolds, boson's chairs, and other work access platforms must conform with the requirements set forth in the Federal Occupational Safety and Health Regulations for Construction, 29 CFR 1926.451, except where the specifications in ANSI A10.8 are more rigorous.

Floors

Rules:

1. Workroom floors must be in a clean and, as much as possible, dry condition.
2. Drainage mats, platforms, or false floors should be used where wet processes are performed.
3. Floors must be free from protruding nails, splinters, holes, and loose boards or tiles.
4. Permanent aisles or passageways must be marked.
5. Floor holes must be protected by covers that leave no openings more than one inch wide.
6. Floor openings into which persons can accidentally walk must be guarded by standard railings and toe boards.
7. Open-sided floors, platforms, and runways higher than four feet must be guarded by standard railings.
8. Toe boards must be used wherever people can pass below or hazardous equipment or materials are below.

Fall Protection Policy

Graco Oilfield Services is dedicated to the protection of its employees from on-the-job injuries. The purpose of this plan is to cover fall protection and to ensure that each employee is trained and made aware of the safety provisions that are to be implemented by this plan prior to using fall protection.

This program informs interested persons, including employees, that Graco Oilfield Services is complying with OSHA's Fall Protection requirements, (29 CFR 1926.500 to .503). This program applies to all employees who might be exposed to fall hazards, except when designated employees are inspecting, investigating, or assessing workplace conditions before the actual start of work or after all work has been completed.

Fall Arrester Systems Required

When workers are required to work from surfaces that are in excess of 7-1/2 ft above an adjacent safe work place and are unprotected by railings, the following procedures and guidelines must be applied:

1. Before selecting personnel for work at elevated work stations, supervisors must consider the workers' physical condition, such as medical problems, fear of heights, and coordination.
2. Approved fall-arrester systems are required for all work at heights of 10 or more feet. A recommended fall-arrester system consists of a full body-harness, a lanyard consisting of 1/2 inch nylon rope or equivalent with a breaking strength of 5400 lb and a maximum length to provide for a fall no greater than 6 feet, Sala-type fall-arrester block (optional), and an anchored hook-up location. ***Alternate equipment must be approved by the Responsible Safety Officer.**
3. Fall-arrester systems are recommended for light work at heights between 7-1/2 and 10 feet. Fall-arrester systems are not required when work is being done while standing on a ladder.
4. Ladders should be tied off.
5. Use of a controlled descent device is not necessary unless it is impossible to reach a stranded person by another means.

The Responsible Safety Officer will advise, on request, regarding usage and procedures. It is the responsibility of the supervisor to plan the intended work sufficiently to ensure that job planning and proper precautions have been taken.

Training Program

Under no circumstances shall employees work in areas where they might be exposed to fall hazards, do work requiring fall protection devices, or use fall protection devices until they have successfully completed Graco Oilfield Services fall protection training program. The training program includes classroom instruction and operational training.

The training program will cover the following areas: regulatory requirements, donning, application limits, proper anchoring and tie-off techniques, estimation of free fall distance, including determination of deceleration distance, and total fall distance to prevent striking a lower level, methods of use, inspection and storage of the system, manufacturer's recommendations, nature of fall hazards in the work area, correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used, use and operation of guardrail systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used, and the role of each employee in the safety monitoring system when this is used.

When an employee who has already been trained, demonstrates that he/she does not have the understanding and skill required by the training program, retraining shall be provided.

A written certificate of training is required for each employee trained which must include;

1. The name or other identity of the employee trained.
2. The date(s) of training.
3. The signature of the competent person who conducted the training or the signature of the Store Manager.

Enforcement

Constant awareness of and respect for fall hazards and compliance with all safety rules are considered conditions of employment. Graco may issue disciplinary warnings to employees, up to and including termination, for failure to follow the guidelines of this program.

Rules to Follow

1. Snap hooks shall not be engaged: directly to webbing, rope or wire rope; to each other; to a Dee-ring to which another snap hook or other connector is attached; to a horizontal lifeline; or to any object which is incompatibly shaped or dimensioned in relation to the snap hook such that unintentional disengagement could occur by the connected object being able to depress the snap hook keeper and release itself.
2. When using vertical lifelines, each employee is required to be attached to a separate lifeline.
3. Anchorages shall be capable of supporting at least 5,000 pounds (22.2 kN) per employee attached, or that anchorages be designed, installed, and used as follows: as part of a complete personal fall arrest system which maintains a safety factor of at least two; and under the supervision of a qualified person.
4. Fall arrest systems and components subjected to impact loading shall be immediately removed from service and not used again until inspected and determined by a competent person to be undamaged and suitable for reuse.
5. The company will provide for prompt rescue of employees in the event of a fall or shall assure that employees are able to rescue themselves. Rescue plans will be developed for each site.

6. Personal fall arrest systems shall be inspected prior to each use for wear, damage and other deterioration.
7. The company does conduct a periodic maintenance inspection program for personal fall protection, based upon the use of the equipment.
8. Defective components will be removed from service, or repaired.

4.3 Respiratory Protection

PURPOSE:

Graco has determined that some employees are exposed to respiratory hazards during routine operations. These hazards include dust, particulates, and vapors, and in some cases represent Immediately Dangerous to Life or Health (IDLH) conditions. The purpose of this program is to ensure that all Graco employees are protected from exposure to these respiratory hazards.

Engineering controls, such as ventilation and substitution of less toxic materials, are the first lines of defense at Graco; however, engineering controls have not always been feasible for some of our operations, or have not always completely controlled the identified hazards. In these situations, respirators and other protective equipment must be used. Respirators are also needed to protect employees' health during emergencies. The work processes requiring respirator use at Graco are sour gas/ (H₂S).

SCOPE AND APPLICATION:

This program applies to all employees who are required to wear respirators during normal work operations, and during some non-routine or emergency operations such as a spill of a hazardous substance. All employees working in these areas must be enrolled in the company's respiratory protection program.

In addition, any employee who voluntarily wears a respirator when a respirator is not required is subject to the medical evaluation, cleaning, maintenance, and storage elements of this program, and must be provided with certain information specified in this section of the program.

Employees who voluntarily wear filtering face-pieces (dust masks) are not subject to the medical evaluation, cleaning, storage, and maintenance provisions of this program.

Employees participating in the respiratory protection program do so at no cost to them. The expense associated with training, medical evaluations and respiratory protection equipment will be borne by the company.

RESPONSIBILITIES:

Program Administrator

The Responsible Safety Officer is responsible for administering the respiratory protection program.

Duties of the Responsible Safety Officer include:

- * Identifying work areas, processes or tasks that require workers to wear respirators, and evaluating hazards.
- * Selection of respiratory protection options.
- * Monitoring respirator use to ensure that respirators are used in accordance with their certifications.
- * Arranging for and/or conducting training.
- * Ensuring proper storage and maintenance of respiratory protection equipment.
- * Conducting qualitative fit testing with irritant smoke or other approved protocol.
- * Administering the medical surveillance program.
- * Maintaining records required by the program.
- * Evaluating the program.
- * Updating the written program, as needed.

The Responsible Safety Officer for Graco is Steve Ferris, Chief Safety Officer.

Supervisors

Supervisors are responsible for ensuring that the respiratory protection program is implemented in their particular areas. In addition to being knowledgeable about the program requirements for their own protection, supervisors must also ensure that the program is understood and followed by the employees under their charge. Duties of the supervisor include:

- * Ensuring that employees under their supervision (including new hires) have received appropriate training, fit-testing, and annual medical evaluation.
- * Ensuring the availability of appropriate respirators and accessories.
- * Being aware of tasks requiring the use of respiratory protection.
- * Enforcing the proper use of respiratory protection when necessary.
- * Ensuring that respirators are properly cleaned, maintained, and stored according to the respiratory protection plan.
- * Ensuring that respirators fit well and do not cause discomfort.
- * Continually monitoring work areas and operations to identify respiratory hazards.
- * Coordinating with the Program Administrator on how to address respiratory hazards or other concerns regarding the program.

Employees

Each employee has the responsibility to wear his or her respirator when and where required and in the manner in which they were trained. Employees must also:

- * Care for and maintain their respirators as instructed, and store them in a clean sanitary location.
- * Inform their supervisor if the respirator no longer fits well, and request a new one that fits properly.
- * Inform their supervisor or the Program Administrator of any respiratory hazards that they feel are not adequately addressed in the workplace and of any other concerns that they have regarding the program.

PROGRAM ELEMENTS:

Selection Procedures

The Program Administrator will select respirators to be used on site, based on the hazards to which workers are exposed and in accordance with all OSHA standards. The Program Administrator will conduct a hazard evaluation for each operation, process, or work area where airborne contaminants may be present in routine operations or during an emergency. The hazard evaluation will include:

- * Identification and development of a list of hazardous substances used in the workplace and/or work process.
- * Review of work processes to determine where potential exposures to these hazardous substances may occur. This review shall be conducted by surveying the workplace, reviewing process records, and talking with employees and supervisors.
- * Exposure monitoring to quantify potential hazardous exposures. Monitoring will be conducted by qualified employees when needed.

Updating the Hazard Assessment

The Responsible Safety Officer must revise and update the hazard assessment as needed (i.e., any time work process changes may potentially affect exposure). If an employee feels that respiratory protection is needed during a particular activity, he/she is to contact his or her supervisor or the Responsible Safety Officer. The Responsible Safety Officer will evaluate the potential hazard, arranging for outside assistance as necessary. The Responsible Safety Officer will then communicate the results of that assessment back to the employees. If it is determined that respiratory protection is necessary, all other elements of this program will be in effect for those tasks and this program will be updated accordingly.

NIOSH Certification

All respirators must be certified by the National Institute for Occupational Safety and Health (NIOSH) and shall be used in accordance with the terms of that certification. Also, all filters, cartridges, and canisters must be labeled with the appropriate NIOSH approval label. The label must not be removed or defaced while it is in use.

Medical Evaluation

Employees who are either required to wear respirators, or who choose to wear an APR voluntarily, must pass a medical exam before being permitted to wear a respirator on the job. Employees are not permitted to wear respirators until it has determined that they are medically able to do so. Any employee refusing the medical evaluation will not be allowed to work in an area requiring respirator use.

A licensed healthcare professional will provide the medical evaluations. Medical evaluation procedures are as follows:

1. The medical evaluation will be conducted using the questionnaire provided in Appendix C of the respiratory protection standard. The Responsible Safety Officer will provide a copy of this questionnaire to all employees requiring medical evaluations. **The questionnaire is attached to this program.**
2. To the extent feasible, the company will assist employees who are unable to read the questionnaire (by providing help in reading the questionnaire). When this is not possible, the employee will be sent directly to the PLHCP (Professionally Licensed Healthcare Provider) for medical evaluation.
3. All affected employees will be given a copy of the medical questionnaire to fill out, along with a stamped and addressed envelope for mailing the questionnaire to the company PLHCP. Employees will be permitted to fill out the questionnaire on company time.
4. Follow-up medical exams will be granted to employees as required by the standard, and/or as deemed necessary by the Licensed Healthcare Professional.
5. All employees will be granted the opportunity to speak with the PLHCP about their medical evaluation, if they so request.
6. The Responsible Safety Officer has provided the PLHCP with a copy of this program, a copy of the Respiratory Protection standard, the list of hazardous substances by work area, and for each employee requiring evaluation: his or her work area or job title, proposed respirator type and weight, length of time required to wear respirator, expected physical work load (light, moderate, or heavy), potential temperature and humidity extremes, and any additional protective clothing required.
7. Any employee required for medical reasons to wear a positive pressure air-purifying respirator will be provided with a powered air-purifying respirator.
8. After an employee has received clearance and begun to wear his or her respirator, additional medical evaluations will be provided under the following circumstances:
9. Employee reports signs and/or symptoms related to their ability to use a respirator; such as shortness of breath, dizziness, chest pains, or wheezing.
10. The medical clinic PLHCP or supervisor informs the Responsible Safety Officer that the employee needs to be reevaluated;
11. Information from this program, including observations made during fit testing and program evaluation, indicates a need for reevaluation;
12. A change occurs in workplace conditions that may result in an increased physiological burden on the employee.

All examinations and questionnaires are to remain confidential between the employee and the PLHCP. Questionnaires are available by request from the Responsible Safety Officer.

Fit Testing

Fit testing is required for all employees required to wear any respirator.

1. Prior to being allowed to wear any respirator with a tight fitting face-piece.
2. Annually.
3. When there are changes in the employee's physical condition that could affect respiratory fit (e.g., obvious change in body weight, facial scarring, etc.).

Employees will be fit tested with the make, model, and size of respirator that they will actually wear. Employees will be provided with several models and sizes of respirators so that they may find an optimal fit. Fit testing of positive pressure respirators is to be conducted in the negative pressure mode.

The Responsible Safety Officer or other qualified individual will conduct fit tests following the OSHA approved Aerosol QLFT Protocol in Appendix B of the Respiratory Protection standard.

The Responsible Safety Officer has determined that QNFT is not required for the current respirators used under current conditions at Graco. If conditions affecting respirator use change, the Responsible Safety Officer will evaluate on a case-by-case basis whether QNFT is required.

Respirator Use

General Use Procedures:

1. Employees will use their respirators under conditions specified by this program, and in accordance with the training they receive on the use of each particular model. In addition, the respirator shall not be used in a manner for which it is not certified by NIOSH or by its manufacturer.
2. All employees shall conduct user seal checks each time that they wear their respirator. Employees shall use either the positive or negative pressure check (depending on which test works best for them) specified in Appendix B-1 of the Respiratory Protection Standard.

3. All employees shall be permitted to leave the work area to go to the locker room to maintain their respirator for the following reasons: to clean their respirator if the respirator is impeding their ability to work, change filters or cartridges, replace parts, or to inspect respirator if it stops functioning as intended. Employees should notify their supervisor before leaving the area.
4. Employees are not permitted to wear tight-fitting respirators if they have any condition, such as facial scars, facial hair, or missing dentures, that prevents them from achieving a good seal. Employees are not permitted to wear headphones, jewelry, or other articles that may interfere with the face-piece-to-face seal.

Respirator Malfunction

1. APR Respirator Malfunction:

For any malfunction of an APR (e.g., such as breakthrough, face-piece leakage, or improperly working valve), the respirator wearer should inform his or her supervisor that the respirator no longer functions as intended, and go to the designated safe area to maintain the respirator. The supervisor must ensure that the qualified employee receives the needed parts to repair the respirator, or is provided with a new respirator.

Cleaning, Maintenance, Change Schedules and Storage

Cleaning

Respirators are to be regularly cleaned and disinfected at the designated respirator cleaning station located at each store location.

The following procedure is to be used when cleaning and disinfecting respirators:

1. Disassemble respirator, removing any filters, canisters, or cartridges.
2. Wash the face-piece and associated parts in a mild detergent with warm water or approved cleaner/sanitizer. Do not use organic solvents.
3. Rinse completely in clean warm water.
4. Wipe the respirator with disinfectant wipes (Isopropyl Alcohol) to kill germs.
5. Air dry in a clean area.
6. Reassemble the respirator and replace any defective parts.
7. Place in a clean, dry plastic bag or other airtight container.
8. DO NOT store items on top of the respirator.

Note: The Responsible Safety Officer will ensure an adequate supply of appropriate cleaning and disinfectant material at the cleaning station. If supplies are low, employees should contact their supervisor, who will inform the Program Administrator.

Maintenance

Respirators are to be properly maintained at all times in order to ensure that they function properly, and adequately protect the employee. Maintenance involves a thorough visual inspection for cleanliness and defects. Worn or deteriorated parts will be replaced prior to use. No components will be replaced or repairs made beyond those recommended by the manufacturer. Repairs to regulators or alarms of atmosphere-supplying respirators will be conducted by the manufacturer or authorized personnel.

The following checklist will be used when inspecting respirators:

1. Face-piece: cracks, tears, or holes facemask distortion cracked or loose lenses/face-shield
2. Head-straps: breaks or tears broken buckles Valves: residue or dirt cracks or tears in valve material
Filters/Cartridges: approval designation, gaskets, cracks or dents in housing, and proper cartridge for hazard

Employees are permitted to leave their work area to perform limited maintenance on their respirator in a designated area that is free of respiratory hazards. Situations when this is permitted include to wash their face and respirator face-piece to prevent any eye or skin irritation, to replace the filter, cartridge or canister, and if they detect vapor or gas breakthrough or leakage in the face-piece or if they detect any other damage to the respirator or its components.

Change Schedules

Employees wearing APRs or PAPRs with P100 filters for protection against dust and other particulates shall change the cartridges on their respirators when they first begin to experience difficulty breathing (i.e., resistance) while wearing their masks.

Based on discussions with our respirator distributor about Graco's workplace exposure conditions, employees voluntarily wearing APRs with organic vapor cartridges shall change the cartridges on their respirators at the end of each work week to ensure the continued effectiveness of the respirators.

Storage

Respirators must be stored in a clean, dry area, and in accordance with the manufacturer's recommendations. Each employee will clean and inspect their own air-purifying respirator in accordance with the provisions of this program and will store their respirator in a plastic bag in their own locker. Each employee will have his/her name on the bag and that bag will only be used to store that employee's respirator.

The Responsible Safety Officer will store a supply of respirators and respirator components in their original manufacturer's packaging at each store location.

Defective Respirators

Respirators that are defective or have defective parts shall be taken out of service immediately. If, during an inspection, an employee discovers a defect in a respirator, he/she is to bring the defect to the attention of his or her supervisor. Supervisors will give all defective respirators to the Store Manager. The Responsible Safety Officer will decide whether to:

1. Temporarily take the respirator out of service until it can be repaired.
Perform a simple fix on the spot such as replacing a head-strap.
2. Dispose of the respirator due to an irreparable problem or defect.

When a respirator is taken out of service for an extended period of time, the respirator will be tagged out of service, and the employee will be given a replacement of similar make, model, and size. All tagged out respirators will be kept in a storage cabinet at each store location.

Training

The Responsible Safety Officer will provide training to respirator users and their supervisors on the contents of the Graco Respiratory Protection Program and their responsibilities under it, and on the OSHA Respiratory Protection standard. Workers will be trained prior to using a respirator in the workplace. Supervisors will also be trained prior to using a respirator in the workplace or prior to supervising employees that must wear respirators.

The training course will cover the following topics:

1. The Graco Respiratory Protection Program
2. The OSHA Respiratory Protection standard
3. Respiratory hazards encountered at Graco and their health effects, also proper selection and use of respirators
4. limitations of respirators
5. respirator donning and user seal (fit) checks
6. fit testing
7. emergency use procedures
8. maintenance and storage
9. medical signs and symptoms limiting the effective use of respirators

Employees will be retrained annually or as needed. Employees must demonstrate their understanding of the topics covered in the training through hands-on exercises and a written test. The Responsible Safety Officer will document respirator training and the documentation will include the type, model, and size of respirator for which each employee has been trained and fit tested.

PROGRAM EVALUATION

The Responsible Safety Officer will conduct periodic evaluations of the workplace to ensure that the provisions of this program are being implemented. The evaluations will include regular consultations with employees who use respirators and their supervisors, site inspections, air monitoring and a review of records.

Problems identified will be noted in an inspection log and addressed by the Responsible Safety Officer. These findings will be reported to Graco management, and the report will list plans to correct deficiencies in the respirator program and target dates for the implementation of those corrections.

DOCUMENTATION AND RECORDKEEPING

A written copy of this program and the OSHA standard is kept in the Responsible Safety Officer's office and is available to all employees who wish to review it.

Also maintained in the Responsible Safety Officer's office are copies of training and fit test records. These records will be updated as new employees are trained, as existing employees receive refresher training, and as new fit tests are conducted.

The Responsible Safety Officer will also maintain copies of the medical records for all employees covered under the respirator program. The completed medical questionnaire and the PLHCP's documented findings are confidential and will remain at the Registered Healthcare Providers facility. The company will only retain the physician's written recommendation regarding each employee's ability to wear a respirator.

5.0 TRANSPORTATION

5.1 Traffic and Transportation

Official Vehicle Use

Rules:

1. Graco Oilfield Services requires that an operator hold a valid driver's license for the class of vehicle that he/she is authorized to operate.
2. Before an employee operates a company forklift, he/she must successfully complete the appropriate training as laid out by OSHA (29 CFR 1910.178) which includes classroom presentation and hands-on demonstration. A hands-on must be accomplished successfully for each type of forklift to be operated.

Safety Belts

Employees operating or riding in company-furnished vehicles, or personal vehicles on official company business, are required to wear safety belts at all times. The driver should instruct the passengers to fasten their safety belts before operating the vehicle.

Accidents

Rules:

1. Any accident involving Company vehicles (included private, rented, or leased vehicles used on official Company business) must be reported to the driver's Supervisor and the Responsible Safety Officer.
2. If the driver is unable to make a report, another employee who knows the details of the accident must make the report.
3. It is Graco Oilfield Services's policy that employees should not admit to responsibility for vehicle accidents occurring while on official business. It is important that such admissions, when appropriate, be reserved for the company and its insurance carrier.
4. The law requires that each driver involved in a vehicle accident must show his/her license on request by the other party.
5. Be sure to obtain adequate information on the drivers involved as well as on the owner of the vehicles.
6. Names, addresses, driver's license numbers, vehicle descriptions, and registration information are essential.
7. A description of damages is needed for completion of accident reports.
8. If the accident is investigated by off-site police agencies, request that a copy of the police report be sent to Graco Fishing & Rental Tools, Inc. attention the Responsible Safety Officer, or obtain the name and department of the investigating officer.
9. A safety kit has been issued to each company vehicle. Inside each kit is an envelope with accident forms, witness forms and accident report checklist.
10. In case of collision with an unattended vehicle (or other property), the driver of the moving vehicle is required by law to notify the other party and to exchange information pertaining to the collision. If unable to locate the other party, leave a note in, or attached to, the vehicle (or other property) giving the driver's name, address, and vehicle license number.
11. The driver of any Graco Oilfield Services vehicle involved in an accident must also complete a Company Motor Vehicle Accident Report and submit it to his/her supervisor within one work day of the accident.
12. The supervisor should interview the driver and complete the supervisor's portion of the report.
13. Within two work days of the accident, the completed form must be sent to the Administration Office, attention Responsible Safety Officer.

14. Employee's Supervisor will advise the employee as to where the damaged vehicle should be taken.
15. Extra forms for the safety kit can be obtained from Administration.
16. The Responsible Safety Officer will receive copies of all accident reports and will prepare any required OSHA reports.

5.2 D.O.T. HAZMAT Employee HM-126F

Company Policy

Our company policy is to comply with all federal Hazardous Materials Regulations (HMR) as found in 49 CFR regarding the handling and transportation of hazardous materials. Graco Oilfield Services is committed to providing all employees involved with any aspect of the transportation of hazardous materials with proper and complete hazardous materials training.

Graco Oilfield Services does not routinely conduct activities that fall under the Hazmat regulations. In the event that our company should be involved in the transportation of hazardous materials, the company would comply with the following policies.

Hazardous Materials Procedures

Our company's hazardous materials procedures have been developed to ensure the safety of our employees and the public; to reduce the risks associated with hazardous materials handling; prevent fines and penalties and increase productivity. All employees who work with the transportation of hazardous materials will receive training in safe and proper handling and transporting of hazardous materials.

Receiving Hazardous Materials

Employees who pick up hazardous materials are expected to check the hazardous materials shipment for proper shipping papers, labels, markings, packaging, and placards. Only a trained employee will be responsible for checking, accepting, and signing for all hazardous materials shipments.

Employees should not accept or sign for any hazardous materials shipment unless it is in compliance with the HMR who governs such shipments.

Shipping Papers

Shipping papers should accompany hazardous materials shipments. The shipper or this company acting as the shipper is responsible for providing the shipping papers. Our employees are responsible for making certain that shipping papers are complete, accurate, and appropriate for the shipment, before accepting or shipping hazardous materials. Shipping papers should contain the following information;

1. The proper shipping description of the material(s) in question, including proper shipping name, hazard class, identification (ID) number, packing group (if required), and total quantity of the shipment.
2. Emergency Response Telephone Number.
3. All pages of the shipping paper must be numbered as 1 of 2, 2 of 2, etc., when multiple pages are involved.
4. All shipping papers for hazardous materials shipments handled by our employees must have a signed Shipper's Certification, with the signature of an authorized shipper's employee.
5. All hazardous materials included on the same shipping paper with non-hazardous items;
 - a. will be listed first
 - b. be in a color (usually red) which is not the color of the non-hazardous entries
 - c. or have an X or RQ (Regulated Quantity) in a column designated HM (Hazardous Material)

Graco Oilfield Services employees will not accept or sign for any hazardous materials shipment if inaccuracies or incomplete entries are found on the shipping papers. Employees are to contact the Responsible Safety Officer for instructions if problems or questions concerning hazardous materials shipping papers arise.

All shipping papers will be maintained on file for 12 months from the date of shipment.

Labels

The shipper should determine the need for and application of all required primary and subsidiary labels to packaging containing hazardous materials. These labels provide information about package content, and warn of potential hazards associated with the materials. Labels are to be placed on the same surface as the proper shipping name marking, and must be placed on a surface contrasting in color to the label. An alternative is for the label to have a dotted or solid line outer-border.

Company employees will make certain that all hazardous material labels match the hazard classes or divisions entered on the shipping papers, and will only accept those packages that are properly labeled.

Company employees will not accept packages if labels are missing, applied improperly, obscure, torn, unreadable, or otherwise defective. Employees should ask for replacement labels or contact the Responsible Safety Officer if this happens.

Marking

The shipper is responsible for properly marking all non-bulk and bulk packages. Company employees are required to check all package markings for compliance. Most non-bulk packages must be marked with the proper shipping name, ID number, and consignors or destination's name and address. The HMR define non-bulk packaging as packaging which has:

1. A maximum capacity of 450 L (119 gallons) or less, as a receptacle for a liquid.
2. A maximum net mass of 400 kg (882 pounds) or less, and a maximum of 450 L (119 gallons) or less as a receptacle for a solid.
3. A water capacity of 454 kg (1000 pounds) or less, as a receptacle for a gas.

Bulk packages must be marked with the proper ID number displayed on a placard, an orange panel, or a plain white square-on-point configuration. The HMR defines bulk packaging as packaging, other than a vessel or barge, that has no intermediate form of containment and which has:

1. A maximum capacity greater than 450 L (119 gallons), as a receptacle for a liquid.
2. A maximum net mass greater than 400 kg (882 pounds), and a maximum capacity greater than 450 L (119 gallons) as a receptacle for a solid.
3. A water capacity greater than 454 kg (1000 pounds), as a receptacle for a gas.

Additional markings may be required for non-bulk and bulk shipments, depending on the type of hazard and type of packaging. Employees shall refuse any shipment if it is improperly marked. Employees shall contact the Responsible Safety Officer if they are in doubt or have questions concerning proper marking.

Packaging

Company employees shall inspect all packages prior to loading to ensure they are in proper condition for transportation. Employees will accept for transportation only those hazardous materials packages which are in proper condition for transportation and that comply with the HMR. Employees will refuse to accept or sign for damaged or leaking packages.

Employees who are not satisfied with the packaging, marking, labeling, or compliance of any hazardous material package should refuse the shipment and contact the Responsible Safety Officer.

Placarding

The shipper must provide the driver with any required placards for the hazardous material(s) indicated on the shipping papers, unless the vehicle is already placarded correctly. Our employees will refuse any shipment or load in which the correct number and type of placards is not provided by the shipper when required.

Once received, our employees are to place placards on the vehicle: one on each side, one on the back, and one in front. The employee will maintain the integrity of the placards during all phases of transportation. At no time will an employee transport a hazardous material requiring placards without proper placards being affixed to the motor vehicle.

If there are problems at the shipper, lost or damaged placards occur in transit, or questions in general concerning placards, employees should contact the Responsible Safety Officer.

Loading/Unloading Instructions

Before performing any loading or unloading, Graco Oilfield Services employees will secure the transporting vehicle from moving by using appropriate chocks and supports. Only after the vehicle operator is satisfied that the vehicle is safe from moving should loading or unloading be allowed to begin.

Graco Oilfield Services employees will verify that the shipment has been secured so as to prevent shifting and cargo movement during transit, and that load is within legal weight limits.

Employees are not allowed to smoke on or near a vehicle while loading/unloading actions are in progress. All fire sources, such as lit matches, smoking, or carrying any flame, are not allowed in the vicinity.

Employees will not unload or allow the unloading process to begin until the consignee or destination representative has accepted and signed for the shipment.

Accidents and Incidents

Graco Oilfield Services has developed procedures for accidents and incidents involving hazardous materials. Our goal is to minimize risk to our employee's personal safety, the safety of the general public, and protect the environment. All our employees and management are expected to know and follow these procedures.

If an accident or incident involving hazardous materials occurs, the following procedures are to be implemented by the employee(s) at the scene:

1. Secure the scene while keeping people away from the accident and/or spill.
2. Do not touch or walk into or through any spilled material.
3. Avoid inhalation of all gases, fumes, and smoke. Some gases are odorless and colorless. Do not assume fumes are not present because no odor or visible cloud is present.
4. Consult the Emergency Response Information provided with the shipment and follow the guidelines.
5. Notify the local law enforcement and/or fire department, and Emergency Response Authorities immediately.
6. Call the Emergency Response Telephone Number provided on the shipping papers for additional guidance, if needed.
7. Report the accident/incident to the Responsible Safety Officer.
8. Stay with the vehicle and supervise the cleanup procedures.
9. Complete a company accident report.
10. After initial notification by the driver, the Responsible Safety Officer is responsible for the coordination of all aspects of the accident/incident response.
11. The Responsible Safety Officer establishes contact with the driver and any officials at the scene. If possible, the Responsible Safety Officer will send a representative to the scene.
12. The Responsible Safety Officer will be responsible for any follow up actions required by law enforcement officials.
13. After verification that all the above items have been completed, the Responsible Safety Officer will do all required notifications and required reports.

Emergency Response Overview

The shipper is responsible for providing emergency response information with all hazardous materials shipments. Graco Oilfield Services employees shall verify that the shipper provides the following hazardous materials information:

1. Basic description and technical name of the hazardous material on the shipping paper(s).
2. Immediate hazards to health.
3. Risks of fire or explosion.
4. Immediate precautions to be taken in the event of an accident or incident.
5. Immediate methods of handling fires.
6. Initial methods for handling spills or leaks in the absence of fire.
7. Preliminary first aid measures.

Graco Oilfield Services employees shall not transport any hazardous material without proper emergency response information. The Emergency Response Telephone Number must be properly documented on the shipping paper(s).

The Responsible Safety Officer is in charge of D.O.T. compliance activities.

(The job titles of employees that the company considers to be D.O.T. Hazmat Employees, are: Not applicable at this time.)

Graco Oilfield Services does provide each Hazmat Employee with General Awareness/Familiarization Training designed to provide familiarity with D.O.T. requirements and to enable the employee to recognize and identify hazardous materials.

Graco Oilfield Services provides each Hazmat Employee with Function-Specific Training concerning D.O.T. requirements, which are specifically applicable to the functions the employee performs.

Graco Oilfield Services provides each Hazmat Employee with Safety Training that includes:

1. Emergency response information.
2. Measures to protect the employee from the hazards associated with hazardous materials to which they may be exposed in the work place.
3. Specific measures the hazmat employer has implemented to protect employees from exposure.
4. Methods and procedures for avoiding accidents

Graco Oilfield Services provides initial training within 90 days after employment or within 90 days after a change in hazardous materials job functions.

Graco Oilfield Services provides refresher training for Hazmat Employees at least once every two years.

Graco Oilfield Services maintains a record of current training, inclusive of the preceding two years, for each Hazmat Employee for as long as that employee is employed as a Hazmat Employee and for 90 days thereafter.

The Hazmat Employee Training record maintained by the company includes;

1. The Hazmat Employee's name.
2. The most recent training completion date.
3. Description, copy, or the location of the training materials used.
4. Name, address, and copy of certification of the person providing the training.
5. Certification that the Hazmat Employee has been trained and tested.

6.0 OCCUPATIONAL HEALTH & INDUSTRIAL HYGIENE

6.1 Chemical Safety/HAZCOM Plan

Introduction

The objective of this section is to provide guidance to all Graco Oilfield Services employees and participating guests who use hazardous materials so that they may perform their work safely. Many of these materials are specifically explosive, corrosive, flammable, or toxic; they may have properties that combine these hazards. Many chemicals are relatively non-hazardous by themselves but become dangerous when they interact with other substances, either in planned experiments or by accidental contact. To avoid injury and/or property damage, persons who handle chemicals in any area of the Company must understand the hazardous properties of the chemicals with which they will be working. Before using a specific chemical, safe handling methods must always be reviewed. Supervisors are responsible for ensuring that the equipment needed to work safely with chemicals is provided. The cost of this equipment is borne by the Company.

HAZCOM Plan

On May 25, 1986 the Occupational Safety and Health Administration (OSHA) placed in effect the requirements of a new standard called Hazard Communication (29 CFR 1910.1200). This standard establishes requirements to ensure that chemical hazards in the workplace are identified and that this information, along with information on protective measures, is transmitted to all affected employees. This section describes how Graco Oilfield Services employees are informed of the potential chemical hazards in their work area so they can avoid harmful exposures and safeguard their health. Components of this program include labeling, preparing a material safety data sheet (MSDS), and training. With regard to MSDS, Graco Oilfield Services has limited coverage under the OSHA Hazard Communication Standard. The Company is required to maintain only those sheets that are received with incoming shipments for the following reasons:

1. Because the company commonly uses small quantities of many different hazardous materials for short periods of time.
2. Because the hazards change, often unpredictably.
3. Because many materials are of unknown composition and most workers are highly trained.

Responsibilities of Supervisors/Management:

1. Identify hazards for respective work areas.
2. Ensure hazards are properly labeled.
3. Obtain/maintain copies of material safety data sheets, as required, of each hazardous material used in the work area and make them accessible to employees during each work shift.
4. Have the written Hazard Communication Program available to all employees.
5. Provide hazard-specific training for employees.

Employees must:

1. Attend safety training meetings.
2. Perform operations in safe manner.
3. Notify management immediately of any safety hazards or injuries

The Responsible Safety Officer must:

1. Develop a written Hazard Communication Program.
2. Maintain a central file of material safety data sheets.
3. Review and update Graco Oilfield Services stock safety labels.
4. Provide generic training programs.
5. Assist supervisors in developing hazard-specific training programs.
6. Oversee the Hazard Communication Standard written policy and implementation plans.
7. Alert on-site contractors to hazardous materials in work areas.
8. Alert on-site contractors that they must provide to their employees information on hazardous materials they bring to the work site.

The number of hazardous chemicals and the number of reactions between them is so large that prior knowledge of all potential hazards cannot be assumed. Therefore, when the chemical properties of a material are not fully known, it should be assumed hazardous and used in as small quantities as possible to minimize exposure and thus reduce the magnitude of unexpected events.

The following general safety precautions should be observed when working with chemicals:

1. Keep the work area clean and orderly.
2. Use the necessary safety equipment.
3. Carefully label every container with the identity of its contents and appropriate hazard warnings.
4. Store incompatible chemicals in separate areas.
5. Substitute less toxic materials whenever possible.
6. Limit the volume of volatile or flammable material to the minimum needed for short operation periods.
7. Provide means of containing the material if equipment or containers should break or spill their contents.
8. Follow the requirements of this manual, if systems that can generate pressure or are operated under pressure are involved.
9. Provide a back-up method of shutting off power to a heat source if any hazard is involved.
10. Obtain and read the Material Safety Data Sheets.

Supervisor Responsibility

1. Supervisors are responsible for establishing safe procedures and for ensuring that the protective equipment needed to work with the chemicals is available.
2. Supervisors must instruct their workers about possible hazards, safety precautions that must be observed, possible consequences of an accident, and procedures to follow if an accident does occur.
3. The supervisor is required to enforce the proper use of protective equipment and the established safety practices.
4. Supervisors must instruct their personnel about the potential hazards involved in the work, proper safety precautions to follow, and emergency procedures to use if an accident should occur.

It is the responsibility of employees and all who use Graco Oilfield Services facilities to understand the properties of the chemicals with which they will work and to follow all precautions that apply to each specific task. When faced with an unexpected threat of malfunction, injury, or damage, employees are expected to choose a course of action that provides the most protection to themselves and to others in the area. Every employee is expected to report to the supervisor any unsafe condition seen in the area that would not permit him/her to work safely.

The Responsible Safety Officer assists employees and supervisors to work safely by providing information on the hazardous properties of materials, recommending methods for controlling the hazards of specific operations, and by monitoring the work environment. To supplement the supervisor's training, the Responsible Safety Officer will conduct training courses and materials on selected topics. In addition, material safety data sheets and safety information, including hazards, health effects, potential routes of exposure, proper handling precautions, and emergency procedures on specific chemicals, are available through the Responsible Safety Officer's office.

Effects on Reproduction

Both men and women may be exposed to hazardous agents that can cause infertility or result in genetic damage that is passed on to offspring. These agents include ionizing radiation, alcohol, cigarette smoke, pharmaceuticals, and some of the thousands of different chemicals that are used in the home or workplace. Although many of these have been tested to determine whether they cause acute (immediate) effects on the body, few have been studied to see if they cause cancer (carcinogens), birth defects (teratogens), or genetic defects (mutagens). Even fewer have been studied to see if they can cause infertility, menstrual disorders, or other disorders relating to reproduction. The primary path for hazardous substances to reach an unborn child is through the placenta. Scientists now believe that most chemical substances or drugs can cross this barrier with varying degrees of ease and enter the system of the developing fetus. Thus, many chemicals and drugs that enter a pregnant woman's body (through breathing, swallowing, absorption through the skin, etc.) will eventually enter the mother's blood circulation and find their way into the unborn child. In general, the important questions of exactly how much of the toxic substance that enters the mother's body will reach the fetus or what concentration the fetus can tolerate without harmful effects are not yet answered. The fetus may be most vulnerable in the early weeks of pregnancy, but it is also at risk later in pregnancy. In light of the potential harm of workplace exposures to both a pregnant woman and her developing fetus, **it is very important and required by Graco Oilfield Services policy for the woman to inform the Responsible Safety Officer of her pregnancy immediately.**

6.1.1 NORM

Naturally Occurring Radioactive Material (NORM) is a low-level radiation source that may be present in scale that results from extracting oil and gas from the earth. NORM can be found in piping, tubing, sludgepits, brine, and sand filters, saltwater

disposal or injection wells, and equipment. When scale or a thin film is present, or in NORM contamination is suspected, the employee should contact a supervisor to confirm whether NORM exists in the area and to receive site-specific NORM procedures.

Employees may be exposed to possible external or internal NORM. Limiting exposure time can control external exposure. The internal hazards occur when airborne radioactive materials are inhaled, ingested, or enter the skin through open wounds. The hazards can be minimized by properly wearing an approved respirator, by practicing good personal hygiene, and by protecting wounds and cuts. Wetting the loose material on clothing with water can also prevent inhalation. Contact the on-site representative to coordinate disposal with the HES representative on location before shipping NORM for disposal.

Only trained personnel may handle piping, equipment, junk iron or solids containing NORM.

6.1.2 ASBESTOS

Asbestos is generally used as pipe and vessel insulation, in brake pads, and on structural materials such as transit panels, floor tiles, and roofing felts. It is often difficult to differentiate between asbestos and non-asbestos without laboratory tests. Asbestos may remain in some older facilities. Asbestos can be dangerous if not handled properly. Breathing asbestos dust is hazardous. Asbestos insulation that is not damaged or friable (hand pressure can crumble, pulverize, or reduce it to powder when it is dry) generally does not produce asbestos fibers at a dangerous level, especially on non-enclosed structures. To minimize health risks, it is important not to drill, cut, remove, tear, step on, brush against, hammer on, or in any way disturb suspected asbestos. If, it is necessary to disturb any suspected asbestos, or if you notice any deterioration in the condition of the suspected asbestos, contact a supervisor and/or the Responsible Safety Officer.

Only trained personnel with proper equipment shall disturb or remove asbestos.

6.1.3 BENZENE

Benzene, a liquid found in most crude oil and condensate, can also be found in produced gas in a gaseous form, Benzene is known to cause cancer in humans, so it is important that employees limit their exposure to it. To know what benzene concentrations exist and the PPE requirements that apply, employees should refer to the MSDS for the products and product streams you handle. Most locations that are known to have dangerous levels will be posted.

Employees can reduce exposure and risk by keeping your work area and your clothing as clean as possible. Leather gloves or clothing saturated with liquid containing benzene should be removed and cleaned or discarded to prevent prolonged skin exposure.

6.1.4 LEAD

In the event that Graco Oilfield Services would perform services or operations that might result in employee exposure to materials containing lead the following policies apply.

1. Graco Oilfield Services would prepare, establish, and implement a written lead standard compliance program prior to the commencement of any job involving lead materials.
2. The services or operations Graco Oilfield Services performs that might result in employee exposure to lead include: None at this time.
3. Graco Oilfield Services would perform industrial hygiene monitoring to determine the airborne concentrations of lead associated with services or operations.
4. Graco Oilfield Services would notify each employee in writing of the results, which represent an employee's exposure and a description of the necessary corrective action.
5. Graco Oilfield Services would revise and update its written lead standard compliance programs at least every six months.
6. Graco Oilfield Services would have a medical surveillance program for lead exposure.
7. Graco Oilfield Services would determine which employees participate in the program based upon exposure.
8. Graco would provide lead safety training and annual refresher training to employees.

Graco Oilfield Services written lead standard compliance programs include:

1. A description of each activity in which lead is emitted; e.g. equipment used, material involved, controls in place, crew size, employee job responsibilities, operating procedures and maintenance practices.
2. A description of the specific means that will be employed to achieve compliance and, where engineering controls are required, engineering plans and studies used to determine methods selected for controlling exposure to lead.
3. A report of the technology considered in meeting the PEL.
4. Air monitoring data which documents the source of lead emissions.

5. A detailed schedule for implementation of the program, including documentation such as copies of purchase orders for equipment, construction contracts, etc.
6. A work practice program which includes items required under paragraphs (g), (h) and (i) of this section and incorporates other relevant work practices.
7. An administrative control schedule.
8. A description of arrangements made among contractors on multi-contractor sites with respect to informing affected employees of potential exposure to lead and with respect to responsibility for compliance.
9. Frequent and regular inspections of job sites, materials, and equipment will be accomplished by a competent person.

6.2 HEAT STRESS & FATIGUE

OSHA offers the following steps for recognizing, evaluating, and controlling heat stress:

1. Drink cool water. Anyone working in a hot environment should drink cool water in small amounts frequently – one cup every 20 minutes. Avoid alcohol, coffee, tea, and caffeinated soft drinks, which cause dehydration.
2. Dress appropriately. Wear lightweight, light-colored, loose-fitting clothing and change clothing if it is completely saturated. Use sunscreen and wear a hat when working outdoors. Avoid getting sunburned
3. Work in ventilated areas. All workplaces should have good general ventilation, as well as, spot cooling in work areas of high-heat production. Good airflow increases evaporation of sweat, which cools the skin.
4. Supervisors should monitor workplace temperature and humidity and check workers' responses to heat at least hourly. Allow a large margin of safety for workers. Supervisor should be alert to early signs of heat-related illness and allow employees to stop their work for a rest break if they become extremely uncomfortable.
5. Know the signs of heat stroke and take prompt action. Employees should learn to spot the signs of heat stroke, which can be fatal. Get emergency medical attention immediately if someone has one or more of the following symptoms: mental confusion or loss of consciousness, flushed face, hot, dry skin, or has stopped sweating.
6. Those with first aid and CPR training should be able to recognize and treat the signs of heat stress. They should also be able to recognize the signs and symptoms of heat exhaustion, heat cramps and other heat-related illness. Employees should know and be familiar with who is trained in first aid and CPR.
7. Supervisors and Store Managers should use common sense when determining fitness for work in hot environments. Lack of acclimatization, age, obesity, poor conditioning, pregnancy, inadequate rest, previous heat injuries, certain medical conditions and medications are some factors that increase susceptibility to heat stress.
8. Employees should check with their doctors. Certain medical conditions such as heart conditions and diabetes, and some medications can increase the risk of injury from heat exposure. Employees with medical conditions or those who take medications should ask their doctors before working in hot environments.
9. Employees should watch out for other hazards. Use common sense and monitor other environmental hazards that often accompany hot weather, such as smog and ozone.

6.2.1 HEAT STROKE

Heat stroke is a serious medical condition that urgently requires medical attention. During a heat stroke, a person's sweating is diminished or absent, which makes the skin hot and dry. Body temperature is very high (106 degrees and rising), and if uncontrolled, heat stroke may lead to delirium, convulsions, coma, and even death.

FIRST AID:

1. This is a Medical Emergency!
2. Brain damage and death are possible. Douse the body continuously with a cool liquid and summon medical aid immediately.

6.2.2 HEAT EXHAUSTION

Heat exhaustion may result from physical exertion in hot environments. Symptoms may include profuse sweating, weakness, paleness of the skin, rapid pulse, dizziness, nausea, headache, vomiting, and unconsciousness. The skin is cool and clammy with sweat. Body temperature may be normal or subnormal.

FIRST AID:

1. Rest in the shade or in a cool place.
2. Drink plenty of water (preferred) or electrolyte fluids.

6.2.3 HEAT CRAMPS

Heat cramps may occur after prolonged exposure to heat. They are the painful intermittent spasms of the abdomen and other voluntary muscles. Heat Cramps usually occur after heavy sweating and may begin towards the end of the workday.

FIRST AID:

1. Rest and drink plenty of water.
2. Water is recommended but electrolyte fluids may be used.

6.2.4 HEAT RASH

Also known as prickly heat, heat rash occurs when people are constantly exposed to hot and humid air, causing a rash that can substantially reduce the ability to sweat. Heat rash is not just a nuisance because of discomfort, but it reduces the ability to sweat, and reduces the ability to tolerate heat.

FIRST AID:

1. Cleanse the affected area thoroughly and dry completely.
2. Calamine or other soothing lotion may help relieve the discomfort.

6.2.5 FATIGUE

Employees' fatigue can be a factor in incidents and/or a risk to other employees. Employees should be aware that when they feel fatigued, they should rest. Supervisors should monitor employee activities and behavior to determine if an employee should be removed from the work site in order to obtain rest.

6.3 COLD WEATHER

6.3.1 FROSTBITE

As temperatures drop below freezing, the risk of frostbite increases. Windy conditions magnify this risk. Nose, ears, cheeks, finger and toes are particularly vulnerable. Because of the numbing effects of cold weather, frostbite victims are often unaware of their condition until they return from the cold. Therefore, it is advisable to watch others for signs of frostbite when working in freezing conditions.

At first, frostbite will cause the skin to turn red, then white or gray. As the condition worsens, the skin turns black.

To prevent frostbite, jobs need to be planned so that workers have the right clothing, and frequent breaks to warm up. Those not acclimated to the cold may need additional consideration. Alcohol and nicotine both increase the risk of frostbite and hypothermia.

FIRST AID:

1. This is a medical emergency!
2. Acquire medical attention immediately.
3. Keep the patient warm.
4. Do not rub the effected skin, and do not apply heat.

6.3.2 HYPOTHERMIA

Hypothermia is caused by a reduction of the body's core temperature, even at temperatures above freezing. Symptoms begin with uncontrolled shivering. If conditions persist without treatment, a victim will then experience delirium, dementia unconsciousness and finally death.

Jobs should be planned so that workers are prepared for the weather conditions that they could encounter. Unless workplace hazards prevent it, clothing should be loose fitting and layered to adjust for changing weather conditions and prevent sweating.

FIRST AID:

1. Take affected workers to a warm location.
2. Give warm liquids if victim is alert.
3. Acquire medical attention.

6.3.3 STRESS AND STRAIN INJURIES

Joints and muscles need a little extra care in cold weather to prevent stress and strain injuries. Stretching and light exercise prior to work is recommended. Work in cold weather often requires multiple layers of clothing to keep warm. This increases the work load and can put extra stress on muscles and joints when workers are active.

6.3.4 SLIPPERY WORK SURFACES

Snow and ice can present a constant challenge in cold climates. As much as possible employees should clear walking and working surfaces of snow and ice before working. Ice melt may also help to keep ice from forming on smooth surfaces. Proper selection of footwear will also reduce the risk of slipping in icy conditions.

6.4 CARCINOGENS

Graco Oilfield Services does not routinely conduct activities that fall under the Carcinogens regulations. In the event that our company should be involved with carcinogens, the company would comply with the following policies.

Introduction

This section of the Safety Manual describes the recommendations and requirements established to govern the use of substances that pose a carcinogenic risk. All personnel using chemical carcinogens are expected to be familiar with these guidelines and conduct their operations accordingly.

Responsibilities

The responsibilities of various groups involved with chemical safety at Graco Oilfield Services are described below.

Responsible Safety Officer:

1. Determines if the use of a carcinogen creates a significant potential for occupational exposure.
2. Evaluates operations for compliance with OSHA mandated standards.
3. Provides technical guidance to personnel regarding the selection of engineering controls.
4. Investigates all reported incidents that result in exposure of personnel or the environment to chemical carcinogens and recommends corrective actions to reduce the potential for recurrence.
5. Supervises cleanup operations where incidents have resulted in significant contamination of property or personnel.

Supervisor:

1. Employs and ensures the use of appropriate practices, engineering controls, and personal protective equipment that reduce the potential for exposure as low as reasonably achievable.
2. Informs employees under his/her supervision of the potential hazards associated with the use of carcinogens and provides proper training and instruction in the use of engineering controls, and emergency procedures.
3. Reviews operating procedures with the Responsible Safety Officer before the initiation of an operation or when significant changes occur in an ongoing operation.
4. Reports to Responsible Safety Officer and Management any incident that involves the exposure of personnel to carcinogens.
5. Reports to the Responsible Safety Officer any incident that results in possible danger of environmental contamination from carcinogens, and provides any necessary assistance during accident investigations.

Other Company Personnel:

1. Know and comply with safety practices required for the assigned task.
2. Wear appropriate protective clothing.
3. Report all unsafe conditions to the supervisor.
4. Attend appropriate training in safety procedures for handling and using carcinogenic materials.
5. Report to the Responsible Safety Officer when pregnant to review working conditions.
6. Report to the immediate supervisor and the Responsible Safety Officer all facts pertaining to incidents resulting in exposure to carcinogens or environmental contamination.

Practices and Controls

The practices and engineering controls included in this section provide general safeguards that are recommended for the use of chemical carcinogens. To select the appropriate safeguards, knowledge is required of the physical and chemical properties,

the proposed use, the quantity needed, the carcinogenic and other toxic hazards, and the applicable health and safety standards. Careful judgment is therefore essential in planning any activity that involves chemical carcinogens.

The Responsible Safety Officer is available to assist the supervisor in selecting the appropriate safeguards. Carcinogen Safety Data Sheets provide details of chemical and physical properties, hazards, and safe operational procedures for specific carcinogens.

1. Wear gloves appropriate to the task. Discard after each use and immediately after any obvious contact.
2. Wear appropriate eye protection. The type of eyewear used will depend upon the hazard presented by the operation and chemical in use.
3. Contact lenses should be removed.
4. Do not eat, drink, smoke, chew gum or tobacco, and apply cosmetics where carcinogens are used or stored.
5. Wash hands immediately after the completion of any procedure.
6. Wash immediately after an exposure, or if appropriate, shower the affected area.
7. Provide respirators for emergency use.

(Personnel who will use respirators must have medical approval and be properly trained before use.)

Operational Practices:

1. Label all primary and secondary containers and place warning signs on entrances to work or storage areas. To obtain appropriate labels and signs, call the Responsible Safety Officer.
2. Limit entry to only personnel authorized by the supervisor for entry to work in storage areas.
3. Women who are pregnant must consult with the Responsible Safety Officer before the start of any activity involving chemical carcinogens.

Maintenance and Emergency Storage Areas:

1. Cover work surfaces with stainless steel or plastic trays, absorbent paper with a moisture-proof lining, or other impervious material.
2. Decontaminate or discard the protective covering materials after the procedure has been completed.
3. Conduct aerosol-generating procedures or procedures involving volatile carcinogens in a chemical fume hood, a glove box, or other suitable containment equipment. Examples of aerosol-producing operations - opening of closed vessels; transfer operations; preparation of mixtures; blending; sonification; open vessel centrifugation.
4. Capture vapors or aerosols produced by analytical instruments with local exhaust ventilation or ventilation into a chemical fume hood. Decontaminate obviously contaminated equipment.
5. Transfer carcinogens in tightly closed containers placed within a durable outer container.
6. Maintain an inventory of all carcinogens including the quantities acquired, dates of acquisition, and disposition.
7. Keep working quantities to a minimum; do not exceed the amounts required for use in one week. This does not include amounts stored in a designated area or a central cabinet.
8. Dissolve finely divided powdered carcinogens, if possible, into a liquid. This reduces the possibility of generating an aerosol.
9. Use mixtures that are as dilute as possible.
10. Place contaminated materials in a closed plastic bag and sealed primary container.
11. Place the primary container in a durable box before transporting.
12. Label each primary container with content, amount, physical state, and percentage breakdown when dealing with a mixture.
13. Each box must have a complete list on contents or description written on an official Hazardous Material packing list. To obtain blank packing lists, contact the Responsible Safety Officer.

Chlorinated Hydrocarbons

Chlorinated hydrocarbons as a whole have many industrial as well as laboratory uses. At Graco Oilfield Services they are commonly used as cleaners, degreasers, paint removers, solvents, and extractants.

Hazards

Most of these compounds have an anesthetic (narcotic) effect, causing workers to feel "drunk," become unconscious, or even die if the amount of inhaled vapor is excessive. Individuals working around moving machinery can be subject to accidents when their judgment and coordination are impaired by the anesthetic effects of inhaled solvents. Usually it is the anesthetic effect that is responsible for sudden unconsciousness of persons exposed to solvents in tanks, pits, and other confined spaces. Trichloroethylene, ethylene dichloride, and chloroform are examples of compounds that are powerful anesthetics.

Some, but not all, of the chlorinated hydrocarbons are strong poisons that damage the liver, kidneys, nervous system, and/or other parts of the body. This damage may be permanent or even cause death, although recovery from lesser exposures does occur. Single exposures to higher concentrations of vapors, as well as repeated exposure to small concentrations can produce symptoms of poisoning. These symptoms most often come on gradually, with nausea, loss of appetite, vomiting, headaches, weakness, and mental confusion most often noted. Carbon tetrachloride, tetrachloroethane, and 1,1,2-trichloroethane are examples of compounds that are strong poisons.

All chlorinated hydrocarbons on repeated contact with the skin can cause rashes (dermatitis) because of their ability to remove the protective fats and oils from the skin. A few of these solvents are known to be capable of entering the body through contact with the skin. In addition, many of these compounds are highly irritating to the membranes around the eyes and in the nose, throat, and lungs.

Examples of chlorinated hydrocarbons that have irritant properties are ethylene dichloride and chloroform. Some compounds are human suspect carcinogens, such as carbon tetrachloride and chloroform. In studies on laboratory animals, several chlorinated hydrocarbons have been linked to the production of cancer. These compounds are ethylene dichloride, perchloroethylene, and trichloroethylene. At present, there is no direct evidence associating these compounds with an increased risk of cancer in humans. When heated, these compounds can decompose, forming highly toxic fumes of phosgene, hydrochloric acid, and chlorine. Most of the chlorinated hydrocarbons are nonflammable; however, there are exceptions.

Precautions

TLV, the volatility, and the flammability of the compounds are three of the characteristics that always must be taken into careful consideration in selecting a compound in order to minimize the health hazards connected with its use.

1,1,1-trichloroethane (ethyl chloroform) is recommended for degreasing operations. If there is a possibility of skin or eye contact, wear the appropriate protection equipment. Gloves made of impervious material should be worn for hand protection. Barrier creams are in no instance as protective as impervious gloves. However, if finger dexterity is an absolute requirement, a solvent resistant ointment may be used in some instances.

1. For high vapor concentrations, institute control by local exhaust ventilation or chemical fume hoods if necessary.
2. Chlorinated hydrocarbons should be stored in cool, dry, and well-ventilated areas.
3. Containers should be checked for leaks because metal corrosion can occur from hydrochloric acid produced by the decomposition of the solvent. Decomposition may occur under conditions of high temperature, exposure to moisture, and exposure to ultraviolet light.
4. Compounds, both in the original containers and in containers used by employees, should be labeled so that the potentially injurious substances are plainly identified.
5. Labels for perchloroethylene, trichloroethylene, 1,1,1-trichloroethane, and carbon tetrachloride can be obtained from the Responsible Safety Officer.
6. Chlorinated hydrocarbons must be placed in an organic liquid waste can for disposal.

Fiberglass

Fiberglass is found in many materials (such as flexible duct, Nema G-10, and electrical wire insulation) used at the Company.

Hazards

Irritation of the exposed skin, a common complaint among persons working with this material, is the result of the mechanical irritation from small glass fibers. The sensation varies from an itch to a prickling or burning sensation. Common locations involved are the arms, face, or neck. Another cause of dermatitis is contact with fiberglass binders or coating materials. Except for skin irritation, there is no other known health hazard associated with exposure to fiberglass particles. Results of medical research, including examinations of hundreds of persons who have worked in fiberglass plants for as long as 25 to 30 years, give evidence that fiberglass is inert and non-injurious to the person's overall health. It will not cause silicosis.

Precautions

Persons with skin problems should consult the Supervisor before working with fiberglass.

1. Wear loose-fitting clothing and change daily.
2. Adherent fibers on the skin should be washed off with an ample amount of lukewarm or cool water.
3. Air hoses and brooms should not be used to clean off fibers from the body because these methods may drive the fibers deeper into the skin.
4. Showering at the end of a work shift is advisable. Plastic binders should be fully cured before working on fiberglass laminates.
5. Use vacuum pickup units when machining fiberglass parts.
6. Practice good housekeeping.
7. Some skin protective creams may be of benefit.
8. At home, clothing should be washed separately in a tub or basin. Washing machines should not be used.
9. The tub or basin should then be fully rinsed.
10. Ideally, rubber gloves should be worn.

Flammable Liquids

Class B combustibles are flammable and combustible liquids. This includes oils, greases, tars, oil base paints, and lacquers, plus flammable gases. Flammable aerosols (spray cans) are also treated here.

1. Water should not be applied to a Class B combustible fire. The use of water may float burning liquids, causing the fire to spread more rapidly.
2. Class B fires are usually extinguished by excluding the air around the burning liquid. This is accomplished by one of several approved types of fire extinguishing agents, e.g., carbon dioxide, ABC multipurpose dry chemical, and Halon 1301 (a vaporizing liquid that breaks the flame front).
3. Technically, flammable and combustible liquids do not burn. However, under appropriate conditions, they generate sufficient quantities of vapors to form ignitable vapor-air mixtures. As a general rule, the lower the flash point of a liquid, the greater the fire and explosion hazard. (The flash point of a liquid is the minimum temperature at which it gives off sufficient vapor to form an ignitable mixture with the air near its surface or within its containment vessel.)
4. Many flammable and combustible liquids also pose health hazards.
5. It is the responsibility of the user to ensure that all Class B combustibles are properly identified, labeled, handled, and stored. If assistance is required, contact the Store Manager.

Classifications

Flammable and combustible liquids are defined and divided into classes as shown below.

Flammable Liquids (Class I). Liquids having flash points below 100F (37.8C) and having vapor pressures not exceeding 40 pounds per square inch (absolute) at 100F (37.8C). Flammable Class I liquids are subdivided as follows:

Class IA: Liquids having flash points below 73F (22.8C) and boiling points below 100F (37.8C). Flammable aerosols (spray cans) are included in Class IA..

Class IB: Liquids having flash points below 73F (22.8C) and having boiling points at or above 100F (37.8C).

Class IC: Liquids having flash points at or above 73F (37.8C) and below 100F (37.8C).

Combustible Liquids (Classes II and III). Liquids having flash points at or above 100F (37.8C). Combustible liquids in Class II and Class III are subdivided as follows:

Class II: Liquids having flash points at or above 100F (37.8C) and below 140F (60.0C).

Class IIIA: Liquids having flash points at or above 140F (60.0C) and below 200F (93.4C).

Class IIIB: Liquids having flash points at or above 200F (93.4C).

Unstable (Reactive) Liquids. These are liquids that in the pure state, or as commercially produced or transported, will vigorously polymerize, decompose, combine, or become self-reactive under conditions of shock, pressure, or temperature. Use of such materials must have prior approval from the Responsible Safety Officer on a case-by-case basis.

Fire Hazards

Fires involving Class B combustibles are especially dangerous because they release heat quickly, causing the fire to spread rapidly. The handling and use of these combustibles presents the most significant single source of fire hazard. Misuse or improper storage threatens not only the employee and the entire building, but all fellow employees.

Liquids with flash points below room temperature (Class IA and IB liquids) continually emit sufficient quantities of vapors to be ignitable, except when chilled to temperatures below their flash points. Even when chilled, if spilled on a floor or work surface, they will heat rapidly and pose severe fire and explosion hazards. Liquids with flash points above room temperature (Class IC, II, IIIA, and IIIB liquids) can easily be heated to the point at which they will create flammable vapor-air mixtures. Flammable liquid vapors are heavier than air. They can travel for appreciable distances and accumulate in low places. Since it is the vapor of flammable liquids that burns, the fire hazard may not be confined to the immediate vicinity of actual use. Vapors can be ignited several hundred feet from the point of vapor generation. Flammable liquid vapors generally have low ignition-energy requirements and can often be ignited by small sparks from electrical motors, switches, relay contacts, etc.

Precautions

Recommended precautions are based on the properties of the liquid to be used and the intended application. The user cannot make a correct decision on necessary precautions unless the properties of the liquid are known and the intended use is reviewed from a safety standpoint. There must be sufficient ventilation to preclude the accumulation of flammable vapors. Flammable liquids should be used in a fume hood or with local exhaust ventilation. Normal room ventilation may be sufficient to permit small-scale use of flammable liquids (milliliter quantities). However, if larger quantities of liquid must be used in such facilities, it will be necessary to provide additional ventilation by opening doors and windows or providing some form of temporary exhaust ventilation. Extreme care must be exercised when using flammable liquids in closed spaces with minimal ventilation (such as glove boxes and tanks). Even milliliter quantities of flammable liquids can cause the build-up of explosive mixtures in the confined space.

Containers

The maximum allowable sizes of containers and portable tanks are identified in the table below:

Flammable liquids;								
Combustible liquids	Class	IA	IB	IC	II	III	(Glass or approved plastic)	

1 pt*	1 qt*	1 gal.	1gal.	1gal.	
1 gal.	5 gal.	5 gal.	5 gal.	5 gal.	Metal (other than Department of Transportation (DOT) drums
2 gal.	5 gal.	5 gal.	5 gal.	5 gal.	Safety cans**
60 gal.	60 gal.	60 gal.	60 gal.	60 gal.	
660 gal,	660 gal.	660 gal.	660 gal.	660 gal.	

- * Glass or approved plastic containers of no more than 1 gallon capacity may be used for Class IA or IB flammable liquids if;
1. such liquid either would be rendered unfit for its intended use by contact with metal or would excessively corrode a metal container so as to create a leakage hazard, or
 2. the user's process either would require more than 1 pint of a Class IA liquid or more than 1 quart of a Class IB liquid, of a single assay lot, to be used at one time.

** Approved safety cans of various materials and capacities are available through the Supervisor.

Cabinets

Storage cabinets must be designed and approved for the anticipated usage. Approved metal storage cabinets are available through requests to Store Manager. Not more than 120 gallons of Class I, Class II, and Class IIIA liquids, combined, may be stored in a storage cabinet. Of this total, not more than 60 gallons may be of Class I and Class II liquids combined, and not more than three such cabinets may be located in a single fire-separation area.

Refrigerators

Ordinary domestic refrigerators must not be used for the storage of flammable liquids because they contain certain built-in ignition sources (such as electrical contacts). These sources of ignition may initiate a fire or an explosion if flammable vapors are present. In special cases, ordinary refrigerators have been modified to specifications approved for storage of flammable liquids. Refrigerators are now available commercially that are specifically designed and approved for storage of flammable materials. Refrigerators must bear an appropriate label as supplied by the Responsible Safety Officer.

Allowable Quantities

To adequately manage the exposure hazards in each building, or fire-separation area in each building, it is necessary to consider the needs of all users, and/or of user groups in aggregate, for each building or fire-separation area. The restrictions set forth below provide guidance for lower usage levels. In general, quantities in excess of three months usage should not be stored. If the need for larger quantities is anticipated, contact the Responsible Safety Officer for assistance.

The maximum allowable quantities of Class B combustibles outside designated and approved storage rooms or facilities are listed below:

1. Less than one gallon of Class I and Class II liquids combined, in glass or plastic containers, is the maximum allowed outside of approved storage cabinets when not actually in use.
2. One gallon is the maximum allowable container size for general dispensing of Class I and Class II liquids unless in an approved safety can.
3. Ten gallons of Class I and Class II liquids, combined, in approved safety cans, is the maximum allowable outside of approved storage cabinets.
4. Five gallons of Class IIIA liquids is the maximum allowable outside of approved storage cabinets or safety cans.
5. For single fire-separation areas, 10 gallons of Class I and Class II liquids, combined, is the maximum quantity allowable outside of approved storage cabinets or approved safety cans.
6. For single fire-separation areas, 25 gallons of Class I and Class II liquids, combined, is the maximum allowable quantity outside of approved storage cabinets.
7. For single fire-separation areas, 60 gallons of Class IIIA liquids is the maximum allowable outside of approved storage cabin.

6.5 BLOODBORNE PATHOGENS EXPOSURE CONTROL

Purpose

The Bloodborne Pathogens Exposure Program is to prevent occupational exposure to bloodborne pathogens. Designated employees that may come into contact with human blood or other potentially infectious materials (OPIM) include all employees who have received first aid and CPR training and may be required to administer first aid to other staff prior to receiving medical treatment.

Methods of Compliance

Graco Oilfield Services utilizes Universal Precautions in the handling of all human blood and OPIM's.

Engineering Controls

1. Hand sinks are located in optimum locations at each store location and are readily accessible to all employees who have the potential for exposure.
2. Employees will wash their hands and any other exposed skin with soap and hot water immediately or as soon as possible after contact with blood or OPIM, for 15 seconds, in a manner causing friction on both inner and outer surfaces of the hands.
3. Employees will be provided with antiseptic hand cleaner and paper towels when hand washing is not feasible. However, hand washing must still take place as soon as possible after exposure.
4. Eating, drinking, smoking, applying cosmetics or lip balm and handling contact lenses is prohibited in work areas where there is the potential for exposure to bloodborne pathogens.
5. If professional medical attention is required, a local ambulance will be used. If this option is not in the best interest of the victim a personal car/vehicle will be used. If a personal car/vehicle is taken, impervious material should be used to prevent contamination of the vehicle.
6. New employees/employee that is being transferred to other sections/departments will receive training about any potential exposure from the supervisor/store manager.

Personal Protective Equipment

All personal protective equipment used at this facility will be provided without cost to employees. Personal protective equipment will be chosen based on the anticipated exposure to blood or OPIM. The protective equipment will be considered appropriate only if it does not permit blood or OPIM to pass through or reach the employees' clothing, skin, eyes, mouth, or other mucous membranes under normal conditions of use.

Disposal of Contaminated Items and Communication of Hazard

1. Employees must:
 - a. use bleach to disinfect any blood or OPIM.
 - b. apply the bleach with single-use gloves and allow to sit for 15 minutes.
 - c. place any single-use gloves that have been contaminated in a biohazard garbage bag and cover.
 - d. dispose of the biohazard garbage bag in compliance with local ordinances.
2. Regulated waste will be placed in appropriate containers, labeled and disposed of in accordance with applicable state, federal and local laws.
3. Employees will be warned of biohazard bags by labels attached to the disposal bags. Labels will be orange-red and marked with the word **BIOHAZARD** or the biohazard symbol.

Housekeeping

Maintaining our work areas in a clean and sanitary condition is an important part of Graco Oilfield Services Bloodborne Pathogens Compliance Program. Employees must decontaminate working surfaces and equipment with an appropriate disinfectant after completing procedures involving blood or OPIM. All equipment, environmental surfaces and work surfaces shall be decontaminated immediately or as soon as feasible after contamination.

1. Employees must clean and disinfect when surfaces become contaminated and after any spill of blood or OPIM.
2. Employees will use a solution of one part bleach to ten parts water for cleaning and disinfecting.
3. Working surfaces and equipment will be routinely cleaned, disinfected and maintained.
4. Potentially contaminated broken glass will be picked up using mechanical means, such as dust pan and brush, tongs, etc.
5. Graco Oilfield Services uses universal precautions for handling of all soiled laundry.
6. Laundry contaminated with blood or OPIM will be handled as little as possible. Employees who handle contaminated laundry will utilize personal protective equipment to prevent contact with blood or OPIM from coming into contact with skin or street clothes.
7. Contaminated clothing will remain on the premises, or will be sent directly to a laundry facility for cleaning. Proper notification must be made to the laundry facility as to the contaminated stated of the clothing before delivery or pickup. Employees will be given the option of reimbursement for the cost of contaminated clothing. If this option is accepted, the clothing will then be disposed of.

Vaccination and Post-Exposure Evaluation and Follow-up

Graco Oilfield Services shall make available within 10 days of possible exposure the Hepatitis B vaccine and vaccination series to all employees who have an occupational exposure.

An exposure incident is any contact of blood or OPIM's with non-intact skin or mucous membranes. Any employee having an exposure incident shall contact the supervisor/store manager. All employees who have an exposure incident will be offered a confidential post-exposure evaluation and follow-up in accordance with the OSHA standard. This includes a visit to a physician

selected by the employer. The health care professional written opinion will be provided to the employee with 15 days of the evaluation.

Training

Training is provided at the time of initial assignment to an employee's job where exposure may occur, and that it shall be repeated within twelve months of the previous training. Training will be tailored to the education and language level of the employee, and offered during the normal work shift. The training will be interactive.

Record keeping

Medical records will be maintained in accordance with OSHA Standards. These records will be kept confidential, and will be maintained for the duration of employment plus 30 years.

6.5.1 SANITATION

Drinking Water

The Responsible Safety Officer periodically takes samples from the potable water system throughout the Company and has them checked for biological contaminants. This is a check to ensure a high-quality water supply for drinking purposes. The drinking water supply must not contain impurities in concentrations that may be hazardous to the health of the employees or that would be offensive to the senses of sight, taste, or smell. The drinking water supply system must be installed according to the National Plumbing Code and must be maintained in good condition. The drinking water system must be protected against backflow with approved connections and plumbing devices.

7.0 WORK PROCESS

7.1 JOB SAFETY ANALYSIS (JSA)

Graco employees are required to perform JSAs before each job. JSAs must assess each aspect of the task and identify items that could pose a threat to the environment, result in injury to personnel, or damage to equipment. The JSA, when reviewed, should be posted at the jobsite.

The basic steps for conducting the JSA are:

1. Written outline of the sequence of events. Certain non-complex jobs may not require a written JSA. If the employee is uncertain when this applies, check with the appropriate supervisor and/or Store Manager.
2. Identify hazards associated with those events.
3. Document steps to be taken to mitigate the identified hazards.
4. Remember to always consider environmental concerns.
5. Include any other Graco employees or contractors that may be affected by the employees work when preparing the JSA.

If events or conditions change from the original plan, the job will stop and all parties involved will review/revise the plan. Additionally, if new personnel arrive at the site after the job or activities have begun, those personnel will review the JSA before beginning work.

7.1.1 JOB SAFETY ANALYSIS FORM (ATTACHMENT 1)

A blank copy of a Job Safety Analysis Form and instructions are provided on Attachment 1.

8.0 GENERAL OPERATIONS

8.1 MANUAL LIFTING POLICY

An individual must not lift loads over 75 pounds. The employee must determine whether assistance is needed to lift lighter weights. Before lifting, determine the following:

1. Can the object be moved by a mechanical device?
2. Is the object bulky? Will it obscure vision? If so, get another person to help carry it.
3. Is the object within the employees capability to lift?
4. Is the walking surface solid and free of obstructions?
5. Use proper lifting procedure.

6. Bend legs at the knees. Keep the back nearly vertical. Position the body as close to the object as possible. Place feet apart, but no more than shoulder width.
7. Firmly grasp the object and straighten the legs. Keep the back straight and upright.
8. Avoid twisting the body when lifting or carrying loads.
9. When handling material with others, teamwork is important. Agree on who will be the leader and give signals to indicate instructions. Release the materials only when everyone is ready.

8.2 LOCKOUT/TAGOUT (LO/TO) / CONTROL OF HAZARDOUS ENERGY/ ELECTRICAL POLICY

Policy

It is the policy of Graco Oilfield Services to take every reasonable precaution in the performance of work to protect the health and safety of employees and the public and to minimize the probability of damage to property. The electrical safety requirements contained in this chapter are regulations set forth by Graco Oilfield Services

Employee Responsibility

All Graco Oilfield Services personnel are responsible for all aspects of safety within their own groups. The Responsible Safety Officer is responsible for providing information, instruction, and assistance, as appropriate, concerning Graco Oilfield Services electrical safety requirements and procedures. Individual employees are responsible for their own and their co-workers' safety. Each employee must become acquainted with all potential hazards in the area in which they work:

1. Learn and follow the appropriate standards, procedures, and hazard-control methods.
2. Never undertake a potentially hazardous operation without consulting with appropriate supervision.
3. Stop any operation you believe to be hazardous. Notify a supervisor of any condition or behavior that poses a potential hazard.
4. Wear and use appropriate protective equipment.
5. Immediately report any occupational injury or illness to the Responsible Safety Officer, and the appropriate Supervisor.

Each employee acting in a supervisory capacity has specific safety responsibilities and these include:

1. Developing an attitude and awareness of safety in the people supervised and seeing that individual safety responsibilities are fully carried out.
2. Maintaining a safe work environment and taking corrective action on any potentially hazardous operation or condition.
3. Ensuring that the personnel he/she directs are knowledgeable and trained in the tasks they are asked to perform.
4. Ensuring that safe conditions prevail in the area and that everyone is properly informed of the area's safety regulations and procedures.
5. Ensuring that contract personnel are properly protected by means of instructions, signs, barriers, or other appropriate resources.
6. Ensuring that no employee assigned to potentially hazardous work appears to be fatigued, ill, emotionally disturbed, or under the influence of alcohol or drugs (prescription, over the counter medicinal or otherwise).

Management at every level has the responsibility for maintaining the work environment at a minimal level of risk throughout all areas of control. Each manager:

1. Each manager is responsible for being aware of all potentially hazardous activities within the area of responsibility.
2. Each manager may assign responsibility or delegate authority for performance of any function.
3. Furthermore, each manager always remains accountable to higher management for any oversight or error that leads to injury, illness, or damage to property.

Procedures

It is the policy of Graco Oilfield Services to follow the fundamental principles of safety, which are described below. A clear understanding of these principles will improve the safety of working with or around electrical equipment.

1. Practice proper housekeeping and cleanliness. Poor housekeeping is a major factor in many accidents. A cluttered area is likely to be both unsafe and inefficient. Every employee is responsible for keeping a clean area and every supervisor is responsible for ensuring that his or her areas of responsibility remain clean.
2. Identify hazards and anticipate problems. Think through what might go wrong and what the consequences would be.
3. Do not hesitate to discuss any situation or question with your supervisor and coworkers.
4. Resist "hurry-up" pressure. Program pressures should not cause you to bypass thoughtful consideration and planned procedures.
5. Design for safety. Consider safety to be an integral part of the design process. Protective devices, warning signs, and administrative procedures are supplements to good design but can never fully compensate for its absence.

6. Completed designs should include provisions for safe maintenance. Maintain for safety. Good maintenance is essential to safe operations. Maintenance procedures and schedules for servicing and maintaining equipment and facilities, including documentation of repairs, removals, replacements, and disposals, should be established.
7. Document your work. An up-to-date set of documentation adequate for operation, maintenance, testing, and safety should be available to anyone working on potentially hazardous equipment.

Lockout/Tagout (LO/TO)

It's the responsibility of the Store Manager and/or Supervisor to train Graco's employees in using the LO/TO process per applicable regulations, laws, or policies. When Supervisors and/or employees are working on machines or equipment, the Graco person-in-charge must inform any other contractors employees about the LO/TO process that is in effect.

The Graco policy provides compliance with OSHA regulation (29 CFR 1910.147). In summary, each authorized employee is required to use a personal Lockout/Tagout device or procedure that, when implemented, provides a level of protection equal to use of a personal lockout/tagout device while performing maintenance or repairs on machinery or equipment.

The standard requires locks where locks may be applied. Further, one member of a group locking out for the entire group without further procedures to provide a level of protection equivalent to each member applying a personal device is not acceptable.

Graco believes that the best way to comply with the OSHA Standard and our policy is for each authorized employee in a group to apply a personal lock to a group lockout device. The Graco person-in-charge must ensure that Graco employees understand and comply with the restrictions and prohibitions of the program

For a large job, a lockbox may be used in lieu of a lockout bar clip. Use the lockbox procedure when energy sources and/or a group of people are involved in maintenance or repair operations.

Working with Energized Equipment

This section contains safety requirements that must be met in constructing electrical equipment and in working on energized electrical equipment. Special emphasis is placed on problems associated with personnel working on hazardous electrical equipment in an energized condition. Such work is permissible, but only after extensive effort to perform the necessary tasks with the equipment in a securely de-energized condition has proven unsuccessful, or if the equipment is so enclosed and protected that contact with hazardous voltages is essentially impossible.

Definitions: The following definitions are used in this discussion of electrical safety.

Authorized Person: An individual recognized by management as having the responsibility for and expertise to perform electrical procedures in the course of normal duties. Such individuals are normally members of electronic or electrical groups.

Backup Protection: A secondary, redundant, protective system provided to de-energize a device, system, or facility to permit safe physical contact by assigned personnel. A backup protective system must be totally independent of the first-line protection and must be capable of functioning in the event of total failure of the first-line protective system.

Companion: A co-worker who is cognizant of potential danger and occasionally checks the other worker. **Electrical Hazard:** A potential source of personnel injury involving, either directly or indirectly, the use of electricity.

Direct Electrical Hazard: A potential source of personnel injury resulting from the flow of electrical energy through a person (electrical shocks and burns).

Indirect Electrical Hazard: A potential source of personnel injury resulting from electrical energy that is transformed into other forms of energy (e.g., radiant energy, such as light, heat, or energetic particles; magnetic fields; chemical reactions, such as fire, explosions, the production of noxious gases and compounds; and involuntary muscular reactions).

First Line Protection: The primary protective system and/or operational procedure provided to prevent physical contact with energized equipment.

General Supervision: The condition that exists when an individual works under a supervisor's direction but not necessarily in the continuous presence of the supervisor.

Grounding Point: The most direct connection to the source of a potential electrical hazard such as the terminals of a capacitor. Such a point must be indicated by a yellow circular marker.

Grounds, Electrical: Any designated point with adequate capacity to carry any potential currents to earth. Designated points may be building columns or specially designed ground-network cabling, rack, or chassis ground. Cold water pipes, wire ways, and conduits must not be considered electrical grounds.

Grounds, Massive: Large areas of metal, concrete, or wet ground that make electrical isolation difficult or impossible.

Implied Approval: Approval is implied when a supervisor, knowing the qualifications of an individual, assigns that individual a task, or responsibility for, a device, system, or project.

Qualified Person: An individual recognized by management as having sufficient understanding of a device, system, or facility to be able to positively control any hazards it may present.

Must, Should, and May: Must, indicates a mandatory requirement. Should, indicates a recommended action. May, indicates an optional or permissive action, not a requirement or recommendation.

Safety Watch: an individual, whose sole task is to observe the operator and to quickly de-energize the equipment, using a crash button or circuit breaker control in case of an emergency, and to alert emergency personnel. This person must have basic CPR training.

Type of Hazards

The degree of hazard associated with electrical shock is a function of the duration, magnitude, and frequency of the current passed by the portion of the body incorporated in the circuit. The current that can flow through the human body with contacts at the extremities, such as between the hand and head and one or both feet, depends largely on the voltage. Body circuit resistance, even with liquid contacts (barring broken skin) will probably be not less than 500 ohms. The current flow at this resistance at 120 volts is 240 mill amperes. Recognition of the hazards associated with various types of electrical equipment is of paramount importance in developing and applying safety guidelines for working on energized equipment. Three classes (in order of increasing severity) of electrical hazards have evolved.

Class A Hazard

Class A electrical hazard exists when all the following conditions prevail: The primary AC potential does not exceed 130 volts rms. The available primary AC current is limited to 30 amperes rms. The stored energy available in a capacitor or inductor is less than 5 joules ($J=CV^2/2=LI^2/2$). The DC or secondary AC potentials are less than 50 volts line-to-line and/or to ground or the DC or secondary AC power is 150 volt-amperes (V-A) or less. Although the voltages and currents may be considered nominal, a "Class A" electrical hazard is potentially lethal. This class is particularly dangerous because of everyday familiarity with such sources, an assumed ability to cope with them, and their common occurrence in less guarded exposures.

Class B Hazard

A Class B electrical hazard has the same conditions as a Class A hazard except that the primary AC potential is greater than 130 volts rms, but does not exceed 300 volts rms.

Class C Hazard

Class C electrical hazard classifications prevail for all situations when one or more of the limitations set in Class B is exceeded.

Employee Attitude

The attitudes and habits of personnel and the precautions they routinely take when working on energized equipment are extremely important. There are three modes of working on electrical equipment.

Mode 1: Turn Off the Power

All operations are to be conducted with the equipment in a positively de-energized state. All external sources of electrical energy must be disconnected by some positive action (e.g., locked-out breaker) and with all internal energy sources rendered safe. "Mode 1" is a minimum hazard situation.

Mode 2: Latent Danger

All manipulative operations (such as making connections or alterations to or near normally energized components) are to be conducted with the equipment in the positively de-energized state. Measurements and observations of equipment functions may then be conducted with the equipment energized and with normal protective barriers removed. "Mode 2" is a moderate-to-severe hazard situation, depending on the operating voltages and energy capabilities of the equipment.

Mode 3: Hot Wiring

"Mode 3" exists when manipulative, measurement, and observational operations are to be conducted with the equipment fully energized and with the normal protective barriers removed. "Mode 3" is a severe hazard situation that should be permitted only when fully justified and should be conducted under the closest supervision and control. One knowledgeable person should be involved in addition to the worker(s). Written permission may be required. Work on Class B or Class C energized circuitry must only be done when it is absolutely necessary.

Safety Glasses

Either safety glasses or a face shield must be worn when working on electrical equipment.

Personal Protective Devices

For work on any energized circuitry with a Class B or Class C hazard, the use of personal protective devices (e.g., face shields, blast jackets, gloves, and insulated floor mats) is encouraged, even if not required.

Elevated Locations

Any person working on electrical equipment on a crane or other elevated location must take necessary pre-cautions to prevent a fall from reaction to electrical shock or other causes. A second person, knowledge-able as a safety watch, must assume the best possible position to assist the worker in case of an accident.

Chain of Command

Rules:

1. The supervisory chain must be identified for normal operation and development, servicing, or testing of hazardous equipment.
2. An up-to-date set of instructions for operation, maintenance, testing, and safety should be provided and made readily available to anyone working on hazardous equipment.
3. As many tests as practicable should be made on any type of electrical equipment in the un-energized condition, or at most, energized with reduced hazard.
4. All covering, clothing, and jewelry that might cause hazardous involvement must be removed.
5. Adequate and workable lock-out/tag-out procedures must be employed.
6. A person in a hazardous position who appears to be fatigued, ill, emotionally disturbed, or under the influence of alcohol and/or drugs (medicinal, or otherwise) must be replaced by a competent backup person, or the hazardous work must be terminated.
7. Supervisors and workers must be encouraged to make the conservative choice when they are in doubt about a situation regarding safety.
8. Training sessions and drills must be conducted periodically to help prevent accidents and to train personnel to cope with any accidents that may occur. CPR instruction must be included.
9. An emergency-OFF SWITCH, clearly identified and within easy reach of all high-hazard equipment, should be provided. Also, this switch may be used to initiate a call for help.
10. Resetting an Emergency-OFF switch must not be automatic but must require an easily understandable overt act.
11. Automatic safety interlocks must be provided for all access to high-hazard equipment. Any bypass of such an interlock should have an automatic reset, display conspicuously the condition of the interlocks, and ensure that barriers cannot be closed without enabling the interlock.
12. All equipment should have convenient, comfortable, and dry access.
13. Communication equipment (e.g., fire alarm box, telephone) should be provided near any hazardous equipment. Its location should be clearly marked to ensure that the person requesting assistance can direct the people responding to a call for help to the emergency site quickly.
14. Any component that in its common use is non-hazardous, but in its actual use may be hazardous, must be distinctively colored and/or labeled. (An example might be a copper pipe carrying high voltage or high current.)
15. Periodic tests of interlocks to ensure operability must be performed and documented at least yearly.

Protective Systems

Equipment must be designed and constructed to provide personnel protection. First-line and backup safeguards should be provided to prevent personnel access to energized circuits. Periodic tests must be established to verify that these protective systems are operative.

Safety Practices

Additional safety practices and definitions are described below.

Cable Clamping: A suitable mechanical-strain-relief device such as a cord grip, cable clamp, or plug must be used for any wire or cable penetrating an enclosure where external movement or force can exert stress on the internal connection. Grommets, adlets, or similar devices must not be used as strain relief.

Emergency Lighting: There must be an emergency lighting system that activates when normal power fails in Class C conditions.

Flammable and Toxic Material Control: The use of flammable or toxic material must be kept to a minimum. When components with such fluids are used, a catch basin or other approved method must be provided to prevent the spread of these materials should the normal component case fail.

Isolation: All sources of dangerous voltage and current must be isolated by covers and enclosures. Access to lethal circuits must be either via screw-on panels, each containing no less than four screws or bolts, or by interlocked doors. The frame or chassis of the enclosure must be connected to a good electrical ground with a conductor capable of handling any potential fault current.

Lighting: Adequate lighting must be provided for easy visual inspection.

Overload Protection: Overload protection and well marked disconnects must be provided. Local "off" controls must be provided on remote-controlled equipment. All disconnects and breakers should be clearly labeled as to which loads they control.

Power: All ac and dc power cabling to equipment not having a separate external ground but having wire-to-wire or wire-to-ground voltage of 50 volts or more must carry a ground conductor unless cabling is inside an interlocked enclosure, rack, grounded wire way, or conduit, or feeds a commercial double-insulated or UL-approved device. This requirement will ensure that loads such as portable test equipment, temporary or experimental, is grounded. UL-approved devices such as coffeepots, timers, etc., used per the manufacturer's original intent are permissible.

Rating: All conductors, switches, resistors, etc., should be operated within their design capabilities. Pulsed equipment must not exceed the average, the rms, or the peak rating of components. The equipment should be de-rated as necessary for the environment and the application of the components.

Safety Grounding: Automatic discharge devices must be used on equipment with stored energy of 5 joules or more. Suitable and visible manual grounding devices must also be provided to short-to-ground all dangerous equipment while work is being performed.

Safety Practices

The following check list must be used as a guide for circuits operating at 130 volts or more or storing more than 5 joules. An enclosure may be a room, a barricaded area, or an equipment cabinet.

Access: Easily opened doors, panels, etc., must be interlocked so that the act of opening de-energizes the circuit. Automatic discharge of stored-energy devices must be provided. Doors should be key-locked, with the same required key being also used for the locks in the control-circuit-interlock chain. This key must be removable from the door only when the door is closed and locked.

Heat: Heat-generating components, such as resistors, must be mounted so that heat is safely dissipated and does not affect adjacent components.

Isolation: The enclosure must physically prevent contact with live circuits. The enclosure can be constructed of conductive or non-conductive material. If conductive, the material must be electrically interconnected and connected to a good electrical ground. These connections must be adequate to carry all potential fault currents.

Seismic Safety: All racks, cabinets, chassis, and auxiliary equipment must be secured against movement during earthquakes.

Strength: Enclosures must be strong enough to contain flying debris due to component failure.

Temporary Enclosure: Temporary enclosures (less than 6-month duration) not conforming to the normal requirements must be considered Class C hazards.

Ventilation: Ventilation must be adequate to prevent overheating of equipment and to purge toxic fumes produced by a fault.

Visibility: Enclosures large enough to be occupied by personnel must allow exterior observation of equipment and personnel working inside the enclosure.

Warning Indicators: When systems other than conventional facilities represent Class C hazards, the systems should be provided with one of the following two safety measures: (1) A conspicuous visual indicator that is clearly visible from any point where a person might make hazardous contact or entry; and (2) A clearly visible primary circuit breaker or "OFF" control button on the front of the enclosure.

Because a wide range of power supplies exist, no one set of considerations can be applied to all cases. The following classification scheme may be helpful in assessing power-supply hazards.

1. Power supplies of 50 volts or less with high current capability too often are not considered a shock hazard, although these voltages are capable of producing fatal shocks. Since they are not "high voltage," such power sources frequently are not treated with proper respect. In addition to the obvious shock and burn hazards, there is also the likelihood of injuries incurred in trying to get away from the source of a shock. Cuts or bruises, and even serious and sometimes fatal falls, have resulted from otherwise insignificant shocks.
2. Power supplies of 300 volts or more, with lethal current capability, have the same hazards to an even greater degree. Because supplies in this category are considered Class C hazards, they must be treated accordingly. High-voltage supplies that do not have dangerous current capabilities are not serious shock or burn hazards in themselves and are therefore often treated in a casual manner. However, they are frequently used adjacent to lower-voltage lethal circuits, and a minor shock could cause a rebound into such a circuit. Also, an involuntary reaction to a minor shock could cause a serious fall (for example, from a ladder or from experimental apparatus).

The following are additional safety considerations for power supplies.

Primary disconnect: A means of positively disconnecting the input must be provided. This disconnect must be clearly marked and located where the workmen can easily lock or tag it out while servicing the power supply. If provided with a lockout device, the key must not be removable unless the switch or breaker is in the "off" position.

Overload Protection. Overload protection must be provided on the input and should be provided on the output.

More than 300 Volts

To work on systems with voltages greater than 300 volts (CLASS B OR C HAZARD): Open the feeder breaker, roll out if possible, tag out, and lock in enclosure. If work is on circuits of 600 V or more, positive grounding cables should be attached to all three phases. Tag should contain who, why, and when information, and it is of vital importance because a person's life may depend on it. "Vital" in this case means that the presence and status of the tag are inviolate, and the tag must not be altered or removed except by the person who attached it.

Less than 300 Volts

To work on systems with voltages less than 300 volts (CLASS A HAZARD): Turn-off and tag the feeder breaker. Tag is inviolate except on projects where established circuit checkout procedure allows a qualified person to remove it and energize circuit after checkout is complete.

Motor Generator Systems

For motor or generator work, primary feeder breaker must be opened, tagged, and locked out if possible. For generator-load work, motor-start permissive key must be removed by person doing work and restored when work is complete.

High Voltage

To work on high voltage power supplies and enclosures use Class B or Class C hazard procedure specified in the safety requirements. Access should always be by permissive key that interrupts input power when key is removed from control panel. Grounding of power supply output must occur either automatically when key is removed from control panel or manually before access door can be opened. All work on high voltage will be accomplished by certified electricians.

Working on Power Supplies

The minimum requirement for working on any power supply is to turn power off and properly tag feeder circuit breaker external to power supply.

Electrical Lockout/Tagout (LO/TO) Procedures

When you have to do maintenance work on a machine, take these four steps to protect yourself and your co-workers from injury:

1. De-energize the machine if possible. Positively disconnect the machine from the power source. If there is more than one source of power, then disconnect them all.
2. If possible, lock out all disconnect switches. You must be given a lock and a key for each disconnect before you begin working on the machine.
3. Tag all disconnect switches. Use the yellow or Red safety tags which state in large letters -- "Danger...Do Not Operate," or "Danger...Do Not Energize" and which give the name of the individual who locked out the equipment, date and time. The tag must also state "DO NOT REMOVE THIS TAG". *(The person who placed the tag may remove it only after the machinery maintenance has been completed.)*
4. Test the equipment to insure it is de-energized before working on it. First, attempt to operate the equipment by turning it on normally.
5. Check all electrical lines and exposed areas with test equipment or a "lamp".
6. Short to ground any exposed connections using insulated grounding sticks. This test must be done even if the electrical connection is physically broken, such as pulling out a plug, because of the chance of discharging components.

A TAG OUT ONLY PROCEDURE MAY BE USED IF THE MACHINE CANNOT BE LOCKED OUT. IF THE MACHINE IS SUPPLIED ELECTRICAL POWER FROM A SINGLE SOURCE, WHICH IS UNDER THE EXCLUSIVE CONTROL OF A TRAINED AND QUALIFIED REPAIR PERSON AT ALL TIMES AND THERE ARE NOT ANY OTHER PERSONS IN THE REPAIR AREA WHO COULD BE HARMED BY THE ACCIDENTAL ENERGIZING OF THE MACHINERY, THEN TAG OUT MAY BE USED INSTEAD OF LOCK-OUT/TAG OUT.

Be aware that many accidents occur at the moment of re-energizing. If the machinery is to be re-energized, all persons must be kept at a safe distance away from the machinery. The re-energization can be performed only by a person who either performed the lock-out/tag out, a person acting under the immediate and direct commands of the original lock-out/tag out person, or in the event of a shift change, or other unavailability of the original person, then the original shall, before leaving, appoint a surrogate original person and show him or her all steps taken to lock-out/tag out the equipment.

8.3 CONFINED SPACE ENTRY

Confined space is defined as a space that:

1. Is large enough and so configured so that an employee can enter the space and perform the assigned work.

2. Has limited or restricted means for entry or exit (for example, tanks, cellars, vessels, silos, storage bins, hoppers, vaults, and pits are spaces that may have limited means of entry).
3. Is not designed for continuous employee occupancy.

Graco Oilfield Services does not conduct activities that would fall under Confined Space Entry. It is the policy of the company that on the occasion when Confined Space Entry has been determined to be needed, that appropriate qualified personnel will be acquired to accomplish the job. Graco does not authorize any employee to accomplish or be involved with a Confined Space Entry job.

8.4 HOT WORK

Definition: A safe hot work area is an area that has been assessed and it has been determined that it does not contain uncontrolled flammable material nor is there a possibility that flammable material could be present during the hot work.

Graco Oilfield Services does not conduct activities that would be classified as Hot Work. It is the policy of the company that on the occasion when Hot Work has been determined to be needed, that appropriate qualified personnel will be acquired to accomplish the job. Graco does not authorize any employee to accomplish or be involved with a Hot Work job.

8.5 FIRE SAFETY

Introduction

Policy and planning for fire safety at Graco Oilfield Services takes into account the special fire hazards for specific operating areas, the protection of high-value property, and the safety of employees. These ends are met by:

1. Non-combustible or fire-rated materials and construction practices suitable to the assigned uses of buildings and facilities.
2. Alarm systems and automatic extinguishing systems, if any.
3. Availability of suitable hand extinguishers and local hose lines for use before firefighters arrive.
4. Access to professional fire department, always staffed and trained in the control of emergencies that could occur at the Company.

(The Fire Department makes the initial response to all requests for emergency aid received on the emergency telephone number, 911.)

This chapter covers the fire safety responsibilities of employees and supervisors and sets forth the fire safety rules and procedures.

Fire Department

The Community Fire Department is responsible for protecting people and property from fires, explosions, and other hazards through prevention and expeditious control of such events. In addition, the Fire Department provides first-response rescue and transportation services in medical emergencies. The Fire Department's inspection staff is responsible for ensuring company-wide compliance with fire safety and protection requirements and for reviewing all plans and procedures for compliance with these requirements; for inspecting and testing automatic fire protection and alarm systems and ensuring their maintenance and repair; for conducting fire safety and protection inspections; and for providing fire prevention recommendations.

Other responsibilities include training employees in fire safety equipment, practices, and procedures. All these fire protection and response functions are performed in conformance with OSHA regulations, State law, Graco Oilfield Services policies, and nationally recognized standards and guidelines for fire and life safety. The Fire Chief and the Fire Marshall have the authority to enforce applicable requirements of the Uniform Building Code; the Uniform Fire Code; National Fire Protection Association Codes (including the Life Safety Code), Standards, and Recommended Practices; and the fire protection provisions of OSHA Orders.

All employees must immediately report fires, smoke, or potential fire hazards to the Fire Department (dial 911). All employees must conduct their operations in such a way as to minimize the possibility of fire. This means applying rules such as keeping combustibles separated from ignition sources, being careful about smoking, and avoiding needless accumulations of combustible materials.

Supervisors are responsible for keeping their operating areas safe from fire. The Responsible Safety Officer and the Fire Department will provide guidance and construction criteria with respect to fire and life safety as well as inspections. The provision and maintenance of fire detection systems and both automatic and manual fire extinguishing equipment is the responsibility of the Responsible Safety Officer. But the supervisor, who best knows the day-to-day nature of his/her

operations, is responsible for notifying the Responsible Safety Officer of operations that change the degree of fire risk and will therefore require a change in the planned fire protection provisions.

Fire Exits

Rules:

1. Exit corridors must not be used for storage. The Life Safety Code, NFPA 101, requires that buildings designed for human occupancy must have continuous and unobstructed exits to permit prompt evacuation of the occupants and allow necessary access for responding emergency personnel. The intent of the Code is to keep exits free from obstructions and clear of combustible materials. Attention to housekeeping, therefore, is very important.
2. "Temporary" storage of furniture, equipment, supplies, or anything else is not permitted in exit ways.
3. Combustibles, including recyclable waste paper, are not permitted in exit ways.
4. Metal lockers with ends and tops ferried to the walls and that do not interfere with minimum exit width requirements may be installed in exit corridors when approved by the Fire Department and the Responsible Safety Officer. The following requirements must be met for storage locker/cabinets:
 - a. Cabinets will be permitted on one side of the corridor only. Cabinets must end at least 6 ft from the corridor exit door. Cabinet ends must be at least 12 in. from the edge of the doorway on the latch side and from the edge of the door leaf when fully opened into the corridor.
 - b. The cabinets must not be more than 20 in. deep by 37 in. wide by 72-3/4 in. high. The cabinets must be all metal construction with positive latches to prevent spillage of contents in the event of an earthquake.
 - c. All doors must return automatically to the closed position when not held open manually.
 - d. A 45 degree-angle fairing must be provided from the wall to the corridor corner of the cabinet. Fairing must be provided at both ends of cabinet or bank of cabinets. * A 45 degree-angle fairing must be provided at the top of the cabinets from the outside corridor edge of cabinet to the wall.
 - e. All cabinets must be anchored to the wall firmly enough to withstand 0.5g of lateral acceleration (or a lateral load equal to 1/2 the total dead weight of the cabinet and its contents) in the event of an earthquake.
 - f. Liquids and chemicals are not to be stored in corridor lockers.
 - g. All cabinets must be kept locked, with one key being retained by the Store Manager.
 - h. All cabinets must be labeled with the contents and the name, address, and telephone number of the assigned user.

Any deviation from the above requirements must be approved by Responsible Safety Officer.

8.6 OPERATING EQUIPMENT

Operating equipment typically refers to rotating or reciprocating equipment such as compressors, pumps, pumping units, etc.

Rules:

1. Only trained operators shall start and stop operating equipment.
2. Do not wear jewelry, such as rings, watches, wrist chains, key chains, or loose clothing when working around operating equipment.
3. Confine long hair.
4. Do not make repairs to, do service on, or alter equipment that is in operation. All equipment must be shut down and a lockout/tagout device used in such a manner that the equipment cannot be accidentally started while the work is conducted. Guards and other safety devices shall be reinstalled before the equipment is operated.

8.7 MECHANICAL GUARDING

Introduction and Standards

Mechanical guarding must encompass both the power transmission parts of all mechanical equipment and the points of operation on production machines. Guards must be provided where rotational motion, nip points, and cutting, shearing, punching, and forming mechanisms can cause injury to personnel or damage to tools and equipment. Mechanical guards must be designed or otherwise procured to meet the following specifications:

1. The guard must provide positive protection equal to that specified in ANSI B15.1.
2. The guard must be considered a permanent part of the machine or equipment, capable of being easily or quickly removed or replaced.
3. The guard must not interfere with efficient operation or maintenance of the machine or give discomfort to the operator.
4. The guard must not weaken the machine structure.
5. The guard must be designed for a specific job and a specific machine.
6. The guard must be durable, resistant to fire, corrosion, and easily repaired.
7. The guard must not present hazards, such as rough edges, splinters, pinch points, shear points, or sharp corners.

Methods of guarding that must be considered include the following:

1. Enclosing the operation (preferred);
2. Interlocking devices;
3. Moving barriers;
4. Removal devices;
5. Remote control Two-handed tripping devices;
6. Electronic safety devices;

Machines designed for fixed locations must be securely anchored to the floor or bench to prevent walking or tipping. Employees may operate machinery only when properly trained and authorized to do so. Proper clothing and protective devices must be worn when specified by the supervisor or shop foreman.

ELECTRICAL TAG OUT PROCEDURE: When you have to do maintenance work on a machine, take these four steps to protect yourself and your co-workers from injury:

1. De-energize the machine if possible. Positively disconnect the machine from the power source. If there is more than one source of power, then disconnect them all.
2. If possible, lock-out all disconnect switches. You must be given a lock and a key for each disconnect before you begin working on the machine.
3. Tag all disconnect switches. Use the yellow or Red safety tags which state in large letters – “Danger” “Do No Operate,”, or “Danger” “Do Not Energize” and gives the name of the individual who locked out the equipment, date and time. The tag must also state "DO NOT REMOVE THIS TAG" (except the person who placed the tag may remove it only after the machinery maintenance has been completed.
4. Test the equipment to insure it is de-energized before working on it.
 - a. First, attempt to operate the equipment by turning on normally.
 - b. Next, check all electrical lines and exposed areas with test equipment or a "lamp".
 - c. Finally, short to ground any exposed connections using insulated grounding sticks. This test must be done even if the electrical connection is physically broken, such as pulling out a plug, because of the chance of discharging components.

A TAG OUT ONLY PROCEDURE MAY BE USED IF THE MACHINE CAN NOT BE LOCKED OUT. IF THE MACHINE IS SUPPLIED ELECTRICAL POWER FROM A SINGLE SOURCE, WHICH IS UNDER THE EXCLUSIVE CONTROL OF A TRAINED AND QUALIFIED REPAIR PERSON AT ALL TIMES AND THERE ARE NOT ANY OTHER PERSONS IN THE REPAIR AREA WHO COULD BE HARMED BY THE ACCIDENTAL ENERGIZING OF THE MACHINERY, THEN TAG OUT MAY BE USED INSTEAD OF LOCK OUT/TAG OUT.

RE-ENERGIZING;

Many accidents occur at the moment of re-energizing. If the machinery is to be re-energized, all persons must be kept at a safe distance away from the machinery. The re-energization can be performed only by a person who either performed the lock-out/tag out, a person acting under the immediate and direct commands of the original lock-out/tag out person, or, in the event of a shift change, or other unavailability of the original person, then the original shall, before leaving, appoint a surrogate original person and show him or her all steps taken to lock-out/tag out the equipment.

8.8 INDUSTRIAL TRUCK POLICY

Training

Before we begin training an employee and/or new employee, the Store Manager and/or The Responsible Safety Officer determines if the potential powered industrial truck operator is capable of performing the duties necessary to be a competent and safe driver. This is based upon his/her physical and mental abilities to perform job functions that are essential to the operation of the vehicle. These capabilities include the level at which the operator must;

1. See and hear within reasonably acceptable limits, (this includes the ability to see at a distance and have good peripheral vision. In certain instances, it is also necessary for the driver to discern different colors, primarily red, yellow, and green).
2. Endure the physical demands of the job.
3. Endure the environmental extremes of the job, such as the ability of the person to work in areas of excessive cold or heat. An operator must be able to climb onto and off of a truck, to sit in the vehicle for extended periods of time, and to turn his/her body to look in the direction of travel when driving in reverse.

Initial Training:

During an operator’s initial training, the instructor combines both classroom instruction and practical training. Classroom instruction, itself, covers the following topics including all OSHA required information as it applies to the workplace. All powered industrial truck operators are trained and tested on the equipment they will be driving before they begin their job. Our practical training covers all OSHA required topics based upon the conditions of the workplace.

Each type of powered industrial truck has a different “feel” to it, and that makes operating it slightly different from operating other industrial trucks. The work areas where these trucks are being used also present particular hazards. For these reasons, it is impractical to develop a single “generic” training program that fits all of our powered industrial trucks. Accordingly, during training, we will cover the operational hazards of our powered industrial trucks, including;

1. General hazards that apply to the operation of all or most powered industrial trucks.
2. Hazards associated with the particular make and model of the truck.
3. Hazards of the workplace in general.
4. Hazards of the particular workplace where the vehicle is operated.

Training Certification:

After an employee has completed the training program, the instructor will determine whether the potential driver can safely perform the job. The trainee will take a performance test or practical exercise through which the instructor will decide if the training has been adequate. All powered industrial truck trainees are tested on the equipment they will be driving.

The Responsible Safety Officer is responsible for keeping the certification records for each employee who has successfully completed operator training and testing. Each certificate includes the name of the driver, the date(s) of the training, and the name of the person who did the training and evaluation.

Each certified powered industrial truck operator is evaluated at least once every 3 years to verify that the operator has retained and uses the knowledge and skills needed to drive safely. Lacking the appropriate skills and knowledge, the operator is retrained.

Refresher Training:

Refresher training is triggered by any of the following situations;

1. If the operator is involved in an accident or a near-miss incident.
2. If the operator has been observed driving the vehicle in an unsafe manner.
3. When the operator is assigned to a different type of truck.
4. If it has been determined during an evaluation that the operator needs additional training.
5. When there are changes in the workplace that could affect safe operation of the truck. This could include a different type of paving, reconfiguration of the storage racks, new construction leading to narrower aisles, or restricted visibility.

Under no circumstances shall an employee operate a powered industrial truck until he/she has successfully completed this company’s powered industrial truck training program. Regardless of claimed previous experience, all new operators must undergo a performance evaluation.

Inspections

The company requires operators to perform pre-operational equipment checks on powered industrial trucks prior to the beginning of each shift, in which those trucks will be utilized, to ensure the safe operating condition of the vehicle. The pre-operational check is performed by completing a daily truck inspection checklist.

Periodic Inspection Procedures:

Periodic inspections are in conjunction with the particular powered industrial truck’s maintenance or service schedule. Maintenance schedules are normally expressed in days and operating or running hours. Most manufacturers’ operator instruction manuals contain the recommended maintenance schedule. Inspections and maintenance or repair beyond the recommended service schedules are done by authorized workshops and/or service technicians. Powered industrial trucks can create certain hazards that only safe operation can prevent. That’s why we have created sets of operating procedures. Our operating procedures are as follows.

Driving:

Driving a powered industrial truck is fundamentally different than driving a car or other trucks. In fact, powered industrial trucks;

1. Are usually steered by the rear wheels,
2. Steer more easily loaded than empty,
3. Are driven in reverse as often as forward,
4. Are often steered with one hand, and
5. Have a center of gravity toward the rear, shifting to the front as forks are raised.

Unlike cars, some powered industrial trucks have a greater chance of tipping over when suddenly turned. Because of the design of powered industrial trucks, they have a very short rear wheel swing. This means that, at high speeds, sudden turns can tip them and could result in serious injury and damage. Speed can cause the center of gravity to shift dramatically. Similarly, speeding over rough surfaces can cause tipping. Although structurally different than cars, powered industrial trucks,

like cars, can collide with property and people. Always look in the direction of travel and behind you prior to backing up and assure that there is no one there or no one that can get in your path of travel.

Load Lifting and Carrying:

Powered industrial trucks can lift only so much. Each truck has its own load capacity, which is indicated on the rating plate. Powered industrial trucks also have three-point suspension that forms an imaginary triangle from the left front wheel to the right front wheel to the point between the two back wheels. The center of gravity for a powered industrial truck must lie somewhere within this triangle or else the truck will tip over. The load and its position on the forks, as well as traveling speed and slopes, all affect the center of gravity. Loads, themselves, have gravity with which to contend. Loads need special care so that they do not fall. In order to prevent tipping and load falling hazards, we have established the following load lifting and carrying procedures:

1. Never lift a load that exceeds the rated capacity of the forklift.
2. Always assure that your load is secure.
3. Loads should not exceed the height of the back rest unless they have been secured to a pallet.

Fuel Handling and Storage:

Some of our powered industrial trucks operate with highly flammable and combustible fuels. The storage and handling of liquid fuels, including gasoline and diesel fuel are done in accordance with NFPA Flammable and Combustible Liquids Code (NFPA 30-1969). The storage and handling of liquefied petroleum gas fuel is done in accordance with NFPA Storage and Handling of Liquefied Petroleum Gases (NFPA 58-1969). All employees who handle or use flammable liquids are instructed in their safe handling, use, and made aware of the specific OSHA requirements for what they are doing with the liquids. More specifically, employees are instructed in the following procedures:

Carbon Monoxide Awareness:

Powered industrial trucks with internal combustion engines produce carbon monoxide (CO), an odorless, colorless, and deadly gas produced by the incomplete burning of any material that contains carbon. These materials include gasoline, natural gas, propane, coal, and wood. The most common source of CO is the internal combustion engine. Trucks, cars, forklifts, floor polishers, pressure washers, or any other machine powered by fossil fuels generates CO.

If inhaled, CO restricts the ability of your blood system to carry oxygen to the body tissues that need it. Overexposure combined with less oxygen results in carbon monoxide poisoning. Mild poisoning can result in headaches, tightness in the chest, dizziness, drowsiness, inattention, fatigue, flushed face, or nausea. If you continue exposure, lack of coordination, confusion, weakness, or loss of consciousness may result. A heart condition, smoking, taking drugs or alcohol, and pregnancy can aggravate CO poisoning. Physical activity can also make a situation worse. That's because your body needs more oxygen to exert itself. Severe poisoning can kill you within minutes, sometimes without warning symptoms. The more CO there is in the air and the longer the exposure, the greater the danger. We use these procedures to spread carbon monoxide awareness, reduce CO levels, and prevent CO illness:

Open the bay doors when the fork lift is being operated.

Personal Protective Equipment (PPE):

We have assessed our workplace and determined that the hazards which threaten our operators include: Heavy objects, grinding activities, and use of chemicals. For this reason, we require that our powered industrial truck operators wear the following PPE and equipment:

1. Hard hat,
2. Safety shoes
3. Safety glasses

Furthermore, all operators required to wear this equipment are trained in the following;

1. When PPE is necessary.
2. What type PPE is necessary.
3. How to properly put on, take off, adjust, and wear PPE.
4. Limitations of the PPE.
5. Proper care, maintenance, useful life, and disposal of PPE.

(See the Written Personal Protective Equipment Program for more details.)

Pedestrians:

Because powered industrial trucks are typically used near pedestrians, we require both pedestrians and powered industrial truck operators to watch out for each other.

All powered industrial truck operators must do the following;

1. Communicate with pedestrians to assure they are aware of the path of travel of the forklift and will remain clear of that path.
2. Look in the direction of travel.
3. Honk horn when going through blind intersections or around corners
4. Use a spotter if vision is impaired.

All pedestrians must:

1. Be aware of the forklift operator.
2. Stay clear of forklift operations.
3. Communicate to the forklift operator if needing to enter area of use prior to entering.

Maintenance:

Investing time and effort into the proper upkeep of our equipment, results in day-to-day reliability. Keeping up with the manufacturer's recommended maintenance and lubrication schedules, and completing the proper records, will also increase our trucks' longevity and enhance its resale value. All repairs and maintenance will be organized by the Store Manager and/or approved Supervisor. Operators of this equipment should report any problems or maintenance needs to the Store Manager.

8.8.1 MATERIALS HANDLING

Introduction

Graco Oilfield Services requires that safety planning and practices for commonplace tasks be as thorough as for operations with unusual hazards. Commonplace tasks make up the greater part of the daily activities of most employees and, not unexpectedly, offer more potential sources of accidents with injuries and property damage. Every operation or work assignment begins and ends with handling of materials. Whether the material is a sheet of paper (paper cuts are painful) or a cylinder of toxic gas, accident risks can be reduced with thorough planning. Identifying obvious and hidden hazards should be the first step in planning work methods and job practices. Thorough planning should include all the steps associated with good management from job conception through crew and equipment decommissioning. Most of the material presented in this chapter is related to the commonplace and obvious. Nevertheless, a majority of the incidents leading to injury, occupational illness, and property damage stem from failure to observe the principles associated with safe materials handling and storage. A less obvious hazard is potential failure of used or excessive motorized handling or lifting equipment. The Responsible Safety Officer must be notified whenever it is desired to acquire a crane, forklift truck, or other motorized handling or lifting equipment from outside sources.

Lifting and Moving

Lifting and moving of objects must be done by mechanical devices rather than by manual effort whenever this is practical. The equipment used must be appropriate for the lifting or moving task. Lifting and moving devices must be operated only by personnel trained and authorized to operate them. Employees must not be required to lift heavy or bulky objects that overtax their physical condition or capability.

Rigging

Planning for safe rigging and lifting must begin at the design stage, and lifting procedures must be developed for assembly and installation.

1. The lifting procedure should be developed and discussed with the rigging crew fore person.
2. Responsibility for all rigging jobs is shared between the rigging crew and the customer. The customer is responsible for defining and requesting the move, for providing technical information on relevant characteristics of the apparatus, including special lifting fixtures when required, for providing suggestions on rigging and moving, and for assigning someone to represent them both in planning and while the job is being carried out.
3. The riggers are responsible for final rigging and for carrying out whatever moves have been designated.
4. Before any movement takes place however, each representative must approve the rigging and other procedures associated with the intended move. Each must respect the responsibility and authority of the other to prevent or terminate any action he or she judges to be unsafe or otherwise improper.
5. The supervisor must make certain that personnel know how to move objects safely by hand or with mechanical devices in the operations normal to the area and must permit only those employees who are formally qualified by training and certification to operate a fork truck, crane, or hoist.
6. The supervisor must enforce the use of safe lifting techniques and maintain lifting equipment in good mechanical condition.
7. Employees are required to observe all established safety regulations relating to safe lifting techniques.
8. The Responsible Safety Officer provides training programs followed by certification for employees who have demonstrated the ability to operate fork trucks of up to 4-ton capacity and for incidental crane operations that require no special rigging.

Cable/Hoist Sling Safety

Graco Oilfield Services has established a Cable Safety Program to ensure the integrity of cables, hooks, slings, hoists and various devices used in conjunction with these components for lifting. Documented training is required of all users and inspectors.

Inspection Process;

1. All metal cables, non-metal slings (nylon, polypropylene, etc.), hooks and various components must be visually inspected and documented monthly and visually inspected before each use. Frayed or damaged nylon slings shall be cut and discarded.
2. All lifting cables and their components will be included on the company's annual hoist inspection report.
3. Qualified personnel or competent, trained personnel shall make inspections. Test results and supporting documentation shall be maintained on file.

NOTE; Cables, hooks and other devices that do not meet the inspection criteria shall immediately be removed from service.

Rigging Rules

Graco Oilfield Services has instituted the following rigging rules.

1. Do not damage machines and any soft surfaces of the load with the lifting apparatus.
2. Avoid sharp bends in slings and protect slings from sharp edges and abrasions.
3. Set loads down on proper blocking – never directly on a sling.
4. Do not side load.
5. Maintain an angle between the sling and the horizontal greater than forty-five (45) degrees to reduce stress on the sling.
6. Attach cable clips properly by making sure the nuts are tightened to manufacturing specifications. The saddle should be on the load cable, the U-bolt on the dead end. Remember: "You can't put a saddle on a dead horse."
7. Do not stand or walk under suspended loads.
8. Do not leave loads unattended at any time. Use tag lines of sufficient length to control the lift.
9. Know the safe carrying capacity of sling chains, wire rope, hoists, and other lifting apparatus and do not overload them.
10. Immediately discard defective lifting equipment.
11. Inspect all rigging equipment before each use.
12. Do not tie knots in sling chains, rope slings, or wire cables to shorten them.
13. Do not place bolts or other material between links of chain to shorten or splice it.
14. Do not use rope for rigging or lifting loads except where it is impractical to use other methods.
15. Modify lifting equipment only after Supervisor approval.
16. Do not lift or hoist any object of unknown weight.

Mechanical Lifting

Mechanical devices must be used for lifting and moving objects that are too heavy or bulky for safe manual handling by employees. Employees who have not been trained must not operate power-driven mechanical devices to lift or move objects of any weight. Heavy objects that require special handling or rigging must be moved only by riggers or under the guidance of employees specifically trained and certified to move heavy objects.

Load Path Safety

Loads moved with any material handling equipment must not pass over any personnel. The load path must be selected and controlled to eliminate the possibility of injury to employees should the material handling equipment fail. Equipment worked on while supported by material handling equipment must have a redundant supporting system capable of supporting all loads that could be imposed by failure of the mechanical handling equipment. A suspended load must never be left unattended but must be lowered to the working surface and the material handling equipment secured before leaving the load unattended.

Truck Loading

All objects loaded on trucks must be secured to the truck to prevent any shifting of the load in transit. The wheels of trucks being loaded or unloaded at a loading dock must be chocked to prevent movement.

Cranes

Graco Oilfield Services uses bridge cranes at most shop locations. The bridge cranes used at these locations are pendant-operated. Bridge cranes must be operated only by trained operators designated by the supervisor in charge of the facility. The supervisor is also responsible for ensuring that operators are trained, carrying out the inspections and following the safe operating rules explained in the Operator/Rigger Training Program. The Operator/Rigger Training Program is administered by the Responsible Safety Officer.

Incidental Operator/Rigger: Person who performs operating/rigging functions as an incidental part of his/her normal work assignment. Persons in this category are restricted to lower load limits and rigging of specific types of hardware. Incidental operator/riggers must be reexamined at least once every three years. Before an employee may operate any Graco crane, the supervisor must arrange for the employee to receive incidental crane-operator training on the appropriate crane. Successful completion of the training must include an oral or written examination on the safety aspects of crane operation and a satisfactory demonstration of operational skills. The supervisor must determine that the applicant does not have any disqualifying medical or physical disabilities based on established requirements.

8.9 PRESSURE SAFETY

Pressure Safety

Standard Operating Procedures

Any Graco Oilfield Services division involved in the construction and/or use of pressure equipment must ensure that such equipment is designed, installed, tested, and operated in accordance with the requirements of this chapter. The Responsible Safety Officer must make an evaluation to determine whether the potential hazard of the pressure equipment is high enough to require an OPS.

Pressure Installer

The Pressure Installer is a technician or mechanic certified to fabricate, assemble, install, and operate pressure equipment within a specified pressure range. Upon being assigned by his or her supervisor, the Pressure Installer is authorized to work directly for a Supervisor or the Responsible Safety Officer.

MAWP Statements

The MAWP (maximum allowable working pressure) must be stated on all pressure-system (and pressure-vessel) assembly drawings.

Relief Valves Required

The following requirements (Relief Devices) apply in addition to all other sections of this manual. When evacuated vacuum vessels are raised to atmospheric pressure with a pressurized-gas source, a relief device must be installed between the gas source and vacuum vessel. Use ASME code-approved or Graco Oilfield Services-stocked relief devices whenever possible. The use of any other non-ASME pressure-relief device on high-hazard pressure equipment must be specifically approved by the Responsible Safety Officer. Graco Oilfield Services personnel are not permitted to set, seal, or stamp relief devices on utility water boilers, steam boilers, and compressed-air receivers that are under the jurisdiction of the State. Only authorized Plant Maintenance Technicians, and other specifically authorized persons, are permitted to set and seal relief devices on non-coded pressure vessels and systems.

Piping Standards

The following requirements apply in addition to other sections of this manual on Pressurized Flammable-Fluid Piping, and Instruments.

1. Use flexible nonmetallic hose only when it is impractical to use metal pipe or tubing. Any use of nonmetallic hose in pressure systems must be approved by the Responsible Safety Officer.
2. Keep hose lengths as short as possible, protect them from mechanical damage, and anchor the ends to prevent whipping in case of a hose or hose-fitting failure.
3. Avoid sharp hose bends, and do not bend hoses more sharply than recommended by the manufacturer.
4. Replace or repair any hose showing leaks, burns, wear, or other defects.
5. Do not use nonmetallic hose on flammable, toxic, and/or radioactive gas systems. (Gases tend to permeate nonmetallic hose.)
6. On liquefied-gas systems, ensure that all terminal-block (liquid-withdrawal) valves are rated above the vapor pressure of the liquefied gas at 38 degrees C (100 degrees F) or that a properly set relief valve is permanently installed on the outlet side of each terminal-block valve.
7. All work on pressure equipment requiring an SN must be performed by trained personnel under the direction of an engineer or the Responsible Safety Officer.
8. All systems must be securely fastened to resist seismic forces as specified in the chapter on Seismic Safety.
9. For gas systems use gauges graduated to about twice the MAWP of the system.
10. For liquid systems use gauges graduated to at least the test pressure.
11. Calibrate pressure gauges, switches, and other devices through 120% of their maximum operating points. These devices must be capable of withstanding the operational, and emergency, temperatures of the system, and their material must be compatible with the system fluid.

12. Use safety-type gauges (with shatterproof faces, solid fronts, and blow-out backs) or protect operators with a tested, Graco Oilfield Services approved gauge-safety shield. This applies to all gas-pressure gauges over 100 mm in diameter graduated to over 1.4 MPa (200 psi) and to all liquid-pressure gauges over 100 mm in diameter graduated to over 140 MPa (20,000 psi).
13. Safety-type gauges may be required for other combinations of diameter and pressure.
14. Protect a gauge subject to pressure surges or cyclic pulses by installing a throttling device.
15. Ensure that there is no oil in gauges used on gas systems. This is important on oxygen systems since hydrocarbons and oxygen can combine explosively.
16. Clean all gauges to be used on high-purity gas systems.
17. Equip every flammable-gas drop or regulator/hose connection with a flash arrester or a check valve, a pressure gauge, and a shut-off valve.
18. If the flammable gas is to be (or could be) cross connected with oxygen or compressed air, a flash arrester must be installed in the flammable-gas line and a check valve in the oxygen or compressed air line.
19. Equip all oxygen drops with a check valve. This applies to all single and multiple station installations and portable equipment.

Designer Responsibilities

The person who designs a pressure vessel for use by Graco Oilfield Services must review the inspection report for all completed pressure vessels to ensure that they are free from manufacturing defects that might affect their use..

Depressurized Vessels

Whenever practical, a system or vessel not in use must be depressurized. When a vessel or system is stored under pressure, the pressure, fluid, and date pressurized must be clearly indicated on the vessel. The Shutdown Procedures apply.

Safety Orders

State and federal Safety Orders establish minimum standards for the following:

1. The design and construction of all unfired pressure vessels for Plant-Facility Pressure Systems.
2. The installation, operation (including issuance of permits), inspection, and repair of air-pressure tanks and liquefied-petroleum-gas (LPG) tanks.
3. The design, construction, repair, or alteration of storage tanks for liquefied-natural gas (LNG) at 15 psi or less.
4. The installation, use, and repair of anhydrous ammonia tanks.
5. The design and construction of pressure vessels for storing and dispensing natural gas for motor fuel and of motor-fuel tanks installed on vehicles not licensed to travel on highways.
6. The installation, use, and repair of natural-gas vessels and systems that are not a part of hazardous research equipment.

State Safety Orders are not applicable to the following:

1. Pressure vessels that are under the jurisdiction and inspection of the United States Government and that are specifically exempted by the State. Pressure vessels, except for LNG tanks, subject to an internal or external pressure of not more than 15 psi, with no limitation on size, and vessels having an inside diameter less than 6 in., with no limitation on pressure. (However, such vessels must be designed and constructed in accordance with recognized standards, when applicable, or in accordance with good engineering practices concerning pressure-vessel design, with a factor of safety of at least 4, and must be fitted with controls and safety devices necessary for safe operation.)
2. Natural-gas vessels and installations subject to the jurisdiction and inspection of the State Public Utilities Commission, Department of Transportation, or Highway Patrol; air-brake tanks installed on units of transportation, including trucks, buses, trains, and streetcars, that are operated by any person, firm, or corporation subject to the jurisdiction and inspection of the Public Utilities Commission, the Department of Transportation, or the Highway Patrol.

The following vessels must be constructed, inspected, and stamped in accordance with the appropriate ASME Boiler and Pressure Vessel Code:

1. Air-pressure tanks, LPG tanks, anhydrous-ammonia tanks, all plant-facility pressure vessels, and LNG tanks, for low-temperature storage at 15 psi or less, must be designed, constructed, inspected, and certified in accordance with API (American Petroleum Institute) Standard 620.
2. LPG vaporizers having a volume greater than one U.S. gallon must be constructed in accordance with the California State Boiler and Fired Pressure Vessel Safety Orders, Title 8, Subchapter 2.

Permits to operate are required for LPG tanks and air tanks larger than 1.5 ft sup 3 with relief valves set to open above 150 psi.

Pressure Testing Standards

Whenever practical, pressure vessels and systems should be sent to an Assembly Shop for pressure testing. When this is not practical, the vessel or system must be tested in accordance with the In-Place Pressure Testing procedures described in this manual. Pressure tests performed at Graco Oilfield Services must be conducted by an Assembly Shop Machinist and must be observed (or conducted) and certified by the Responsible Safety Officer (or designee) or an outside independent Pressure Inspector. Pressure-test and pressure-inspection records must be maintained for the life of the vessel by the organization that certifies the test or inspection.

Pressure Testing

Pressure vessels must be tested in accordance with the rules in this Section, using an inert fluid.

1. Pressure vessels for low-hazard inert systems for operation with nonflammable, nontoxic, and non-radioactive fluids must be hydrostatically tested to at least 1.5 times the MAWP or pneumatically tested to at least 1.25 times the MAWP (only when safety considerations or research requirements do not permit a hydrostatic test).
2. Any special temperature conditions or temperature cycles to which the vessel will be subjected in use must be reproduced as closely as possible during the test.
3. Pressure vessels for high-hazard reactive systems for operation with oxygen or flammable, toxic, and/or radioactive fluids must be tested to at least 2.0 times the MAWP with an inert liquid (preferred) or gas.
4. Any special temperature conditions or temperature cycles to which the vessel will be subjected in use must be reproduced as closely as possible during the test.
5. In addition, consider the need to inspect any vessel ultrasonically or to check the vessel surface for cracks using the magnetic-particle test or (for nonmagnetic vessels) the fluorescent-penetrative test.
6. During tests of pressure vessels in which the yield strengths of their construction materials are approached, strain-gauge measurements must be made at high-stress locations.
7. Diameter measurements accurate to within plus or minus 0.025 mm (0.001 in.) must also be taken both before and after testing to determine whether detectable plastic yielding has occurred during pressurization.
8. When the strength of the vessel is questionable (old or unknown design), strain-gauge measurements must be made during testing, and diameter measurements must be taken before and after testing.
9. The MAWP for ASME Code pressure vessels made of the acceptable ductile materials listed in the code, must not exceed 0.4 times the test pressure and must comply with a Proof Test to establish MAWP.

Standards for Low Pressure Vessels

Pressure vessels and systems must be leak tested at their MAWP after successful pressure testing: Open flames must not be used for leak-testing. Leak testing of non pressure-tested or undocumented pressure vessels or systems must be limited to a maximum of 20% of the test pressure (or proposed test pressure).

Leak Testing Required

If a leak is detected during pressure testing of a vessel or system, and it is decided to locate the leak before completing the test, the pressure must be reduced to not over one-half the immediately preceding test pressure while the leak is being located. A system or vessel must not be repaired while it is pressurized unless this is specifically authorized.

Pressure Testing On Site

Rules:

1. A written test procedure must be prepared for every high-hazard pressure test conducted in the field.
2. When testing will be conducted in place, the test procedure must be included in (or appended to) the SN or OSP (if applicable).
3. Procedures for in-place testing of high-hazard vessels and systems must be approved.
4. The Building Manager or Area Supervisor must be advised of pressure tests planned to occur in his/her facility, & Responsible Safety Officer must be notified if toxic and/or radioactive material is involved.
5. All pressure tests must be conducted by a person designated by the Responsible Safety Officer or conducted by a Plant Maintenance Technician, a Physical Plant Mechanic, or a Machinist in the Assembly Shop and must be observed (or conducted) and certified by a member of the Responsible Safety Officer (or designee) or a Pressure Inspector.

Pressure Testing with Liquids

Rules:

Pressure testing with a gas is more dangerous than testing with a liquid. Therefore, tests must be conducted with liquids, whenever practical.

1. Barricade the equipment being tested, shield the controls and operators, and evacuate all unauthorized personnel from the test area.
2. Signs reading "Danger - High-Pressure Test in Progress - Keep Out" must be posted at all approaches to the test area.

3. For in-place testing with liquids, all air must be removed from both the testing system and the equipment to be tested.
4. Compressed air will expand violently in case of vessel failure. Spongy action of pumping equipment usually indicates the presence of trapped air.

9.0 HAZARD WARNINGS

Introduction

Every reasonable method to warn employees of hazards and dangers and to inform them of the actions required must be utilized.

1. Signs, characteristic lights, and audible alarms as additional safeguards for built-in mechanical and physical protection must be used.
2. To ensure uniform response by personnel, the warning signs and devices must be of the same type for similar hazards.
3. Obtaining and installing the warning systems is the responsibility of the group that needs them.

Contents and Configuration

1. Signs must conform to the colors, symbols, lettering size, and proportions as specified by Graco Fishing & Rental Tools, Inc., except that radiation signs must conform to the requirements stated in 10 CFR 20.
2. Every warning sign must include the following components:
 - a. An approved heading that indicates the relative hazard.
 - b. A statement of the type of hazard.
 - c. A statement of what to do or not to do in the area.

9.1 CHEATER BARS/PIPES

Use cheater pipes only when absolutely necessary. The pipes must be less than twice the length of the wrench handle and must closely fit the entire length of the wrench handle. Do not jump or jerk on cheater pipes to break connections. Do not use cheater pipes on crescent-type adjustable wrenches.

9.2 TOOLS

Company Provided Tools

Graco Oilfield Services provides hand and powered portable tools that meet accepted safety standards.

1. A damaged or malfunctioning tool must not be used; it must be turned in for servicing and a tool in good condition obtained to complete the job.
2. Employees must use the correct tool for the work to be performed; if they are unfamiliar with the operation of the tool, they must request instruction from their supervisor before starting the job.
3. Supervisors are responsible for ensuring that their subordinates are properly trained in the operation of any tool that they are expected to operate.
4. An employee is not permitted to use a powder-actuated tool unless instructed and licensed by the manufacturer.

Grounding

Rules:

1. Tools that are not double-insulated must be effectively grounded and tested.
2. Testing must be accomplished before initial issue, after repairs, and after any incident that could cause damage, such as dropping or exposure to a wet environment.
3. Grounded tools must always be used with an effectively grounded circuit.
4. Any extension cord used with a grounded tool must be a three-wire, grounded type.
5. Electric-powered hand tools used on construction sites, on temporary wired circuits, or in wet environments will be used in conjunction with an approved ground fault circuit interrupter (GFCI).
6. The responsibility for implementing and maintaining this program rests with the individual supervisors involved.
7. Tool testing equipment will be maintained by the Store Manager.
8. Documentation of tool testing will be maintained by the Store Manager for all powered hand tools.

Repairs of defective tools will only be made by qualified electrical personnel.

Shop Rules

Any Graco Oilfield Services facility housing shop tools is defined by OSHA as a shop. It is the responsibility of the person in charge of each shop to ensure compliance with the following practices:

1. Shop machines and tools are to be used only by qualified personnel.
2. It is the responsibility of the person in charge of the shop to render a judgment as to who is qualified.
3. The person in charge will take whatever action is deemed necessary to prevent a personal injury or damage to equipment.
4. Equipment guards and protective devices must be used and must not be compromised.
5. Approved eye protection (visitor's glasses) must be worn by anyone entering and/or passing through shop areas.
6. Approved industrial safety eye protection must be worn by anyone working in a posted shop area.
7. Shop employees must wear steel toe shoes or boots covering the whole foot in shop areas.
8. Persons using machine tools must not wear clothing, jewelry, or long hair in such a way as to represent a safety hazard.

9.3 WORKING OVERHEAD

Before working overhead, notify anyone who will be below you. Then, follow these procedures:

- Never throw hand tools and materials to anyone; hand them up or down. When an employee must hoist tools with a rope, ensure that the tools are securely attached to the rope and that there is no danger of dropping them. A strong sack is recommended for raising or lowering tools. Employees will take all precautions to guard against falling objects.
- Wear appropriate fall-protection equipment secured by a lanyard to a lifeline, drop line, or fixed anchorage when working on an unprotected area (such as a tank, production vessel, or unguarded working platform) 6 feet or more above grade or floor level.

9.4 SLIPS, TRIPS, AND FALLS

1. Keep the working area clean and orderly.
2. Do not leave tools lying on the ground, floor or decking where they present a work hazard.
3. Good housekeeping is a requirement.
4. Keep walkways and grating in good condition.
5. Report any damaged walkways or grating to your supervisor.
6. Immediately report all floor openings to your supervisor and/or store manager, and properly secure and identify.
7. Clean oil spills and slippery areas immediately.
8. Take extra precautions when walking on wet surfaces.
9. Do not walk or climb on piping, valves, fittings, or any other equipment not designed as a walking surface.
10. Have one hand on the handrail when walking up or down stairs.
11. Do not run or skip steps when ascending or descending stairs.
12. Consider trailing a hand behind you on the handrail to better catch yourself if you do slip.

9.5 LOAD BINDERS

Employees should not use lever style load binders. Furthermore, they may not be used at all on ChevronTexaco property. Employees should review their specific needs for securing loads, and select equipment such as strapping, or ratchet or cam type boomers, or other equipment which may be safely used in the specific circumstances.

This rule is made to enhance the safety of those working with chain binders. The significant difference is in the rate at which energy is released from the two styles of binders. The ratchet-type binder can be released in a safe, controlled manner allowing the stored energy to dissipate gradually. When the lever is lifted on the lever-style binder, stored energy is instantly released, causing the lever to move forcefully forward with the potential of injuring anyone in its path of travel.

Whenever chain binders of any type are used, it is important that the persons using this equipment be familiar with the inherent hazards and operate the binders according to the manufacturer's instructions and within the load limits of the binders and chain in use. Note that the ratchet-type binder provides twice the mechanical advantage available from the lever-type. For example, a person applying 100 pounds to a lever-type device will generate 2,500 pounds of force while the same effort applied to a ratchet-type binder will generate 5,000 pounds of force. For this reason, it is critical to avoid over-tightening of loads using the ratchet-type binder.

Any questions regarding this policy should be directed toward the store manager and/or your supervisor.

10.0 SPECIALIZED OPERATIONS

10.1 SANDBLASTING

The potential hazards during sandblasting operations include, but are not limited to inhalation of dusts (including lead from the paint or silica from the blasting medium), high noise levels, high operating pressure of equipment, etc. Employees are responsible for appropriate disposal of accumulations of waste.

The following requirements minimize the possibility of an HES incident during sandblasting operations:

1. Wear approved respiratory and hearing protection.
2. Wear appropriate eye protection.
3. Consider the paint coatings removed by sandblasting operations as lead until proven otherwise.
4. Check all hoses every day for leaks and signs of wear.
5. Maintain adequate ventilation (either mechanical or natural) to keep the work atmosphere less than 10% Lower Explosive Limit (LEL) and the oxygen (O₂) content greater than 19.5% when working in a confined space.
6. Bleed or de-pressure all lines before disconnecting.
7. Use a blasting nozzle with a cut-off device (dead man's switch) in all situations except underwater grit blasting.
8. Secure and hobble all high-pressure air hose connections.
9. Pin or wire all air hose connectors (Crow's Feet) to keep them from coming apart.
10. Post warning signs identifying potential hazards.
11. Gather waste over solid decking.

10.2 COMPRESSED AIR USED FOR CLEANING

Compressed air used for drying or cleaning must be limited to 30 psig (gage) by a pressure regulator or pressure-reducing nozzle as specified in OSHA 29 CFR 1910.242 or any successor regulation.

Do not, for any reason, direct compressed air toward a person. When using compressed air for cleaning in a dry and dusty situation, the contractor must wear, at a minimum, protective eye goggles, gloves, and a dust filter for respiratory protection.

10.3 WELDING

General Safety Precautions

Graco Oilfield Services requires that all safety precautions be followed.

1. Welding and cutting must only be performed by trained workers (OSHA 29 CFR 1910.252)
2. Know the hazards of the materials involved in the welding or cutting operation
 - a. Know exactly what kind of metal you are welding on.
 - b. Read MSDS's.
3. Before welding, precautions must be taken to prevent ignition of combustible materials.
 - a. Move combustible materials further than 35' away.
 - b. Cover combustible materials.
 - c. Dampen the floor if necessary.
 - d. Clean containers and confined spaces to remove combustible materials.
4. Confined Spaces.
 - a. Do not bring cylinders into confined spaces.
 - b. Remove electrodes from confined spaces if operations are suspended for a substantial period of time.
 - c. Remove torches and hoses from confined spaces if operations must be suspended for a substantial period of time.
5. Welding in wet areas.
 - a. Arc welding should not be done in wet areas if possible.
 - b. If arc welding absolutely must be performed in wet areas, special safety precautions are necessary.
 - c. Ask your supervisor what precautions are necessary.

Firewatchers

1. Trained firewatchers are required when combustible materials are near the work area. Near means,
 - a. Combustible materials within 35'.
 - b. Easily ignited combustible materials further than 35'.
 - c. Openings in walls and floors within 35' radius can expose combustible materials in adjacent areas.
 - d. Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited due to conduction or radiation.
2. The fire watch must have a fire extinguisher readily available and be trained to use it.
3. The fire watch must be familiar with how to activate the alarm system.
4. The fire watch must wear the PPE necessary to protect them from hazards, such as UV flash burns to the eyes.

5. The fire watch must stay for 30 minutes after welding is completed.

Personal Safety

1. Walkways must be kept clear of hoses and leads.
2. In elevated areas, proper work platforms must be provided and fall protection used.
3. **Eye protection.**
 - a. Welders, Firewatchers and helpers must use specialized protective eyewear designed according to ANSI Z-87.
 - b. Helmets or hand shields must be used when arc welding.
 - c. Goggles must be worn when gas welding or cutting.
 - d. Eye protection shall be inspected for defects before each use.
 - e. Defective eyewear must not be used.
 - f. The shade must be appropriate to the type of welding being performed.
4. **Protective clothing.**
 - a. The appropriate protective clothing for welding varies.
 - b. As a minimum, welders should wear a heavy cotton shirt with long sleeves, heavy cotton pants, leather gloves, and a cotton welder's cap.
 - c. All protective clothing must be free of holes.
 - d. Protective clothing must be kept free of flammable liquids.
5. **First Aid.**
 - a. Welders frequently experience minor eye injuries and burns.
 - b. Injured workers must have first aid readily available.
 - c. Someone in the workplace will be CPR/First Aid trained.
 - d. A First Aid Kit must be provided.
 - e. An eyewash station must be provided.
6. **Hygiene**
 - a. Do not eat or drink in the immediate area of the welding operation.
 - b. Shower as soon as possible after you are finished welding.
 - c. Do not keep butane lighters in pocket, etc.
 - d. Frequently rinse your eyes with sterile eyewash at least at the end of each shift.
 - e. Breathing welding fumes from any metal or coatings is potentially harmful.
7. **Ventilation**
 - a. Natural ventilation is usually adequate to protect workers welding outdoors.
 - b. In interior areas, a competent person must determine if mechanical ventilation is necessary before work begins.
8. **Respiratory Protection.**
 - a. Where adequate ventilation can not be established, respirators must be used.
 - b. Depending upon the situation and the materials involved, different types of respirators may be necessary.

Gas welding

1. Gas cylinders contain high pressure and should be handled as follows:
 - a. Cylinders should be stored, transported, and used in a vertical position - this is especially necessary with acetylene cylinders.
 - b. Keep cylinders secured so that they can not fall over and damage valves.
 - c. Keep valve protectors in place when cylinders are not in use.
 - d. Store oxygen and fuel separately, at least 25 feet apart, when not in use.
2. Do not interchange equipment designed for fuel and oxygen use.
3. Inspect equipment before use.
 - a. Make certain fuel and oxygen equipment is proper for the gas they will discharge.
 - b. Look for signs of oil or other hydrocarbons on oxygen equipment - remove any oil or hydrocarbons that are present.
 - c. Check regulators and hoses for leaks. Hoses must have flashback arresters to prevent flashback.
 - d. Keep valves closed, except when cylinder is in use.
 - e. Set regulators to the proper pressure - acetylene cylinders must never be set above 15 psi.
4. Gas cylinders must not be brought into a confined space.
5. Hoses must not be left unattended in confined spaces.
6. Never use oxygen to blow dust from clothing or equipment.

Arc welding

1. The arc welding equipment must be maintained to factory specifications.
 - a. Covers and guards should be in place.
 - b. The system should not be modified without the manufacturer's approval.
2. The arc welding machine must be properly grounded.
3. Cables must be inspected prior to use.
 - a. Cables can not have splices within ten feet of the holder.

- b. Cables with damaged insulation must be repaired or replaced.
- c. Joining cables must be done with connections specifically designed for that purpose.
- d. Do not wrap cables around any part of your body.

Grinding

1. Welding and burning operations often require that grinding be done as part of the welding and burning operation.
 - a. Inspect the grinder before use.
 - b. The guard must be in place and properly adjusted.
 - c. Make sure you have the proper wheel or brush.
 - d. Make sure the wheel is in good condition.
 - e. Power cord and insulation must be intact.
2. Do not wear loose clothing - tuck in your shirt.
3. Wear proper PPE.
 - a. You must wear hearing protection, goggles and a face shield.
 - b. A dust respirator may also be necessary.
4. Watch where you are throwing sparks and grindings - don't throw them towards other workers.
5. Grinding may require a hot-work permit.

10.4 CASING HANDLING

Casing Handling

Casing Crews:

A safety meeting shall be held prior to running casing. The meeting shall include all personnel involved in the casing process. Topics discussed, hazards identified, and attendance at this meeting shall be documented and such documentation shall be furnished to Store Manager. Safety is a critical discipline for casing and laydown handling crews. All new employees will receive special safety training from the store manager regardless of the past experience of the employee. All JSA's and BBS forms must be filled out and returned on time. If you have any questions, talk to your store manager.

Deformed or damaged tools shall not be used. Modified tools shall not be used unless approved by the manufacturer.

The following shall apply during the casing process:

1. When picking up pipe with an air hoist, the cable shall be attached at the end of the pipe rather than down the pipe.
2. The bottom of the V-door shall be free of debris and personnel.
3. Equipment, such as pick-up lines, cable hooks, elevators, etc. shall never be modified without consulting the manufacturer.
4. Communication shall be maintained between all parties involved in the casing process.
5. Stabbing pipe standing on a rig girt shall not be allowed. Pipe shall be stabbed from an adjustable stabbing board located in the derrick. The mounting of a permanent or semi-permanent adjustable stabbing board on the rig shall be done whenever possible. The mounting of an adjustable stabbing board is not always possible on small derricks.
6. Short joints of casing may come out of the trough quicker than long joints. The person running the draw works shall pay particular attention so that the casing is not lifted too high.
7. Low-pressure centrifugal pumps are recommended during fill-up. Hooking up to high-pressure pumps shall not occur unless a system valve is left open to prevent excessive pressure to the fill-up hose.
8. An ANSI approved full body harness and fall protection shall be used while on the stabbing board.
9. Safety switches shall be installed on tongs to ensure that they are not operated unless tongs are closed.
10. Hands shall never be placed on the floor pole of the lay down/pick-up machine.
11. A drill collar clamp shall be used for securing the lay-down machine pole in the mouse hole and a guard shall be provided to cover the clamp and mouse hole.
12. The doors on tongs that close the front of the tongs shall have a positive latching mechanism to keep the door shut.
13. The hydraulic unit that runs the casing tongs should be placed a minimum of 25 feet from the well bore.
14. Under no circumstances shall anyone be on the catwalk or under the V-door area while the pick-up/lay-down bucket is in operation. If lift arms are to be adjusted, the pick-up/lay-down machine shall be shut down completely.
15. The cement crew will not be allowed on the floor until the casing crew has left the floor.
16. There shall be a safe means of lowering thread protectors from the rig floor to the ground. Unsecured thread protectors shall not be lowered in the bucket.

10.5 TUBULAR HANDLING

All personnel shall be a safe distance from the truck to be unloaded while tubulars are being loaded or unloaded. However, personnel may be within 20 feet when tubulars are less than 10 feet where a person is required to be on the float bed (i.e.

Crew picking up single joints from float). If it is necessary to use a forklift to assist in installing or removing chocks on float beds, the forklift shall be in position and stationary before any personnel approach the truck.

Appropriate equipment shall be required for unloading/loading tubulars on trucks. When more than a single tubular is to be handled, a forklift shall be required. The forklift shall be capable of reaching across the float of a truck. The loading and unloading of tubulars with a gin pole truck is prohibited. A truck equipped with a winch line shall deliver single piece tubular movements (e.g., drilling jars). Chocks should be installed properly, i.e., if the chock requires two nails, two nails shall be installed.

For tubular loads, the following requirements are provided:

1. All tubular loads bottom layer shall be stripped and chocked, as 4" x 4" stripping is preferred whenever possible, 2" x 4" stripping may be used if 4" x 4" stripping is impracticable.
2. The top layer of the load shall be strapped with a minimum of 1 strap per 10 linear feet.
3. The load height shall not exceed the height of the headache rack on the truck.
4. A minimum of two straps shall be used on all pieces of equipment.
5. PPE that must be used includes as a minimum:
 - a. hard hats
 - b. safety-toed footwear
 - c. safety glasses with side shields
 - d. gloves

10.6 PIPE RACKS

Rules:

1. Walking on tubulars or pipe racks shall not be permitted.
2. Pipe shall be chocked immediately after being placed on the rack.

When rolling tubulars:

1. Push pipe away from the body when possible.
2. Place hands in a safe position (on back of pipe).
3. Rolling pipe with the feet is prohibited.
4. Always watch for pinch points when rolling pipe.
5. Do not leave the end of the stripping protruding more than a few inches beyond the racked pipe.

10.7 WINCH AND GIN POLE TRUCKS

Rules:

1. All lines, slings, and bridles shall be maintained in good working order.
2. Wire rope shall not be used if it shows signs of excessive wear, corrosion, or defect.
3. Wire rope shall not be secured by tying with knots.
4. All wire rope clips or clamps shall be installed per OSHA 29 CFR 1926.251(h)20.
5. Riders shall not be permitted on the exterior of winch or gin pole trucks.
6. Protruding ends of strands in splices on slings and bridles shall be covered or blunted.
7. Tables H-3 through H-14 of 29 CFR 1926.251 shall be used to determine the safe working loads of various sizes and classifications of improved plow steel wire rope and wire rope slings with various types of terminals. For sizes, classifications, and grades not included in these tables, the safe working load recommended by the manufacturer for specific, identifiable products shall be followed, provided that a safety factor of not less than 5 is maintained.
8. **SWAGED ENDINGS** – Rotary swaging is the cold flowing or forging of metal fittings around wire rope. The union thus formed between rope and fittings is approximately the catalog strength of the wire rope.
9. When U-bolt wire rope clips are used to form eyes, table H-20 of 29 CFR 1926.251 shall be used to determine the number and spacing of clips.
10. When used for eye splices, the U-bolt shall be applied so that the "U" section is in contact with the dead end of the rope.
11. Swampers shall be required to stand back a safe distance from a load that is being lifted or tail boarded on a truck or trailer.
12. Hydraulic wire rope cutters shall be used.

11.0 HAZARDOUS ATMOSPHERES

11.1 HYDROGEN SULFIDE (H₂S)

Graco Oilfield Services realizes that employees may come into contact with hydrogen sulfide (H₂S). H₂S can cause loss of consciousness or death at low concentrations. This gas is highly toxic and is colorless. It is heavier than air. It is flammable with an explosive range from 4.3% to 46% by volume. It is corrosive to metals and can also lead to hydrogen embrittlement and sulfide stress cracks. In low concentrations, it may smell like rotten eggs. Do not rely on the odor to detect H₂S since it quickly deadens the sense of smell. When H₂S is present, iron sulfide may also be present. H₂S burns with a blue flame and produces sulfur dioxide that is another toxic gas. Signs should be posted in areas where H₂S is present. Personnel working in an H₂S environment will have H₂S training. Personnel working in an H₂S environment shall carry a current H₂S training certification card on their person at all times.

Use detection equipment when working in an area where there is a possibility of hydrogen sulfide gas, especially in enclosed or below grade areas. Do not enter a hydrogen sulfide area without proper training (including CPR) and authorization. In atmospheres immediately dangerous to life or health (IDLH level of 100 ppm or greater), a standby person(s), with suitable self-contained breathing apparatus must be available for purposes of rescue. Never attempt to rescue a hydrogen sulfide victim without proper respiratory protection in the form of a Self-Contained-Breathing-Apparatus (SCBA) or an approved air line unit equipped with an escape pack. *Iron sulfide deposits are generally found in hydrogen sulfide areas i.e. tanks, vessels and piping. Iron sulfide may spontaneously combust when exposed to air and should always be kept wet to prevent ignition.*

11.2 CARBON DIOXIDE (CO₂) & CARBON MONOXIDE (CO)

Carbon Dioxide and Carbon Monoxide are generally non-toxic, non-flammable, colorless, tasteless, and odorless gases. CO₂, in high concentrations, has an acidic taste and a slightly pungent odor. It is heavier than air and tends to accumulate in low-lying areas. Extended overexposure to CO₂ and CO blocks the intake of oxygen, stimulates breathing and increases the heart rate. This reaction can result in discomfort, nausea, and ultimately unconsciousness and death.

NOTE: Liquid CO₂ can be hazardous if trapped in a line or container and allowed to heat up. The properties of CO₂ are such that as the temperature increases in a closed system, the pressure in the system increases dramatically.

12.0 FUELS AND GASES

12.1 GASES

Operational Safety Procedures

Equipment containing highly toxic gases requires an Operational Safety Procedure (OSP) and must comply with the requirements described in the chapters on chemical safety. If you are in doubt as to the hazards, toxicity, or safe operating practices for any gases, consult with the Responsible Safety Officer.

Fire Risk

Fire requires three elements: fuel, oxygen, and ignition. Any experiment or routine operation that places a flammable gas in the presence of an oxidant (air, oxygen) and an ignition source (spark, flame, high temperature) is extremely dangerous. To reduce the risk of fire, eliminate two of these three elements. Thus, when using flammable gases, (1) eliminate ignition sources and (2) prevent mixing of fuel with air or oxygen. Contain or vent fuel. Pyrophoric substances, which are materials that ignite spontaneously when exposed to air, require even more care. Minimize the use of oxygen in high concentration. Materials not normally considered combustible burn violently in high-oxygen atmospheres. Therefore, special precautions must be taken when working with high-oxygen concentrations.

Guidelines

All personnel authorized to work with flammable gases must be familiar with the hazards and emergency measures that might be required in the event of an accident. For safe operation the following safety guidelines must be observed:

1. Good housekeeping practices must be observed at all times.
2. Unnecessary combustible material must be kept out of flammable gas operating areas.
3. Only the flammable gas cylinders actually required for the job are allowed in the work area.
4. Extra cylinders must be stored in an approved area outside the building or work area.
5. When two or more cylinders containing flammable gas are used inside a room or other confined area, and are connected to a common manifold, the regulators must be modified. The existing relief valves on the regulator must be replaced with two special relief valves connected to a metal vent line that terminates outside and above the building.
6. Likewise, when the building occupancy is rated H7, as defined in the Uniform Building Code, all flammable gas regulators must have their relief valves vented to a vent line that terminates outside and above the building.

7. All ignition sources, e.g., welding torches, lit cigarettes, electric arcs, electrostatic charges, and pilot lights, must be kept away from flammable gases at all times.
8. Ventilation must be provided to prevent entrapment of flammable gases in closed areas. If the gas is lighter than air, overhead ventilation is required. Gases denser than air must be prevented from entering trenches and manholes where they can collect and form explosive mixtures with air.
9. Cracking a hydrogen gas cylinder valve before attaching the regulator is not recommended since the gas may be ignited by static charge or friction heating. Closing the valve stops the flame immediately.
10. Never use a flame to detect flammable gas leaks. Use soapy water or use other approved methods.
11. If a flammable gas cylinder is discovered with a small leak and the gas has not ignited, the cylinder must be moved carefully to a safe outside area. If the leak is serious or the gas has ignited, evacuate the area and call the local Fire Department immediately.

12.2 COMPRESSED GAS

Moving Cylinders

1. Transport compressed gas cylinders in DOT approved, corrosion-resistant racks.
2. Make sure the valve protector cap is secure before moving cylinders.
3. Keep the protector caps in place when cylinders are not in use.
4. Do not use slings, ropes, or chains to lift a cylinder.
5. Do not lift cylinders by protector caps.
6. Use a hand truck to move cylinders to prevent sliding or dragging.
7. Securely fasten the cylinders to the hand truck.

Storage

1. Store cylinders in shaded areas.
2. Keep caps in place when cylinders are not in use.
3. Keep compressed gas cylinders at least 20 feet from highly combustible or flammable materials such as oil or chemicals. Alternatively, separate the cylinders with a metal wall 5 feet high and 1-4 inch thick.
4. Do not place compressed gas cylinders where they might become a part of an electrical circuit.
5. Do not expose cylinders to an open flame, a temperature above 125 degree F, or an area where heavy equipment is being moved.
6. Do not use compressed gas cylinders as rollers or supports, or for any purpose other than to contain the content as received.
7. Secure cylinders upright to prevent them from being knocked over or damaged. Rope is not allowed to be used for securing cylinders.

Use

1. Remember, when handling cylinders that the contents are under high pressure.
2. Keep the cylinder valve closed at all times, except when the cylinder is in active use.
3. Open the valve slowly with valve pointing away from the other employees.
4. Do not use compressed gas for cleaning because it may injure the eyes or body or create a fire hazard.
5. Do not use cylinders that have been defaced or that are missing identifying markings, labels, decals, tags, or stencil marks.
6. Use regulators, gauges, and hoses only for the particular gas or group of gases for which they are provided. Do not use them on cylinders containing gases with different properties.
7. Use properly fitted and recommended wrenches with cylinder valve accessories.
8. Install flashback arrestors at the discharge of the regulators, and at the torch.

Oxygen Cylinders

1. Oxygen cylinders are pressured to 2,400 pounds-per-square-inch-gauge (psig) at 70 degrees F when full.
2. Oxygen alone will not burn; however, it supports combustion.
3. Do not lubricate or allow oil or grease to contaminate oxygen connections to prevent spontaneous explosions and fires that may occur when oxygen contacts oil or grease.
4. Do not use oxygen in place of compressed air or as a source of pressure.
5. Separate oxygen cylinders and fuel-gas cylinders (such as acetylene, propane, and propylene) by at least 20 feet or by a metal wall 5 feet high, ¼" thick, and as wide as the storage rack.

Acetylene Cylinders

1. Use and store acetylene cylinders upright to prevent the acetone (a stabilizing agent) from draining into the valves or fittings.
2. Do not use acetylene at a hose pressure exceeding 15 psig to reduce the possibility of an explosion.

3. Acetylene is extremely unstable at pressures above 15 psig.

Natural Gas

1. Do not use natural gas to power pneumatic tools.
2. Do not use natural gas in areas that have an ignition source.
3. Vent pump and starter exhaust to a safe area. Do not vent or exhaust to confined areas, enclosures, or areas where the gas can be trapped.
4. Do not use rubber hoses as supply or exhaust lines for natural gas powered equipment.
5. Isolate natural gas and air supply systems from each other. Never commingle natural gas and air supply systems.
6. Install an odorization unit in the gas line before it enters the building so that a leak can be detected when natural gas is used for domestic purposes inside building (for example, in stoves and heaters).