

Company
Safety and Health
Manual



CBC Pipeline, LLC.

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Chapter 1

Injury and Illness Prevention Program

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. If at any time you are unclear or need assistance regarding the information contained herein, notify your immediate supervisor or administration office immediately. Thank you for all our safety.

Introduction to Our Program

State and federal law, as well as company policy make 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 CBC Pipeline, LLC. 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 of CBC Pipeline, LLC. 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

CBC Pipeline, LLC. 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 CBC Pipeline, LLC. 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.

Safety Program Goals

The objective of CBC Pipeline, LLC. 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 CBC Pipeline, LLC. that accident prevention shall be considered of primary importance in all phases of operation and administration. It is the intention of CBC Pipeline, LLC. '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 CBC Pipeline, LLC. 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.** All employees shall follow the safe practices and rules contained in this manual and such other rules and practices communicated on the job. All employees shall 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 RSO shall be 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, etc.) will be worn whenever needed.
- 5.** All employees will participate in safety meetings conducted by their supervisor on a regular basis to continuously provide a safe workplace for all. This is an essential part of our program for protecting our employees from accidents and illness.
- 6.** Anyone under the influence of intoxicating liquor or drugs, including prescription drugs which might impair motor skills and judgment, shall 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 shall be well planned and supervised to avoid injuries in the handling of heavy materials and while using equipment.
- 9.** No one shall 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 liquor or beer on the job.

11. Employees should be alert to see that all guards and other protective devices are in their proper places and adjusted, and shall report deficiencies promptly to the RSO.

12. Employees shall not handle or tamper with any electrical equipment, machinery, or air or water lines in a manner not within the scope of their duties, unless they have received specific instructions.

13. All injuries should be reported to the Supervisor, Responsible Safety Officer, or RSO 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.

Responsible Safety Officer

The identity of the person who is responsible for the CBC Pipeline, LLC. safety program is Replace with safety Person's Name. This person must be someone of sufficient authority to implement the program. In addition to other titles, this person is called the *Responsible Safety Officer*.

Safety Committee

At CBC Pipeline, LLC. there are two employees designated as members of the Company Safety Committee. These members will meet on a regular basis to discuss and evaluate the effectiveness of all company safety programs and policies, and implement any changes that may be necessary to keep all programs and policies current. Minutes from these meetings should be recorded and filed for future reference.

Employee Compliance

This written plan contains incentives designed to promote employee participation in the safety program. These incentives are not part of your regular compensation and are

not intended to discourage you from reporting accidents.

Agreement to Participate

Every employer is required to provide a safe and healthful workplace. CBC Pipeline, LLC. is committed to fulfilling this requirement. A safe and healthful workplace is one of the highest priorities of CBC Pipeline, LLC. .

The information in this manual constitutes a written injury and illness prevention program. While CBC Pipeline, LLC. cannot anticipate every workplace hazard, the following general principals should guide your conduct. To be safe, you must never stop being safety conscious.

Study the guidelines contained in this manual. Discuss the workplace situation with the supervisor or the RSO. Attend all company sponsored training and safety meetings. Read all posters and warnings. Listen to instructions carefully. Follow the Code of Safe Work Place Practices contained herein. Participate in accident investigations as requested. Accept responsibility for the safety of others. Maintain all required documentation.

Each employee shall read and implement this injury and illness prevention program. If you do not understand any policy, please ask your supervisor.

Employee Safety Suggestion Box

Please give your written safety suggestions to your supervisor during the safety meetings. All safety suggestions will be discussed at the meeting. The group that consistently has the best safety suggestions will also be recognized. Management is the sole judge of the value of safety suggestions, and will implement as many good suggestions as possible.

Training

Employee safety training is another requirement of an effective injury and illness prevention program. While CBC Pipeline, LLC. 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.

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:

- a)** the success of CBC Pipeline, LLC. 's injury and illness prevention program depends on the actions of individual employees as well as a commitment by the Company.
- b)** 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.
- c)** each employee will learn when personal protective equipment is required or necessary, and how to use and maintain the equipment in good condition.
- d)** 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 CBC Pipeline, LLC. '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

CBC Pipeline, LLC. 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 week, the RSO 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. A copy of the sign-up sheet and any applicable notes will also be placed in the office file. Employee attendance is mandatory, safety training & updates will continue to be a part of our ongoing safety program.

Employee Responsibility for Training

Teaching safety is a two-way street. CBC Pipeline, LLC. 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. They will also read and discuss a section of the manual and review application of general safety rules to specific situations.

Remember, the following general rules apply in all situations:

- a)** no employee should undertake a job that appears to be unsafe.
- b)** no employee is expected to undertake a job until he/she has received adequate safety instructions, and is authorized to perform the task.
- c)** no employee should use chemicals without fully understanding their toxic properties and without the knowledge required to work with these chemicals safely. Use the MSDS regularly.
- d)** mechanical safeguards must be kept in place.
- e)** employees must report any unsafe conditions to the job site supervisor and the Responsible Safety Officer.
- f)** any work-related injury or illness must be reported to management at once.
- g)** 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 all employees are familiar with the elements of the company safety program. CBC Pipeline, LLC. 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.

Incident Reporting

Definitions

Incident. Any unplanned event that occurs during the performance of work.

First Aid Case. An occupational injury or illness where care given that is not classified as medical treatment according to OSHA Recordkeeping guidelines.

Medical Treatment Case (OSHA Recordable Case). An occupational injury or illness requiring medical treatment as defined by the OSHA Recordkeeping guidelines. Common examples include intrusive procedures (i.e. lancing, stitches, drilling), second or subsequent return visits for treatments of any kind, prescribing medication, broken bones, loss of consciousness, restricted work activities, lost days from work, and welding flash burns of the eye.

Responsibilities

Employee. Employees are required to immediately report all incidents upon their occurrence to their supervisor.

Field Supervision. Supervisors are responsible for ensuring the medical needs of employees are met when an injury or illness results from an incident at work. When medical needs are satisfied, supervisors are responsible for reporting the event, securing the accident scene and initiating the incident investigation process.

Site or Project Safety Representative. Safety representatives are responsible for coordinating the accident investigation process, coordinating root cause analysis meetings, and ensuring accident investigation reports are submitted properly and in a timely manner.

Director of Safety. The Director of Safety, Replace with safety Person's Name is responsible for the administration of the incident reporting and investigation process, distribution of corporate reports, and maintaining the incident database.

Management Personnel. Management personnel are responsible for ensuring all incidents are reported, and investigated in accordance with company requirements.

Reporting and Investigation Requirements

Project Reporting Procedures

All locations are required to have a written reporting process that is communicated to all employees. The reporting process shall include client requirements.

Reporting All Incidents

All incidents shall be verbally reported upon their occurrence to the following:

1. Site or location Manager or Senior Management Representative
2. Client in accordance with requirements
3. Site Safety Representative
4. Operations person responsible for the work
5. Responsible supervisor
6. Corporate Workers' Compensation Administrator
7. Others as directed

All incidents shall be documented on the "Incident and Investigation Report" and submitted no later than 10:00 A.M. the following day. The preferred method of reporting is electronic mail.

1. Director of Safety (RSO)
2. Workers' Compensation Representative
3. Field Safety Representative
4. Client as required
5. Others as directed

Significant Event Reporting. Significant Incidents must be reported in accordance with this section. Significant events include:

1. Classified as OSHA Recordable Cases & Serious Events
2. Could have resulted in serious injury or property damage
3. Example of an unfavorable trend
4. Significant property damage or repeated property damage
5. Theft
6. Involvement of Third Parties
7. A high level of occurrence
8. Must be communicated to affirm a change in a policy, procedure, or standard
9. A new lesson learned

10. As requested by any member of management from General Foreman to the President

Site or Project Safety Representative.

1. Gather pertinent information
2. Notify Corporate Director of Safety and Division Manager immediately.
3. Schedule Root Cause Investigation
4. Complete Root Cause investigation
5. Share all information and learning experiences with site and project where incident occurred with 24 hours of root cause investigation conclusion. (employees and Client Representatives)
6. Forward all information to GSI Corporate Director of Safety within 24 hours of the completion of root cause investigation
7. Forward all information to the Workers' Compensation Administrator within 24 hours of the completion of root cause investigation.

Corporate Safety Director. The RSO, Replace with safety Person's Name will:

1. Notify President and Vice President that incident has occurred.
2. Assist Site Safety Representative and Project Manager with Root Cause Investigations
3. Share information with client "EH&S" representatives at each site within three days of the completion of Root Cause Investigation. The information to be communicated for Significant Events include the following information to the extent possible:
 - a. Type of Event
 - b. Classification
 - c. Date
 - d. Description
 - e. Root Cause and Factors
 - f. Lesson Learned
 - g. Authorized Photographs, diagrams and other information that are descriptive of the event

Field Supervision

1. Receive information from Corporate Director of Safety of significant incident that has occurred.
2. Communicate significant incident with all CBC Pipeline, LLC. employees on site or project within 24 hours of receiving information from corporate Director of Safety.

Fatal Events. In the event of a fatal event certain government agencies, company officials, client/owners and others as are required to be notified as defined below:

1. President
2. Director of Safety
3. Manager of Human Resources
4. Safety Contact responsible for Area
5. Workers' Compensation Administrator
6. Public law enforcement agency (who will contact the coroner)
7. Area Federal or State Occupational Safety and Health Office (OSHA). Director of Safety or a company legal representative must be notified prior to contacting this agency.
8. Mine Safety and Health Administration (MSHA) if they have jurisdiction.

OSHA Reporting. The Director of Safety must be notified before any contact with the Occupational Safety and Health Administration regarding the reporting of work related injuries.

The general requirements for reporting accidents to OSHA are:

Within eight (8) hours after the death of any employee from a work-related incident or the in-patient hospitalization of three or more employees as a result of a work-related incident, you must orally report the fatality/multiple hospitalization by telephone or in person to the Area Office of the Occupational Safety and Health Administration (OSHA), U.S. Department of Labor, that is nearest to the site of the incident. You may also use the OSHA toll-free central telephone number, 1-800-321-OSHA (1-800-321-6742).

If the Area Office is closed, the incident must be reported by using the 800-telephone number.

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:

* Incorporate safety into every job procedure. No job is done efficiently unless it has been done safely.

- * Know and obey safe practice rules.
- * Know that disciplinary action may result from a violation of the safety rules.
- * Report all injuries immediately, no matter how slight the injury may be.
- * Caution fellow workers when they perform unsafe acts.
- * Don't take chances.
- * Ask questions when there is any doubt concerning safety.
- * Don't tamper with anything you do not understand.
- * Report all unsafe conditions or equipment to your supervisor immediately.

Accident Prevention Policy Posting

A copy of this manual will be posted in the work area.

It is the policy of CBC Pipeline, LLC. 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.

Substance Abuse Program and Policy

It is the policy of CBC Pipeline, LLC. to have a drug-free workplace. All employees are expected to report to work in a drug-free physical and mental condition that will allow them to perform their work in a safe, and competent manner. Employees who voluntarily, or through testing prove to have a substance abuse problem may be referred to a community substance abuse program to seek help.

Prohibited/ Illegal Substances

The type of illegal substances prohibited includes, but is not limited to the following:

1. Illegal and unauthorized drugs (including any amounts in the urine or bloodstream).
2. Unauthorized alcoholic beverages.
3. Drug-related paraphernalia.
4. Unauthorized weapons, firearms, or explosive devices (including those found in vehicles).
5. Stolen property (including proprietary information).
6. Abuse of prescription or legally controlled substances.

Detection

As part of our substance abuse program, new workers may be given an initial drug screening/ test. Workers who test positive for drugs, or other signs of substance abuse will not be hired. Additionally, random drug testing may be performed throughout your term of employment at CBC Pipeline, LLC. 's discretion, including but not limited to the following:

1. Any workers involved in jobsite or vehicular accidents, or near-misses may be subject to immediate drug testing.
2. Random searches by outside inspection services (including drug detection dogs).
3. Reasonable suspicion (or cause) testing.
4. Post rehabilitation/ probationary testing.
5. Testing to comply with contractual obligations, or governmental agencies.
6. Routine, periodical testing.

Workers already employed by CBC Pipeline, LLC. who test positive for drugs may be terminated, or referred to a community substance abuse program for help, disciplinary action, or notification of authorities, at the discretion of CBC Pipeline, LLC. .

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, CBC Pipeline, LLC. 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 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 the 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 week, 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 CBC Pipeline, LLC. 's code of safe work practices.

Accident Investigation

A primary tool used by CBC Pipeline, LLC. 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 CBC Pipeline, LLC. 's 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.

Every job location will have on site at least one camera, preferably either a video or a sixty second type, with enough film to take pictures immediately after any accident occurrence. Some workplaces will have a video camera.

A written report should be prepared from notes and diagrams made at the scene, or a portable Dictaphone will be used to record direct eyewitness statements as near to the actual time of observation as possible. All statements should include the time and date given, and the town or county where the statement was made. If the statement is intended to be used in court proceedings, a suitable jurat 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. All pictures should be similarly identified. Let people know on tape that they are being recorded. 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 or representative 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

CBC Pipeline, LLC. 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 and Summary of Occupational Injuries Form 300 according to its instructions. Supplemental records of each injury are maintained on OSHA Form 301, or Employers Report of Injury or Illness Form 5020. Every year, a summary of all reported injuries or illnesses is posted no later than February 1, for three months, until April 30, on OSHA Form 301. These records are maintained for five years from the date of preparation.

General Statement on Safety

CBC Pipeline, LLC. 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.

General Statement on Safety

Each employee has an individual responsibility to prevent accidents. It is to the benefit of all employees and CBC Pipeline, LLC. that you report any situation or condition you believe may present a safety hazard, including any known or concealed dangers in your work area. CBC Pipeline, LLC. encourages you to report your concern either to your immediate supervisor or to a member of the Safety Committee. The supervisor or Safety Committee 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.

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

Rubber gloves and rubber aprons shall be worn when working with acids, caustics or other corrosive materials.

Specified footwear must be worn.

No jewelry shall be worn around power equipment.

Hearing protection appliances (approved muffs or plugs) shall be worn by all employees working within any area identified as having excess noise levels. Your supervisor will instruct you in the proper use of the appliance.

Protective Clothing

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 carry out 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.

Smoking and 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 the smoking rules:

- * Smoking is not allowed on the site, except in designated areas.
- * Smoking is not permitted in rest rooms.
- * If you are not sure about where you may smoke, ask the supervisor.

Safety Recognition

Definitions

Milestone Safety Achievement. A level of safety performance that meets or exceeds a statistical objective or expectations.

Safe Behavior Performance. An individual or individuals performing work in accordance with standards, requirements and expectations.

Behavior Based Safety means a process where behavioral performance of individuals is the key element of accomplishing safe work objectives.

Responsibilities

The Director of Safety and Training, Replace with safety Person's Name is responsible for the general administration of this policy. Project management is responsible for

implementing project level recognition programs.

Recognition Guides

Recognition of safe performance should not be the driving force in achieving safety success. Safe work performance should be viewed as part of successful planning and execution of work.

Milestone Safety Achievement

On a corporate level, CBC Pipeline, LLC. itself should recognize global and group safe work performance. The President, and Director of Safety will determine the type and extent of global and group recognition. The expectation of employees to work each day without an incident dictates that acceptable statistical performance objectives are "0".

Milestone safety achievements should be based on this premise. Recognition for such performance should be based upon the level of hours worked.

Key milestone markers are:

Calendar Year

50,000 hour increments

100,000 hour increments

Behavior Based Recognition

Projects and locations are encouraged to implement behavior based safety recognition of individuals and groups. Examples of safe behavior include:

Effective participation in the proactive evaluation process

Proactive safety suggestions

Demonstration of consistent safe behavior

Making observations and taking intervening actions

Participation in safety teams

Safe Behavior Performance Recognition

Any member of supervision or management may recommend recognition of an individual, project, group or discipline. This recommendation must be in written form and submitted to the RSO, Replace with safety Person's Name for consideration. This recommendation must be based upon safe behavior performance. Information that must be submitted includes:

Project or Group Name
Employee Name as applicable
Reason for recommendation and time frame
Type of corporate recognition recommended

Chapter 2

General Code of Safe Work Practices

General Fire Safety

Our local fire department is well acquainted with our facility, its location and specific hazards.

All fire doors and shutters must be maintained in good operating condition. Fire doors and shutters should be unobstructed and protected against obstructions, including their counterweights. Fire door and shutter fusible links must be in place. All automatic sprinkler water control valves, if any, air and water pressures should be checked routinely. The maintenance of automatic sprinkler systems is assigned to the Responsible Safety Officer. Sprinkler heads should be protected by metal guards if they could possibly be exposed to damage. Proper clearance must be maintained below sprinkler heads.

Portable fire extinguishers are provided in adequate number and type and are located throughout the facility. Fire extinguishers are mounted in readily accessible locations. Fire extinguishers are recharged regularly and the date of last inspection noted on their tags. All employees are periodically instructed in the use of extinguishers and fire protection procedures. Notify the Responsible Safety Officer of any damage to fire protection equipment.

Powder Actuated Tools

The employees using powder-actuated tools must be properly trained and will be issued a card as proof of that training. Some of the powder-actuated tools being used have written approval of the Division of Occupational Safety and Health. Check to see which tools require a certification and which certificates have been issued.

Each powder-actuated tool should be stored in its own locked container when not being used. Signs measuring at least 7" by 10" and in bold face typed reading "POWDER-ACTUATED TOOL IN USE" must be placed conspicuously when the tool is being used.

All powder-actuated tools must be left unloaded until they are actually ready to

be used.

Each day before using, each powder-actuated tool must be inspected for obstructions or defects.

The powder-actuated tool operators must have and must use appropriate personal protective equipment such as hard hats, safety goggles, safety shoes and ear protectors whenever they are using the machines.

Machine Guarding

Before operating any machine, every employee must have completed a training program on safe methods of machine operations. It is the primary purpose of supervision to ensure that employees are following safe machine operating procedures. There will be a regular program of safety inspection of machinery and equipment.

All machinery and equipment must be kept clean and properly maintained. There must be sufficient clearance provided around and between machines to allow for safe operations, set up, servicing, material handling and waste removal.

All equipment and machinery should be securely placed, and anchored when necessary, to prevent tipping or other movement that could result in personal injury. Most of the time, machinery should be bolted to the floor to prevent falling during an earthquake, and the electrical cord to the machinery fixed with a breaker or other shut-off device to stop power in case of machine movement.

There must be a power shut-off switch within reach of the operator's position at each machine. Electrical power to each machine shall be capable of being locked out for maintenance, repair or security. The non-current carrying metal parts of electrically operated machines must be bonded and grounded.

The foot-operated switches are guarded and/or arranged to prevent accidental actuation by personnel or falling objects. All manually operated valves and switches controlling the operation of equipment and machines must be clearly identified and readily accessible.

All EMERGENCY stop buttons are colored RED. All the pulleys and belts which are within 7 feet of the floor or working level are properly guarded. All moving chains and gears must be properly guarded. All splash guards mounted on machines that use coolant must be positioned to prevent coolant from splashing the employees.

The supervisor will instruct every employee in the work area on the methods

provided to protect the operator and other employees in the machine area from hazards created by the operation of a machine, such as nip points, rotating parts, flying chips and sparks. The machinery guards must be secure and arranged so they do not present a hazard. All special hand tools used for placing and removing material must protect the operator's hands. All revolving drums, barrels and containers should be guarded by an enclosure that is interlocked with the drive mechanisms, so that revolution cannot occur unless the guard enclosure is in place. All arbors and mandrels must have firm and secure bearings and be free of play. A protective mechanism has been installed to prevent machines from automatically starting when power is restored after a power failure or shutdown. Machines should be constructed so as to be free from excessive vibration when the size tool is mounted and run at full speed. If the machinery is cleaned with compressed air, the air must be pressure controlled and personal protective equipment or other safeguards used to protect operators and other workers from eye and bodily injury. All fan blades should be protected by a guard having openings no larger than 1/2 inch when operating within 7 feet of the floor.

Saws used for ripping equipment must be installed with anti-kickback devices and spreaders. All radial arm saws must be arranged so that the cutting head will gently return to the back of the table when released.

Lockout-Blockout Procedures

All machinery or equipment capable of movement must be de-energized or disengaged and blocked or locked out during cleaning, servicing, adjusting or setting up operations, whenever required. The locking-out of the control circuits in lieu of locking-out main power disconnects is prohibited. All equipment control valve handles must be provided with a means for locking out. The lock-out procedure requires that stored energy (i.e. mechanical, hydraulic, air) be released or blocked before equipment is locked out for repairs.

Appropriate employees are provided with individually keyed personal safety locks. Employees are required to keep personal control of their key(s) while they have safety locks in use. Employees must check the safety of the lockout by attempting a start up after making sure no one is exposed.

Where the power disconnecter does not also disconnect the electrical control circuit, the appropriate electrical enclosures must be identified. The control circuit can also be disconnected and locked out.

Welding, Cutting and Brazing

Only authorized and trained personnel are permitted to use welding, cutting or

brazing equipment. All operators must have a copy of the appropriate operating instructions and are directed to follow them. Many areas may require a HOT WORK permit to be used before starting any welding or cutting operations. Check with the RSO before attempting any work without a permit.

Compressed gas cylinders should be regularly examined for obvious signs of defects, deep rusting, or leakage. Use care in handling and storing cylinders, safety valves, relief valves and the like, to prevent damage. Precaution must be taken to prevent mixture of air or oxygen with flammable gases, except at a burner or in a standard torch. Only approved apparatus (torches, regulators, pressure-reducing valves, acetylene generators, manifolds) may be used.

Cylinders must be kept away from sources of heat. It is prohibited to use cylinders as rollers or supports. Empty cylinders must be appropriately marked, their valves closed and valve-protection caps on.

Signs reading: DANGER - NO SMOKING, FLAMES, OR OPEN LIGHTS, or equivalent must be posted. Cylinders, cylinder valves, couplings, regulators, hoses and apparatus must be kept free of oily or greasy substances. Care must be taken not to drop or strike cylinders.

Unless secured on special trucks, all regulators must be removed and valve-protection caps put in place before moving cylinders. All cylinders without fixed hand wheels must have keys, handles, or non-adjustable wrenches on stem valves when in service. Liquefied gases must be stored and shipped valve-end up with valve covers in place. Before a regulator is removed, the valve must be closed and gas released from the regulator. All employees are instructed never to crack a fuel-gas cylinder valve near sources of ignition. Red is used to identify the acetylene (and other fuel-gas) hose, green for oxygen hose, and black for inert gas and air hose. All pressure-reducing regulators must be used only for the gas and pressures for which they are intended.

The open circuit (No Load) voltage of arc welding and cutting machines must be as low as possible and not in excess of the recommended limits. Under wet conditions, automatic controls for reducing no-load voltage must be used. Grounding of the machine frame and safety ground connections of portable machines must be checked periodically. Electrodes must be removed from the holders when not in use. All electric power to the welder must be shut off when no one is in attendance.

Suitable fire extinguishing equipment must be available for immediate use before starting to ignite the welding torch. The welder is strictly forbidden to coil or loop welding electrode cable around his/her body.

All wet welding machines must be thoroughly dried and tested before being used. All work and electrode lead cables must be frequently inspected for wear and damage, and replaced when needed. All connecting cable lengths must have adequate insulation. When the object to be welded cannot be moved and fire hazards cannot be removed, shields must be used to confine heat, sparks and slag.

Fire watchers will be assigned when welding or cutting is performed in locations where a serious fire might develop. All combustible floors must be kept wet, covered by damp sand, or protected by fire-resistant shields. When floors are wet down, personnel should be protected from possible electrical shock.

When welding is done on metal walls, precautions must be taken to protect combustibles on the other side. Before hot work is begun, used drums, barrels, tanks and other containers must be so thoroughly cleaned that no substances remain that could explode, ignite or produce toxic vapors. It is required that eye protection helmets, hand shields and goggles meet appropriate standards.

Employees exposed to the hazards created by welding, cutting or brazing operations must be protected with personal protective equipment and clothing. Check for adequate ventilation where welding or cutting is performed. When working in confined spaces, environmental monitoring tests should be taken and means provided for quick removal of welders in case of emergency.

Compressors and Compressed Air

All compressors must be equipped with pressure relief valves and pressure gauges. All compressor air intakes must be installed and equipped to ensure that only clean, uncontaminated air enters the compressor. Every air receiver must be provided with a drain pipe and valve at the lowest point for the removal of accumulated oil and water. Compressed air receivers must be periodically drained of moisture and oil. All safety valves shall be tested frequently and at regular intervals to determine whether they are in good operating condition. A current operating permit issued by the Division of Occupational Safety and Health shall be maintained. The inlet of air receivers and piping systems must be kept free of accumulated oil and carbonaceous materials.

Compressed Gas and Cylinders

Cylinders with a water weight capacity over 30 pounds must be equipped with means for connecting a valve protector device, or with a collar or recess to protect the valve. Cylinders must be legibly marked to identify clearly the gas contained. Compressed gas cylinders should be stored only in areas which are protected from external heat sources such as flame impingement, intense radiant heat, electric arcs or high temperature lines.

Cylinders must not be located or stored in areas where they will be damaged by passing or falling objects, or subject to tampering by unauthorized persons.

Cylinders must be stored or transported in a manner to prevent them from creating a hazard by tipping, falling or rolling. All cylinders containing liquefied fuel gas must be stored or transported in a position so that the safety relief device is always in direct contact with the vapor space in the cylinder. Valve protectors must always be placed on cylinders when the cylinders are not in use or connected for use. All valves must be closed off before a cylinder is moved, when the cylinder is empty, and at the completion of each job.

Low pressure fuel-gas cylinders must be checked periodically for corrosion, general distortion, cracks, or any other defect that might indicate a weakness or render them unfit for service. The periodic check of low pressure fuel-gas cylinders includes a close inspection of the cylinder's bottom.

Hoists and Auxiliary Equipment

Every overhead electrical hoist shall be equipped with a limit device to stop the hook travel at its highest and lowest points of safe travel. Check these limits without a load to ensure the device is working correctly. Each hoist should automatically stop and hold any load up to 125 percent of its rated load if its actuating force is removed. Check this periodically under controlled conditions. Make sure that the rated load of each hoist is legibly marked and visible to the operator. Stops should be provided at the safe limits of travel for trolley hoists.

The controls of hoists should be plainly marked to indicate direction of travel or motion. Every cage-controlled hoist must be equipped with an effective warning device. Close-fitting guards or other suitable devices should be installed on hoists to assure hoist ropes will be maintained in the sheave grooves.

All hoist chains or ropes must be of sufficient length to handle the full range of movement for the application, while maintaining two full wraps on the drum at all times.

All nip points or contact points between hoist ropes and sheaves which are permanently located within 7 feet of the floor, ground or working platform must be guarded. It is prohibited to use chains or rope slings that are kinked or twisted.

The operator should avoid carrying loads over people. Only employees who have been trained in the proper use of hoists are allowed to operate them.

Industrial Trucks-Forklifts

Only trained personnel should be allowed to operate industrial trucks. Lift Truck Operating rules must be posted and will be strictly enforced.

When operating any industrial truck, substantial overhead protective equipment will be provided on high lift rider equipment. Directional lighting is also provided on each industrial truck that operates in an area with less than 2 foot candles per square foot of general lighting.

Each industrial truck must have a warning horn, whistle, gong or other device which can be clearly heard above the normal noise in the area where operated. Before using a forklift, check that the brakes on each industrial truck are capable of bringing the vehicle to a complete and safe stop when fully loaded. The parking brake must effectively prevent the vehicle from moving when unattended. When motorized hand and hand/rider trucks are operated, and when the operator releases the steering mechanism, make sure that both the brakes are applied and power to the motor shut off. Maintenance records are available so that a driver can check on the servicing of the truck in case of questions.

When an industrial truck operates in areas where flammable gases, vapors, combustible dust, or ignitable fibers may be present in the atmosphere, the vehicle must be approved for such locations with a tag showing such approval posted on the vehicle itself.

Industrial trucks with internal combustion engines, operated in buildings or enclosed areas, should be carefully checked to ensure that the operation of the vehicle does not cause harmful concentration of dangerous gases or fumes.

Spraying Operations

In any spraying operation there should be adequate ventilation before starting any spraying job. As to the conditions of the area where the spray job is to be done, consideration should be taken before beginning work.

If the area is enclosed, does it require mechanical ventilation? Before working, make sure that the area is free of combustible materials, and that there are "No Smoking" signs adequately posted and easily seen. If mechanical ventilation is provided when spraying in enclosed areas, air should not be recirculated so as to avoid contamination. There should be adequate space and ventilation for all drying areas.

Also in an enclosed area, spray operations must be at least 20 feet from flames, sparks, operating electrical motors and other ignition sources. The spray area should

be free of any hot surfaces. Any solvent used in the cleaning process should not have a flash point of 100 degrees or less. If portable lamps are used to illuminate the spray areas they must be approved for the location and must be suitable for use in a hazardous area.

Approved respiratory equipment will be provided and must be used when appropriate during spraying operations. If a sprinkler system is within the confines of the spraying area operation, it should be in working order and will be inspected semi-annually to make sure that it is in operating condition.

If a spraying booth is used for the spraying operation, it must be made of metal, masonry or other noncombustible material. Make sure that "NO SMOKING" signs are posted in spray areas, paint rooms, paint booths and paint storage areas. The spray booth must be completely ventilated. Booth floors and baffles must be easily cleaned and noncombustible. Ducts and access doors must be easily cleaned. Lighting fixtures for both outside and inside the spray booth must be enclosed in clear see-through sealed panels. Electric motors for exhaust fans must be placed outside the booth. Belts and pulleys must be completely enclosed. Drying apparatus should be located in a well ventilated area in the booth and properly grounded.

Infrared drying apparatus must be kept out of the spray area during a spraying operation.

Confined Spaces

Before entry into a confined space, all impellers, agitators, or other moving equipment contained in the confined space must be locked-out. Ventilation must be either natural or mechanically provided into the confined space. All hazardous or corrosive substances that contain inert, toxic, flammable or corrosive materials must be valved off, blanked, disconnected and separated. Atmospheric tests should be performed to check for oxygen content, toxicity and explosive concentration. Atmospheric tests must be performed on a regular basis in a confined area where entry is required.

The area must also be checked for decaying vegetation or animal matter that could produce methane. Adequate lighting must be provided within the space. If the confined area is located below the ground or near where motor vehicles are operating, care must be taken that vehicle exhaust or carbon monoxide does not enter the space.

When personnel enter a confined area, assigned safety standby employees who are alert to the work being done, are able to sound an alarm if necessary and to render assistance, must be in the area. These standby employees must be trained to assist in

handling lifelines, respiratory equipment, CPR, first aid, and be able to employ rescue equipment that will remove the individual from the confined area. Standby personnel should be in teams of two during such an operation or else within the vicinity if working separately. There must also be an effective communication system utilized while the operation is occurring.

When equipment which utilizes oxygen, such as salamanders, torches or furnaces, is used in a confined space, adequate ventilation must be provided to guarantee oxygen content and combustion for the equipment. When this equipment is used, adequate measures must be taken to assure that exhaust gases are vented outside the enclosure. When gas welding or burning is used, hoses must be checked for leaks. Compressed bottled gas must be outside the area and torches must be lit outside the area also. The atmosphere must be tested each time before lighting a torch.

Environmental Controls

All employees must be aware of the hazards involved when working with chemicals and the remedies that need to be used when an accident does occur. A training program will give instructions on how to handle the chemical being used and first aid to be applied to victims of chemical exposure. First aid and caution signs will be conspicuously posted so as to alert individuals on a constant basis. Charts identifying the chemicals utilized in the workplace, their symptoms and effects must also be posted. The workers must know what the acceptable level of exposure to a chemical is and what safety systems must be in place when working with a chemical. Staff should also be aware of new chemical products which may be available that are less harmful, and they must ensure that facilities are adequately ventilated when using chemicals on the premises.

Spray painting operations done in spray rooms or booths must be equipped with an appropriate exhaust system. Periodic inspections must be made of the booth and noted on an inspection tag posted on the booth.

If welding is done, the welder should be certified. In the area of operation where the welding is taking place, the welder must be aware of ventilation available, the type of respirator that can be used in the area, and if exposure time or other means will suffice as a safe and adequate measure when welding as to the fumes that will be emitted. Welders should also be supplied with protective clothing and a flash shield during welding operations.

When forklifts and other vehicles are used in buildings or other enclosed areas, carbon monoxide levels must be kept below maximum acceptable concentration.

Noise levels also present a potential hazard. Noise levels within a facility must be at acceptable levels and if not, steps must be taken to reduce the level using recommended engineering controls.

When fibrous materials such as asbestos are being handled, the necessary precautions must be taken to protect the employee from the material. The material must be labeled, along with signs conspicuously posted that these materials are being used in the area. Employees should be aware of effective methods used to prevent emission of airborne asbestos fibers, silica dust and other similar hazardous materials. Some of the recommended methods of controlling the emission of these materials are by using water and vacuuming, rather than blowing and sweeping, the materials.

Machinery such as grinders, saws and other tools that produce a fine airborne dust must be vented to an industrial collector or central exhaust system. In any ventilation system the system should be designed and operated at an airflow and volume necessary for proper application and effectiveness. In the design of the ventilation system the ducts and belts must be free of obstructions and slippage.

As with all operations, there must be written standards on the procedures for the equipment, description of the job task, usage of the protective equipment provided, such as the selection and use of respirators, and when they are needed.

Any water that is provided to an employee throughout the facility should be clearly identified as to whether it is for drinking, washing or cooking. All restrooms must be kept clean and sanitary.

Employees should be screened before taking positions that may expose them to hazards they are not physically capable of handling. An employee who takes an assignment which requires physical labor must be trained to lift heavy loads properly so as not to damage themselves physically.

If the work assignment involves dealing with equipment that produces ultra-violet radiation, the employee must be properly protected or given the correct protective clothing.

An employee posted to an assignment on a roadway where there is heavy traffic must be given the designated protective clothing (bright colored traffic orange warning vest) and safety training regarding the hazards of this job.

Hazardous Chemical Exposures

In any company which utilizes chemical substances, a training program on the

handling, hazards, storage, exposure risks, symptoms of chemical exposure, and first aid needs to be part of any new employees training. There must also be follow-up training sessions as to any new chemical or processes that may be initiated by the company. Follow-up training sessions act as a reinforcement of safety standards that need to be followed on a daily basis.

In a training program, employees will learn acceptable levels of chemical exposure, proper storage and labeling of chemicals, and usage of protective clothing and equipment for handling chemicals. They will also learn about potential fire and toxicity hazards, when not to have a chemical in a confined area, or to store in closed containers, usage of eye wash fountains and safety showers, and the necessary posting of open, and dangerous areas. It is important that an employee recognize the Threshold Limit Values or Permissible Exposure Limits of airborne contaminants and physical agents in the workplace.

A procedural manual or set of instructions must be part of the program, with periodic inspections that clearly indicate whether an employee may be mishandling a chemical or endangering himself or others. Part of the manual or procedures must establish a standard of when and how to deal with chemical spills, neutralizing, and disposing of spills or overflows. These procedures must also be posted in an area that is easily accessible for reference usage.

First aid training and equipment will be routine in any facility where chemicals are used. Employees must know how to handle equipment in emergency situations, what equipment needs to be used and whether the equipment is adequate for the situation.

Respirators may be used either as protective safety equipment or for emergency usage. Therefore, the employee should recognize that respirators need to be stored in a clean, sanitary and convenient location and inspected on a regular basis. Also what respirators are approved by NIOSH for their particular applications.

With a first aid program an employee will recognize when a problem may be occurring by exposure to a chemical ranging from headaches, nausea, dermatitis problems to other factors of discomfort when they use solvents or chemicals.

In the design of a facility that transports chemicals from storage to vats, the content of pipes and storage containers must be clearly marked. Within that facility design there must be an emergency shut off system in case of accident. Each employee will be trained as to these emergency shut-off systems.

Ventilation is another major factor in the design of any facility. Whether by natural means or mechanical, the system must be designed to control dust, fumes, solvents,

gases, smoke or vapors which may be generated in the workplace. It is also important that a medical or biological monitoring system be in operation as part of the safety standards. If internal combustion engines are used in the facility, or if there is a chance of leakage or mixture with a chemical that could create a toxic gas, atmospheric gas levels must be monitored. If toxic chemicals are used and stored in the facility they should be located in an isolated area to guarantee safety.

Hazardous Substances Communication

When hazardous substances are used in the workplace, a hazard communication program dealing with Material Safety Data Sheets (MSDS), labeling and employee training will be in operation. MSDS materials will be readily available for each hazardous substance used. A training program plus regular question and answer sessions on dealing with hazardous materials will be given to keep employees informed.

The program will include an explanation of what an MSDS is and how to use and obtain one; MSDS contents for each hazardous substance or class of substances; explanation of the "Right to Know"; identification of where employees can see CBC Pipeline, LLC. 's written hazard communication program and where hazardous substances are present in their work area; the health hazards of substances in the work area, how to detect their presence, and specific protective measures to be used; as well as informing them of hazards of non-routine tasks and unlabeled pipes.

Electrical

Non-Qualified Workers

The workplace will be aware of the OSHA Electrical Safety Standards and will comply with the same. Non-Qualified Employees will be required to report any hazard to life or property that is observed in connection with a job, electrical equipment or lines.

Non-Qualified Employees will be expected to make preliminary inspections or appropriate tests to determine conditions before starting work. When equipment or lines are to be serviced, maintained or adjusted, employees must be aware of open switches. Lockouts must be tagged whenever possible.

Equipment such as electrical tools or appliance must be grounded or of the double insulated type. Extension cords being used must have a grounding conductor. The workplace supervisor must be aware if multiple plug adapters are prohibited.

In wet or damp locations, electrical tools and equipment must be appropriate for the use or location, or otherwise protected.

The location of electrical power lines and cables (overhead, underground, under floor, other side of walls) must be determined before digging, drilling or similar work is begun.

All metal measuring tapes, ropes, hand lines or similar devices with metallic thread woven into the fabric are prohibited for use where they could come in contact with energized parts of equipment or circuit conductors.

The use of metal ladders is prohibited in areas where the ladder or the person using the ladder could come in contact with energized parts of equipment, fixtures or conductors.

Use ground-fault circuit interrupters or an Assured Equipment Grounding Conductor Program for each temporary 15 or 20 ampere, 120 volt AC circuit at all locations.

Qualified Electricians

Qualified Electricians must be aware of the following:

Exposed wiring and cords with frayed or deteriorated insulation must be repaired or replaced.

Clamps or other securing means must be provided on flexible cords or cables at plugs, receptacles, tools, equipment. The cord jacket must be held securely in place.

All cord, cable and raceway connections must be intact and secure.

All disconnecting switches and circuit breakers must be labeled to indicate their use or equipment served.

A means for disconnecting equipment must always be opened before fuses are replaced.

All interior wiring systems must include provisions for grounding metal parts or electrical raceways, equipment and enclosures.

All electrical raceways and enclosures must be fastened securely in place.

All energized parts of electrical circuits and equipment must be guarded against accidental contact by approved cabinets or enclosures.

Sufficient access and working space will be provided and maintained around all electrical equipment to permit ready and safe operations and maintenance.

All unused openings (including conduit knockouts) in electrical enclosures and fittings must be closed with appropriate covers, plugs or plates.

Electrical enclosures such as switches, receptacles, junction boxes must be provided with tight-fitting covers or plates.

Disconnecting switches for electrical motors in excess of two horsepower must be capable of opening the circuit when the motor is in a stalled condition without exploding. (Switches must be horsepower rated equal to or in excess of the motor hp rating).

Low voltage protection must be provided in the control device of motor driven machines or equipment which could cause injury from inadvertent starting.

A motor disconnecting switch or circuit breaker must be located within sight of the motor control device.

Motors: a) must be located within sight of their controller; b) must have their controller disconnecting means capable of being locked in the open position; c) or must have separate disconnecting means installed in the circuit within sight of the motor.

A controller for a motor in excess of two horsepower must be rated equal to but not in excess of the motor it services.

Employees who regularly work on or around energized electrical equipment or lines will be instructed in cardio-pulmonary resuscitation (CPR) methods.

Employees will be trained on how to work on energized lines or equipment over 600 volts.

Noise

Noise levels are measured using a sound level meter or an octave bank analyzer and records kept. Engineering controls will be used to reduce excessive noise levels. When engineering controls are not feasible, administrative controls (i.e., worker rotation) will be used to minimize individual employee exposure to noise. An ongoing preventive health program will be utilized to educate employees in safe levels of noise, exposure, effects of noise on their health, and use of personal protection. Approved hearing protective equipment (noise attenuating devices) will be available to every employee working in areas where continuous noise levels exceed 85 dB. To be effective, ear

protectors must be properly fitted and employees will be instructed in their use and care.

Fueling

Where flammable liquids are used, employees will be trained to deal with spillage during fueling operations, how it is to be cleaned, the types and designs of fueling hoses and the specific types of fuel it can handle, whether fueling is being done with a nozzle that is a gravity flow system or self-closing, how to avoid spills and recognition that if a spill does occur, the safety of restarting an engine.

Employees must be aware that an open flame or light near any fuel is prohibited when fueling or the transfer of fuel is occurring. "NO SMOKING" signs will be posted conspicuously.

Piping Systems

Substances that are transported through piping need to be identified by color or labeling. Signs must be posted identifying the substance being transported through the pipes as to whether it is hazardous and where turn-off valves, connections and outlets are located. All tags used for labeling will be of a durable material with distinguishable and clearly written print.

When non-potable water is piped through a facility, outlets or taps, notices will be posted to alert employees that it is unsafe and not to be used for drinking, washing or personal use. When pipelines are heated by electricity, steam or other external sources, warning signs or tags placed at unions, valves, or other serviceable parts will be part of the system.

Material Handling

In the handling of materials, employees must know the following:

There must be safe clearance for equipment through aisles and doorways.

Aisle ways must be designated, permanently marked, and kept clear to allow unhindered passage.

Motorized vehicles and mechanized equipment will be inspected daily or prior to use.

Vehicles must be shut off and brakes must be set prior to loading or unloading.

Containers of combustibles or flammables, when stacked while being moved, must

be separated by dunnage sufficient to provide stability.

If dock boards (bridge plates) are used when loading or unloading operations are taking place between vehicles and docks, precautions must be observed.

Trucks and trailers will be secured from movement during loading and unloading operations.

Dock plates and loading ramps will be constructed and maintained with sufficient strength to support imposed loading.

Hand trucks must be maintained in safe operating condition.

Chutes must be equipped with sideboards of sufficient height to prevent the handled materials from falling off.

At the delivery end of rollers or chutes, provisions must be made to brake the movement of the handled materials.

Pallets must be inspected before being loaded or moved.

Hooks with safety latches or other arrangements will be used when hoisting materials, so that slings or load attachments won't accidentally slip off the hoist hooks.

Securing chains, ropes, chokers or slings must be adequate for the job to be performed.

When hoisting material or equipment, provisions must be made to assure no one will be passing under the suspended loads.

Material Safety Data Sheets will be available to employees handling hazardous substances.

Transporting Employees and Materials

When employees are transporting either employees or materials, they must have an operator's license for that classification of vehicle and be certified or trained in the operation of that vehicle. For a safety program to be effective, they must also have knowledge of first aid courses and safety equipment, as well as the vehicle and how it operates.

As employees are transported by truck, provisions must be provided to prevent their falling from the vehicle. Vehicles should be in good working condition, inspected on a

regular basis and must be equipped with lamps, brakes, horns, mirrors, windshields and turn signals in good working order. If the vehicle transports numerous individuals it must be equipped with handrails, steps, stirrups or similar devices, placed and arranged so that employees can safely mount or dismount.

Safety measures to ensure passenger safety should be observed. When cutting tools with sharp edges are carried in the passenger compartment, they must be placed in closed boxes or secured containers. Carrying flares and two reflective type flares and a fire extinguisher must be part of the standard emergency equipment carried in the job trailer at all times.

Ventilation

In the operation of any facility ventilation system, there needs to be a design to integrate several systems of control which will expel contaminants and provide clean air. The systems must take into consideration the volume and velocity that will be needed to successfully remove contaminants. The system must not fail in the case of an emergency situation where two contaminants are exposed to each other when a fire or explosion occurs. In the design of the system, clean-out ports or doors that are provided at intervals will not exceed 12 feet in all horizontal runs of exhaust ducts. The system must be operational so that it will not offset the functions of other operations.

Ergonomics

With the introduction of computers into the workplace, new areas of physical debilitation have been recognized.

These new potential hazards have required a redesigning of both the workplace and how employees work.

Furniture will be adjustable, positioned and arranged to minimize strain on all parts of the body. The glare of a computer screen will be minimized by a glare screen to prevent eye strain. Repetitive motions can harm, back, shoulders, neck, wrists and other parts of the body, so employees will not proceed with a task when they are physically feeling an impairment.

Crane Checklist

With the operation of cranes there are several functional areas to be considered. Cranes should be inspected on an annual basis with the inspection certificate available when a question arises. The crane must be utilized in an operation which does not violate OSHA regulations. Cranes will be visually inspected for defective components

prior to any work shift. Electrically operated cranes will be effectively grounded, preventive maintenance established, have a clearly visible load; operating controls clearly identified; a fire extinguisher provided at the operator's station; rated capacity visibly marked; an audible warning device mounted on the crane, and sufficient illumination. Crane design shall be such that the boom will not fall over backwards when equipped with boom stops.

Safety Posters

CBC Pipeline, LLC. is required to post certain employment related information. The required information is maintained in the shop where employees can find the following required posters:

Various state and federal orders regulating the Wages, Hours and Working Conditions in certain industries.

Anti-Discrimination Poster

Equal Employment Opportunity is the Law (EEOC form)

OSHA Safety and Health Protection on the Job

Notice of Workers Compensation Carrier

Notice to Employees: Unemployment Insurance and Disability Insurance

Notice: Employee Polygraph Protection Act (form WH 1462)

Access to Medical and Exposure Records

Notice to Employees: Time Off to Vote

In addition to some of the above listed notices, a copy of this injury prevention program, a log and summary of Occupational Injuries and Illnesses, a copy of CBC Pipeline, LLC. code of Safe Work Practices and a Fire Prevention and Evacuation Plan will be available.

Material Safety Data Sheets for CBC Pipeline, LLC. 's premises or worksites are available in the job trailer or office. When employees are required to work on the premises of any other employer, such as a service call or installation situation, the job site will maintain a collection of Material Safety Data Sheets that describe any hazards unique to that site. Check with the other employer's job site coordinator or supervisor

for the exact location of the MSDS information.

In addition to these required safety postings, emergency numbers are maintained in the job trailer. In areas where 911 is not available, the numbers of physicians, hospitals, or ambulances shall be conspicuously posted.

In most cases of real emergency call 911. State your name, the nature of the emergency, and exact location of the injury. Answer all questions completely. DO NOT use 911 for routine or non-emergency calls to police or fire departments.

Licenses and Permits

In addition to other postings required by law, CBC Pipeline, LLC. maintains a copy of all necessary business licenses, permits, and notices required by the National Labor Relations Board or other governmental bodies, notices of citations during abatement periods, and other required information which are posted during the appropriate times in the shop.

Personal Protective Equipment Clothing

1. Where there is a danger of flying particles or corrosive materials, employees must wear protective goggles and/or face shields provided [or approved] by CBC Pipeline, LLC. .
2. Employees are required to wear safety glasses at all times in areas where there is a risk of eye injuries such as punctures, contusions or burns.
3. Employees who need corrective lenses are required to wear only approved safety glasses, protective goggles, or other medically approved precautionary procedures when working in areas with harmful exposures, or risk of eye injury.
4. Employees are required to wear protective gloves, aprons, shields and other means provided in areas where they may be subject to cuts, corrosive liquids and/or harmful chemicals.
5. Hardhats must be worn in areas subject to falling objects, and at all times while at construction sites.
6. Appropriate footwear must be worn in an area where there is any risk of foot injuries from hot, corrosive, poisonous substances, falling objects, crushing or penetrating action.

7. When necessary employees must use the approved respirators which are provided for regular and emergency use.
8. All safety equipment must be maintained in sanitary condition and ready for use. Report any defective equipment immediately.
9. An eye wash facility is located in the job trailer. If any irritant gets into an employee's eyes, call for medical assistance immediately and flush the eye out with clean water.
10. A shower may be provided for emergencies. Ask your supervisor for more details on use of this facility if available.
11. Food may not be eaten in work areas, or in places where there is any danger of exposure to toxic materials or other health hazards. Ask your supervisor to identify safe eating places.
12. In cases where the noise level exceeds certain levels, ear protection is required.
13. In cases of cleaning toxic or hazardous materials, protective clothing provided must be worn.

Hardhats

At CBC Pipeline, LLC. , hardhats are required [at all times, in designated areas, when appropriate]. hardhats are common in our industry.

There was a time, about one hundred years ago, when no one wore a hardhat. But, over time, the value of hardhats to save lives was firmly proven, so that the entire industry now accepts this safety device as a natural article of clothing, like a football player wearing a helmet during a game.

Sometimes a person fails to wear a hardhat, either through forgetfulness or through underestimating the risk of head injury which can be prevented by wearing one. Remember that all it takes is a carelessly dropped tool or piece of material coming down on your head to cause severe injury or even death. There are a number of workers disabled with various type of head injuries and vision problems because they didn't wear a hardhat.

When you wear a hardhat, wear it right. Keep it squarely on your head with the inside band properly adjusted. See you supervisor if your having trouble adjusting the hardhat.

Work Environment, General

Work sites must be clean and orderly. Work surfaces must be kept dry or appropriate means taken to assure the surfaces are slip-resistant. Spills must be cleaned up immediately. All combustible scrap, debris and waste must be stored safely and removed promptly. Combustible dust must be cleaned up with a vacuum system to prevent the dust from going into suspension. The accumulated combustible dust must be removed routinely. Metallic or conductive dust must be prevented from entering or accumulating on or around electrical enclosures or equipment.

Waste containers must be covered. Oily and paint soaked rags are combustible and should be discarded in sealable metal containers only. Paint spray booths, dip tanks and paint areas must be cleaned regularly.

All oil and gas fired devices should be equipped with flame failure controls that will prevent flow of fuel if pilots or main burners are not working. Ask your supervisor where these controls are located.

Make sure all pits and floor openings are either covered or otherwise guarded.

Walkways

All aisles and passageways must be kept clear. Also, aisles and passageways should be clearly marked. Wet surfaces must be covered with non-slip material and all holes properly covered or marked with warning guards.

All spills must be cleaned up immediately, and a caution sign placed on all wet or drying surfaces.

In cases of passageways used by forklifts, trucks or other machinery, use a separate aisle for walking, if available. If no separately marked aisle is available, use extreme caution. Remember, walking in a passageway used by machinery is like walking in the middle of a street used by cars: You may have the right of way, but the heavier vehicle can't always see you and can't always stop in time. The key to moving around in such circumstances is to stop, look and listen and then to move when there is no danger. Make eye contact with the drivers of moving vehicles so that you know that they know you are there.

Equipment must be properly stored so that sharp edges do not protrude into walkways. Changes in elevations must be clearly marked, as must passageways near dangerous operations like welding, machinery operation or painting. If there is a low ceiling, a warning sign must be posted. If the walkway or stairway is more than thirty

inches above the floor or ground, it must have a guardrail.

If an employee is aware of any breach of these standards, please inform the workplace supervisor.

Floor and Wall Openings

Be careful when working near floor and wall openings. All floor openings (holes) should be guarded by a cover, guardrail or equivalent barrier on all sides except at the entrance to stairways and ladders. Toe boards must be installed around the edges of a permanent floor opening. Skylights must be able to withstand at least 200 pounds pressure. Glass used in windows, doors, and walls (including glass block) must be able to withstand a human impact, and if required by code, be shatterproof "safety glass." Before beginning work at a new location, inspect it to insure that all floor openings which must remain open, such as floor drains, are covered with grates or similar covers. In roadways and driveways, covers with capacity to support without failure twice the maximum axle load of the largest vehicle expected to cross over the cover shall be used. In office buildings, fire resistive construction requires that the doors and hallway closures be properly rated and be equipped with self-closing features. Be sure that there are at least two fire emergency exits accessible from your location at all times.

Work Area, General

Fire extinguishers must remain accessible at all times.

Means of egress should be kept unblocked, well-lighted and unlocked during work hours. Excessive combustibles may be not stored in work areas.

Aisles and hallways must be kept clear at all times. Designated employees have been trained to respond to a fire or other emergency. Workplaces are to be kept free of debris, floor storage and electrical cords.

Adequate aisle space is to be maintained. File cabinet drawers should be opened one at a time and closed when work is finished.

Proper lifting techniques are to be used by employees to avoid over exertion and strain when carrying loads. No alcohol or any intoxicating substance may be consumed prior to or during work.

Driving

Drive safely. If vehicles are used during the work day, seat belts and shoulder harnesses are to be worn at all times. Vehicles must be locked when unattended to avoid criminal misconduct. Do not exceed the speed limit. Vehicles must be parked in legal spaces and must not obstruct traffic. Defensive driving must be practiced by all employees. Employees should park their vehicles in well-lighted areas at/or near entrances to avoid criminal misconduct.

Vehicle Maintenance

Work safely when repairing vehicles. Where tires are mounted and/or inflated on drop center wheels, a safe practice procedure must be posted and enforced. Where tires are mounted and/or inflated on wheels with split rims and/or retainer rings, a safe practice procedure must be posted and enforced. Each tire inflation hose must have a clip-on chuck with at least 24 inches of hose between the chuck and an in-line hand valve and gauge. The tire inflation control valve should automatically shut off the air flow when the valve is released. A tire restraining device such as a cage, rack or other effective means must be used while inflating tires mounted on split rims, or rims using retainer rings.

Employees are strictly forbidden from taking a position directly over or in front of a tire while it's being inflated. Proper lifting techniques must be used by employees to avoid over-exertion when lifting packages.

Cleanliness

All work sites must be clean and orderly. All work surfaces must be kept dry or appropriate means taken to assure that surfaces are slip-resistant. All spill materials or liquids should be cleaned up immediately and combustible scrap, debris and waste stored safely and removed from the work site promptly.

Any accumulations of combustible dust must be routinely removed from elevated surfaces including the overhead structure of buildings. Combustible dust should be cleaned up with a vacuum system to prevent the dust going into suspension. Metallic or conductive dust must be prevented from entering or accumulating on or around electrical enclosures or equipment.

Covered metal waste cans are provided for oily and paint-soaked waste. Use them. All oil and gas fired devices must be equipped with flame failure controls that will prevent flow of fuel if pilots or main burners are not working.

Paint spray booths, dip tanks, etc., must be cleaned regularly. Washing facilities are provided, so wash your hands after handling materials.

Tool Maintenance

Faulty or improperly used hand tools are a safety hazard. All employees shall be responsible for ensuring that tools and equipment (both company and employee-owned) used by them or other employees at their workplace are in good condition. Hand tools such as chisels, punches, etc., which develop mushroom heads during use, must be reconditioned or replaced as necessary. Broken or fractured handles on hammers, axes and similar equipment must be replaced promptly. Worn or bent wrenches should be replaced regularly. Appropriate handles must be used on files and similar tools.

Appropriate safety glasses, face shields, etc., must be worn while using hand tools or equipment which might produce flying materials or be subject to breakage. Eye and face protection must be worn when driving in tempered spuds or nails.

Check your tools often for wear or defect. Jacks must be checked periodically to assure they are in good operating condition. Tool handles must be wedged tightly into the heads of tools. Tool cutting edges should be kept sharp enough so the tool will move smoothly without binding or skipping. When not in use, tools should be stored in a dry, secure location.

Ladders

Check ladders each and every time before you climb. Ladders should be maintained in good condition: joints between steps and side rails should be tight; hardware and fittings securely attached; and movable parts operating freely without binding or undue play. Non-slip safety feet are provided on each ladder. Ladder rungs and steps should be free of grease and oil. Employees are prohibited from using ladders that are broken, missing steps, rungs, or cleats, or that have broken side rails or other faulty equipment.

It is prohibited to place a ladder in front of doors opening toward the ladder except when the door is blocked open, locked or guarded. It is prohibited to place ladders on boxes, barrels, or other unstable bases to obtain additional height. Face the ladder when ascending or descending.

Be careful when you climb a ladder. Do not use the top step of ordinary stepladders as a step. When portable rung ladders are used to gain access to elevated platforms, roofs, etc., the ladder must always extend at least 3 feet above the elevated surface.

It is required that when portable rung or cleat type ladders are used, the base must be so placed that slipping will not occur, unless it is lashed or otherwise held in place.

All portable metal ladders must be legibly marked with signs reading "CAUTION" - "Do Not Use Around Electrical Equipment." Employees are prohibited from using ladders as guys, braces, skids, gin poles, or for other than their intended purposes. Only adjust extension ladders while standing at a base (not while standing on the ladder or from a position above the ladder). Metal ladders should be inspected for tears and signs of corrosion.

Portable Power Tools

Portable power tools pose a special danger to employees because they are deceptively small and light, yet they can do great bodily harm if used improperly or poorly maintained. These rules apply to all power tools, but are especially important when handling portable saws, drills and power screw drivers.

Check your equipment before you use it. All grinders, saws and similar equipment should be equipped with appropriate safety guards. Power tools should not be used without the correct shield, guard, or attachment, recommended by the manufacturer.

Portable circular saws must be equipped with guards above and below the base shoe. Circular saw guards should be checked periodically and before each use to assure they are not wedged up, thus leaving the lower portion of the blade unguarded.

All rotating or moving parts of equipment should be guarded to prevent physical contact. All cord-connected, electrically-operated tools and equipment should be effectively grounded or of the approved double insulated type. Effective guards must be in place over belts, pulleys, chains, sprockets, on equipment such as concrete mixers, air compressors, etc. If portable fans are provided, they must be equipped with full guards or screens having openings 1/2 inch or less.

Do not attempt to lift heavy objects without proper equipment. Hoisting equipment will be made available for lifting heavy objects, with hoist ratings and characteristics appropriate for the task.

Power tools are either battery operated or wired. If battery operated, don't underestimate their power. A small electric drill or power screw driver can cause a severe injury if it lands in the wrong place. While not usually a shock hazard, the battery pack contains toxic chemicals and does emit a low voltage electric current. Don't drop or incinerate the battery pack, or a tool with a self-contained power source.

Hard wired equipment can be portable or fixed. Typically used with extension cords, the more powerful hard wired equipment presents a double safety problem: the actual equipment plus its electrical power source. Ground-fault circuit interrupters must be

provided on all temporary electrical 15 and 20 ampere circuits used during periods of construction. Pneumatic and hydraulic hoses on power-operated tools should be checked regularly for deterioration or damage.

Combustible Materials

All combustible scrap, debris and waste materials (oily rags, etc.) must be stored in covered metal receptacles and removed from the work site promptly. Proper storage to minimize the risk of fire, including spontaneous combustion must be practiced. Only approved containers and tanks are to be used for the storage and handling of flammable and combustible liquids. All connections on drums and combustible liquid piping, vapor and liquid must be kept tight. All flammable liquids should be kept in closed containers when not in use (e.g., parts-cleaning tanks, pans, etc.).

Bulk drums of flammable liquids must be grounded and bonded to containers during dispensing.

Storage rooms for flammable and combustible liquids must have explosion-proof lights. Storage rooms for flammable and combustible liquids should have mechanical or gravity ventilation. Liquefied petroleum gas must be stored, handled, and used in accordance with safe practices and standards.

“No smoking” signs must be posted on liquefied petroleum gas tanks. Liquefied petroleum storage tanks should be guarded to prevent damage from vehicles. All solvent wastes and flammable liquids should be kept in fire-resistant, covered containers until they are removed from the work site.

Vacuuming should be used whenever possible rather than blowing or sweeping combustible dust. Fire separators should be placed between containers of combustibles or flammables when stacked one upon another to assure their support and stability. Fuel gas cylinders and oxygen cylinders must be separated by distance, fire resistant barriers, etc., while in storage.

Fire extinguishers are selected for the types of materials and placed in areas where they are to be used. These fire extinguishers are classified as follows:

Class A - Ordinary combustible materials fires.

Class B - Flammable liquid, gas or grease fires.

Class C - Energized-electrical equipment fires.

Appropriate fire extinguishers must be mounted within 75 ft. of outside areas containing flammable liquids, and within 10 ft. of any inside storage area for such materials. All extinguishers must be serviced, maintained and tagged at intervals not to exceed one year. Extinguishers should be placed free from obstructions or blockage. All extinguishers must be fully charged and in their designated places unless in use.

Where sprinkler systems are permanently installed, are the nozzle heads arranged so that water will not be sprayed into operating electrical switch boards and equipment? Check to see that heads have not been bent or twisted from their original position.

"NO SMOKING" rules will be enforced in areas involving storage and use of hazardous materials. "NO SMOKING" signs have been posted where appropriate in areas where flammable or combustible materials are used and/or stored. Safety cans must be used for dispensing flammable or combustible liquids at point of use. All spills of flammable or combustible liquids must be cleaned up promptly.

Storage tanks should be adequately vented to prevent the development of excessive vacuum or pressure as a result of filling, emptying, or atmosphere temperature changes. Storage tanks are equipped with emergency venting that will relieve excessive internal pressure caused by fire exposure.

Mechanical Lockout-Tagout

Point of operation devices shall protect the operator by:

Preventing and/or stopping normal stroking of the press if the operator's hands are inadvertently placed in the point of operation; or

Preventing the operator from inadvertently reaching into the point of operation or withdrawing his/her hands if they are inadvertently located in the point of operation, as the dies close; or

Preventing the operator from inadvertently reaching into the point of operation at all times; or

Requiring application of both of the operator's hands to machine operating controls and locating such controls at such a safety distance from the point of operation that the slide completes the downward travel or stops before the operator can reach into the point of operation with his/her hands; or

Enclosing the point of operation before a press stroke can be initiated and maintaining this closed condition until the motion of the slide had ceased; or

Enclosing the point of operation before a press stroke can be initiated, so as to prevent an operator from reaching into the point of operation prior to die closure or prior to cessation of slide motion during the downward stroke.

A gate or movable barrier device shall protect the operator.

A presence sensing point of operation device shall protect the operator by interlocking into the control circuit to prevent or stop slide motion if the operator's hand or other part of his/her body is within the sensing field of the device during the downstroke of the press slide.

The device may not be used on machines using full revolution clutches.

The device may not be used as a tripping means to initiate slide motion.

The device shall be constructed so that a failure within the system does not prevent the normal stopping action from being applied to the press when required, but does prevent the initiation of a successive stroke until the failure is corrected. The failure shall be indicated by the system.

Muting (bypassing of the protective function) of such device, during the upstroke of the press slide, is permitted for the purpose of parts ejection, circuit checking, and feeding only.

The safety distance from the sensing field to the point of operation shall be greater than the distance determined by the following formula:

$D_s = 63 \text{ inches/second} \times T_s$ where:

D_s = minimum safety distance (inches);

63 inches/second = hand speed constant; and

T_s = stopping time of the press measured at approximately 90° position of crankshaft rotation (seconds).

Guards shall be used to protect all areas of entry to the point of operation not protected by the presence sensing device.

The pull-out device shall protect the operator and shall include attachments for each of the operator's hands.

Attachments shall be connected to and operated only by the press slide or upper die.

Attachment shall be adjusted to prevent the operator from reaching into the point of operation or to withdraw the operator's hands from the point of operation before the dies close.

A separate pull-out device shall be provided for each operator if more than one operator is used on a press.

Each pull-out device in use shall be visually inspected and checked for proper adjustment at the start of each operator shift, following a new die set-up, and when operators are changed. Necessary maintenance or repair or both shall be performed and completed before the press is operated. The sweep device, shall protect the operator as specified in this subsection, by removing his/her hands safely to a safe position if they are inadvertently located in the point of operation, as the dies close or prior to tripping the clutch. Devices operating in this manner shall have a barrier, attached to the sweep arm in such a manner as to prevent the operator from reaching into the point of operation, past the trailing edge of the sweep arm on the downward stroke of the press. This device may not be used for point of operation safeguarding.

The sweep device must be activated by the slide or by motion of a foot pedal trip rod.

The sweep device must be designed, installed and operated so as to prevent the operator from reaching into the point of operation before the dies close.

The sweep device must be installed so that it will not itself create an impact or shear hazard between the sweep arm and the press tie rods, dies, or any other part of the press or barrier.

Partial enclosure conforming with this subsection, as to the area of entry which they protect, must be provided on both sides of the point of operation to prevent the operator from reaching around or behind the sweep device and into the point of operation after the dies start to close. Partial enclosures shall not themselves create a pinch point or shear hazard.

A holdout or a restraint device shall protect the operator and shall include attachments for each of the operator's hands. Such attachments shall be securely anchored and adjusted in such a way that the operator is restrained from reaching into the point of operation. A separate set of restraints shall be provided for each operator if more than one operator is required on a press.

The two hand control device shall protect the operator.

When used in press operations requiring more than one operator, separate two hand controls shall be provided for each operator, and shall be designed to require concurrent application of all operators' controls to activate the slide. The removal of a hand from any control button shall cause the slide to stop.

The safety distance between each two hand control device and the point of operation shall be greater than the distance determined by the following formula:

$D_s = 63 \text{ inches/second} \times T_s$, where:

D_s = minimum safety distance (inches);

63 inches/second = hand speed constant; and

T_s = stopping time of the press measured at approximately 90° position of crankshaft rotation (seconds).

FIRST AID - RESPONSIBILITIES

Project safety representatives are responsible for establishing first aid and medical services for the treatment of occupational injuries and illnesses. In the absence of a safety representative, the RSO, Replace with safety Person's Name or designated representative is responsible for this activity.

FIRST AID TREATMENT

Provisions shall be made prior to commencement of a project for prompt medical attention in case of serious injury.

If prompt medical assistance cannot occur within 3-4 minutes at the worksite CBC Pipeline, LLC. will require that at least two (2) employees shall have training from the American Red Cross or equivalent and be available to render emergency first aid.

Personnel who provide first-aid services shall have current certifications from recognized agencies such as the American Red Cross, Heart Association, Medic First Aid or equivalent. Under no circumstances shall first-aid trained personnel render medical treatment.

TRANSPORTATION

A representative of CBC Pipeline, LLC. is required to be present during the transportation and treatment of company personnel. Proper equipment for prompt transportation of the injured person to a physician or hospital or a communication system for contacting necessary ambulance service shall be provided.

During emergency situations when an employee requires medical treatment for an occupational injury or illness, the local emergency ambulance shall be used to provide transportation for that employee unless other arrangements have been made. In all other cases a representative of CBC Pipeline, LLC. will transport personnel to clinics and medical facilities.

MODIFIED WORK (LIGHT DUTY POLICY)

It is the policy of CBC Pipeline, LLC. to provide modified work to persons who have been injured on the job or become ill because of an occupational exposure. Work provided for employees will be compatible with their work restrictions, and will not expose the employee to additional harm or injury.

Employees who are injured or become ill must provide the company with a written medical statement of release from their treating physician or other licensed provider. Upon return to work, this release must be submitted to their supervisor or other authorized company representative prior to being assigned to perform any work.

The policy of CBC Pipeline, LLC. is to not schedule persons on modified duty work status to work overtime. Persons who are permitted to return to work on a modified duty status will be scheduled to work their normal work schedule not including any overtime hours they would have normally worked unless the supervisor or other responsible management person directs otherwise.

NON-OCCUPATIONAL ILLNESSES AND INJURIES

Employees who are injured or become ill at home or during non-work hours must provide CBC Pipeline, LLC. with a written medical release without restrictions upon returning to work. Employees who have been injured severely or have had a contagious illness must provide CBC Pipeline, LLC. with written proof that they have recovered from their condition. If an injury or illness is of a serious nature the RSO, Replace with safety Person's Name and Human Resources must be consulted before a person is permitted to return to work.

RETURN TO WORK POLICY

In all cases employees who have sustained an on-the-job injury or illness must provide written medical proof of their condition and ability to perform their work upon their return to work.

FIRST AID LOG

Any injury or illness that is reported to a first-aid facility or medical facility must be recorded on a First-Aid Log form. This includes non-occupational cases and injuries or illnesses treated that involve vendors, suppliers, Contractors/Subcontractors, client personnel, and any other third party. First-Aid Logs or any portion of a log are not for general distribution. Requests for such information shall be processed by the RSO, Replace with safety Person's Name.

MEDICATIONS

Employees who are taking over-the-counter and prescription medications must report such usage to their immediate supervisor or the RSO.

First Aid Kits

First aid supplies shall be easily accessible when required. First-aid kits and required contents are maintained in a serviceable condition. Unit-type kits have all items in the first-aid kit individually wrapped, sealed, and packaged in comparable sized packages. The commercial or cabinet-type kits do not require all items to be individually wrapped and sealed, but only those which must be kept sterile. Items such as scissors, tweezers, tubes of ointments with caps, or rolls of adhesive tape, need not be individually wrapped, sealed, or disposed of after a single use or application. Individual packaging and sealing shall be required only for those items which must be kept sterile in a first-aid kit. Employers should ensure the availability of adequate first-aid supplies, and periodically reassess the demand for supplies and adjust their inventories. For construction operations, first aid kits shall be checked before being sent out to each job and at least weekly.

First-aid kits shall contain at least the following items:

10 Package Kit:

1 Pkg. Adhesive bandages, 1" (16 per pkg.)

1 Pkg. Bandage compress, 4" (1 per pkg.)

1 Pkg. Scissors* and tweezers (1 each per pkg.)

1 Pkg. Triangular bandage, 40" (1 per pkg.)

1 Pkg. Antiseptic soap or pads (3 per pkg.)

5 Pkgs. of consulting physician's choice

16 Package Kit:

1 Pkg. Absorbent gauze, 24" x 72" (1 per pkg.)

1 Pkg. Adhesive bandages, 1" (16 per pkg.)

2 Pkgs. Bandage compresses, 4" (1 per pkg.)

1 Pkg. Eye dressing (1 per pkg.)

1 Pkg. Scissors* and tweezers (1 each per pkg.)

2 Pkgs. Triangular bandages, 40" (1 per pkg.)

1 Pkg. Antiseptic soap or pads (3 per pkg.)

7 Pkgs. of consulting physician's choice

24 Package Kit:

2 Pkgs. Absorbent gauze, 24" x 72" (1 per pkg.)

2 Pkgs. Adhesive bandages, 1" (16 per pkg.)

2 Pkgs. Bandage compresses, 4" (1 per pkg.)

1 Pkg. Eye dressing (1 per pkg.)

1 Pkg. Scissors* and tweezers (1 each per pkg.)

6 Pkgs. Triangular bandages (1 per pkg.)

1 Pkg. Antiseptic soap or pads (3 per pkg.)

9 Pkgs. of consulting physician's choice

36 Package Kit:

4 Pkgs. Absorbent gauze, 24" x 72" (1 per pkg.)

2 Pkgs. Adhesive bandages, 1" (16 per pkg.)

5 Pkgs. Bandage compresses, 4" (1 per pkg.)

2 Pkgs. Eye dressing (1 per pkg.)

1 Pkg. Scissors* and tweezers (1 each per pkg.)

8 Pkgs. Triangular bandages, 40" (1 per pkg.)

1 Pkg. Antiseptic soap or pads (3 per pkg.)

13 Pkgs. of consulting physician's choice

Scissors shall be capable of cutting 2 layers of 15 oz. cotton cloth or its equivalent. The first-aid kits are maintained at the ten, sixteen, twenty-four or thirty-six package level.

Where the eyes or body of any person may be exposed to injurious chemicals and/or materials, suitable facilities for quick drenching or flushing of the eyes and body are provided, within the work area, for immediate emergency use. A poster shall be fastened and maintained either on or in the cover of each first-aid kit and at or near all phones plainly stating, the phone numbers of available doctors, hospitals, and ambulance services within the district of the work site.

First Aid Station

If a fixed establishment employs more than 200 employees at one central location, First-aid stations shall be located as close as practicable to the highest concentration of personnel.

First-aid stations shall be well marked and available to personnel during all working hours.

One person holding a valid first-aid certificate shall be responsible for the proper use and maintenance of the first-aid station.

First-aid stations shall be equipped with a minimum of two first-aid kits, the size of which shall be dependent upon the number of personnel normally employed at the work site. One first-aid kit may be a permanent wall-mounted kit, but in all cases the station shall be equipped with at least one portable first-aid kit.

When required by the circumstances, the station shall be equipped with two wool blankets and a stretcher in addition to first-aid kits.

A roster, denoting the telephone numbers and addresses of doctors, hospitals and ambulance services available to the work site, shall be posted at or near each first-aid station.

First-aid kits shall be checked and maintained (if necessary) every week.

First-aid stations and/or portable first-aid kits used at CBC Pipeline, LLC. are located in the job trailer.

Late Night Crime Prevention

All establishments operating between the hours of 11:00 p.m. and 6:00 a.m. should provide crime prevention training to their employees. Crime prevention training shall be a part of the accident prevention program. Training will be made available to ensure that the purpose and function of robbery and violence prevention are understood by employees and that the knowledge and skills required for their safety have been provided. The training and training materials outline security policies, safety and security procedures, and personal safety and crime avoidance techniques. Formal instruction through a training seminar or training video presentation will be made available and upon completion the employee shall sign off on the date, time, and place of training. The training documentation will be placed in the employee's personnel file.

The following elements will be covered in the crime prevention training program:

An explanation of the importance of keeping the location clean, neat, and uncluttered thereby making it as unattractive as possible to robbers.

Taking extra precautions after dark, i.e., keep alert, observe lighting and dark corners, spot possible hiding places.

Violence prevention procedures in case of robbery.

Chapter 3

Housekeeping

Clean Work Areas

All areas controlled by CBC Pipeline, LLC. must be kept in orderly and clean condition and used only for activities or operations for which they have been approved. The following specific rules must also be followed:

Keep stairs, corridors, and aisles clear. Traffic lanes and loading areas must be kept clear and marked appropriately.

Store materials in work rooms or designated storage areas only. Do not use hallways, fan lofts, or boiler and equipment rooms as storage areas.

Do not allow exits, passageways, or access to equipment to become obstructed by either stored materials or materials and equipment that is being used.

Arrange stored materials safely to prevent tipping, falling, collapsing, rolling, or spreading - that is, any undesired and unsafe motion.

Do not exceed the rated floor capacity of stored material for the area. The load limit and the maximum height to which material may be stacked must be posted.

Place materials such as cartons, boxes, drums, lumber, pipe, and bar stock in racks or in stable piles as appropriate for the type of material.

Store materials that are radioactive, fissile, flammable, explosive, oxidizing, corrosive, or pyrophoric only under conditions approved for the specific use by the Responsible Safety Officer.

Segregate and store incompatible materials in separate locations.

Remove items that will not be required for extended periods from work areas and put them in warehouse storage. Call for assistance.

Temporary equipment required for special projects or support activities must be installed so that it will not constitute a hazard. A minimum clearance of 36 inches must

be maintained around electrical power panels. Wiring and cables must be installed in a safe and orderly manner, preferably in cable trays. Machinery and possible contact points with electrical power must have appropriate guarding. The controls for temporary equipment must be located to prevent inadvertent actuation or awkward manipulation. When heat-producing equipment must be installed, avoid accidental ignition of combustible materials or touching of surfaces above 60 degrees C (140 F). Every work location must be provided with illumination that meets Cal/OSHA requirements. Evaluation of illumination quality and requirements is made by the Responsible Safety Officer, but the supervisor of an area is responsible for obtaining and maintaining suitable illumination.

Areas without natural lighting and areas where hazardous operations are conducted must be provided with enough automatically activated emergency lighting to permit exit or entry of personnel if the primary lighting fails.

Chapter 4

Confined Spaces

INTRODUCTION

The hazards that may be present in a confined space are not easily seen, smelled, heard or felt, but can represent deadly risks. The worker who enters confined spaces may be, or often is, exposed to multiple hazards due primarily to ignorance or negligence in the enforcement of safety regulations. This ignorance and neglect has led to countless deaths by asphyxiation, fire and/or explosion, and by fatal exposure to toxic materials.

A permit-required confined space is one in which dangerous air contaminants may be generated and may not be removed by ventilation. When an employee works in this type of environment, the chance exists that atmospheres present may be oxygen deficient, combustible or toxic. Prevention of injuries to the life and health of workers requires that they be properly trained and well equipped to recognize, understand and control the hazards they could encounter. In the process of identifying a confined space, the supervisor in charge should always assume that a hazard is present.

RESPONSIBILITIES

Entry Supervisor

1. Appoint an individual(s) to serve as authorized individual(s) to perform the required monitoring and to issue entry permits.
2. Assure that the authorized individual(s) receive all the necessary training to effectively discharge their duties.
3. Assure that all individuals who enter confined spaces receive the required training.
4. Assure that all necessary equipment and supplies to effectively protect the health and safety of the workers are provided and maintained in a good state of repair.
5. Develop departmental policies that will assure that all confined space entries are performed in compliance with this written program and all applicable regulations.

6. Develop departmental policies that will assure that all required records are maintained.
7. Department heads, or designated agents, shall be responsible for ensuring that the confined spaces under their control have been posted.
8. Develop procedures for coordinating entry operations for multi-employer's so that employees of one employer do not endanger the employees of any other employer.

Responsible Safety Officer

1. Develop a written control plan and perform an annual review to determine necessary revisions.
2. Monitor the compliance of the respective departments with the plan and regulations to include compliance with training, monitoring, permitting, record keeping, etc.
3. Provide guidance and technical assistance to departments in the design and selection of appropriate engineering and work practice controls.
4. Provide guidance and technical assistance to departments in the selection of the most appropriate types and quantities of personal protective equipment.
5. Provide consultation to the departments to assist them in fulfilling their training program.
6. Promote compliance with the OSHA Standard.
7. Provide a means in which employees can direct suggestions, complaints and concerns regarding the campus Confined Space Entry Program.
8. Identify, log, and classify confined spaces before entry. This information shall be communicated to the entrants.

Employee

1. Participate willingly in all training programs offered by CBC Pipeline, LLC. and learn as much as possible about the confined space entry protection procedure.
2. Abide by all work rules and apply to the fullest extent possible the safety and health precautions specified by CBC Pipeline, LLC. .
3. Report any problems that are observed, which could compromise health and

safety, to the RSO or through the immediate supervisor.

CONFINED SPACE HAZARDS

Types of Confined Spaces

1. Those of such design that restrict the movement of air in such a manner that ventilation may be inadequate.
2. Enclosed areas with very limited openings for entry and exit. Examples of open-topped confined spaces are pits, degreasers, and certain storage tanks. Gases that are heavier than air (such as butane and propane) can remain in low places of these type spaces where they are difficult to remove. Other hazards may also develop due to the nature of the work being involved or by a residue remaining in the space.
3. Confined spaces may contain an engulfment or entrapment hazard. See the definition section of this document for a more detailed explanation of these terms. Confined spaces, such as trenches, sewers, tanks or silos usually have limited access and are considered the most hazardous. Gases, such as carbon dioxide and propane, that are heavier than air, may lie in recessed areas for hours or even days. Because many of these gases are odorless, the hazard may be overlooked with fatal results. At the opposite end, gases which are lighter than air may be trapped at the top of a space where access is from the bottom.

HAZARDOUS ATMOSPHERES

Flammable Atmosphere

A flammable atmosphere generally arises from an enriched oxygen atmosphere, vaporization of a flammable liquid, chemical reaction, a by-product of work, heavy concentrations of combustible dust, and even desorption (release of entrapped substances) of chemicals from inner linings of confined spaces.

An atmosphere becomes flammable when the ratio of oxygen to combustible material in the air is neither too rich or too lean for combustion to occur. Combustible gases or vapors will accumulate when there is inadequate ventilation in areas such as confined spaces. Flammable atmospheres may also be formed by chemical reactions. These occur when surfaces are initially exposed to the atmosphere or when chemicals combine to form flammable gases.

Combustible dust concentrations are usually found during loading, unloading, or conveying coal, grain, fertilizers or other combustible materials. The explosion from these concentrations occurs when high amounts of static electricity accumulates at low humidity readings and causes a spark which ignites the combustible mixtures present in

the air. Also, desorption of chemicals from the inner linings of surfaces of a tank or vessel may produce a flammable mixture. An example of desorption can occur when propane is emptied from a tank. After the removal, the walls may desorb some remaining gas and create a flammable mixture in the tank.

Toxic Atmospheres

Toxic atmospheres can be created from almost any gas, vapor, or airborne dust. Examples of the source of these substances include:

1. The manufacturing process itself.
2. The product being stored.
3. The operation being performed in the confined space (e.g. welding or brazing certain metals).
4. Leakage of lines within the space.
5. Leakage of substances into the space from the outside.

Certain gases are prevalent in various vessels; one is carbon monoxide (CO). This odorless and colorless gas has approximately the same density as air and is formed from the incomplete combustion of such materials as wood, oil, gas, etc. It has poor warning signals as to its level of intoxication. Higher levels (more than 1,000 ppm) can occur without warning and are almost always fatal. Another prevalently released gas is hydrogen sulfide (H₂S). Hydrogen sulfide may be formed several ways, but the most common way occurs when hydrochloric acid is combined with iron sulfide, as in the cleaning of vessel walls. Another common source of hydrogen sulfide is microbial breakdown of organic material, such as sewage, manure, garbage, etc.

Irritant (Corrosive) Atmospheres

Irritant or corrosive atmospheres can be divided into primary and secondary groups. Primary irritants exert no systemic toxic effects. The adverse effect exerted by them on the respiratory tract is direct irritation to the tissue. Examples of these are hydrochloric acid, sulfuric acid, and ammonia. A secondary irritant produces toxic effects plus surface irritation. Examples of this type are benzene and carbon tetrachloride. Prolonged exposure at high levels of irritant atmospheres may produce a general weakening of the nerve endings in the upper respiratory tract. The danger is that the worker generally is not aware of the onset of distress.

Oxygen-Deficient or Oxygen-Enriched Atmosphere

An oxygen-deficient atmosphere is caused when the oxygen (O₂) level of an

atmosphere depreciates below 19.5% by either consumption or displacement. The consumption of O₂ takes place during combustion of flammable substances, such as in welding. Oxygen may also be consumed during chemical reactions, such as the formation of iron oxide (rust). A second factor in an asphyxiating atmosphere is displacement by another gas. One such example of displacement is by "inerting" a tank by placing nitrogen in it. The total displacement of O₂ will cause immediate collapse and death. Since these gases are colorless and odorless, they pose an immediate hazard unless ventilation and oxygen measurements are carried out. A confined space should never be purged with nitrogen or other gas used in welding as this could lead to an oxygen-deficient atmosphere.

An oxygen-enriched atmosphere contains greater than 23.5% oxygen. The main hazard associated with an oxygen-enriched atmosphere is fire. Combustible materials burn much faster in the presence of an oxygen-enriched environment. Some materials which are generally not considered fire hazards will burn rapidly when the oxygen concentration is increased. A contaminated atmosphere must never be purged with oxygen as this would greatly increase the fire hazard in the space.

DEFINITIONS

Acceptable Entry Condition

Means the conditions that must exist in a permit space to allow entry and to ensure that employees involved with a permit-required confined space entry can safely enter and work within the space.

Atmosphere

Refers to the gases, vapors, mists, fumes, and dusts within a confined space.

Attendant

Means an individual stationed outside one or more permit spaces who monitors the authorized entrants and who performs all attendant duties assigned in CBC Pipeline, LLC. 's permit space program.

Authorized Entrance

Means an employee who is authorized by CBC Pipeline, LLC. to enter a permit space.

Combustible Dust

A dust capable of undergoing combustion or burning when subjected to a source of ignition.

Confined Space

Refers to a space that (1) Is large enough and so configured that an employee can bodily enter and perform assigned work; (2) Has limited or restricted means of entry or exit; and (3) Is not designed for continuous employee occupancy.

Emergency

Means any occurrence (including any failure of hazard control or monitoring equipment) or event internal or external to the permit space that could endanger entrants.

Engulfment

Engulfment is the surrounding and effective capture of a person by a liquid or finely (flowing) solid substance that can be aspirated or cause death by filling or plugging the respiratory system or that can exert enough force on the body to cause death by strangulation, constriction, or crushing.

Entrapment

A condition where an uninjured person is unable to remove themselves, or any body part, from a confined space. Entrapment occurs as a result of the configuration of a confined space and is often associated with converging or convoluted surfaces.

Entry

Entry is the action by which a person passes through an opening into a permit-required confined space. Entry includes ensuing work activities in that space and is considered to have occurred as soon as any part of the entrant's body breaks the plane of an opening into the space.

Entry Permit

The entry permit is the written or printed document that is provided by CBC Pipeline, LLC. to allow and control entry into a permit space.

Entry Supervisor

The entry supervisor (such as CBC Pipeline, LLC. , foreman, or crew chief) responsible for determining if acceptable entry conditions are present at a permit space where entry is planned, for authorizing entry and overseeing entry operations, and for terminating entry as required.

Flammable or Explosive Limits

When flammable vapors are mixed with air in the proper proportions, the mixture can be ignited. The range of concentrations over which the flash will occur is designated by the Lower Explosive Limit (LEL) and the Upper Explosive Limit (UEL). Flammable limits (explosive limits) are expressed as percent volume of vapor in air.

Hazardous Atmosphere

A hazardous atmosphere may expose employees to the risk of death, incapacitation, impairment of ability to self-rescue, injury, or acute illness from one or more of the following causes:

1. Flammable gas, vapor, or mist in excess of 10% of the lower flammable limit.
2. Airborne combustible dust at a concentration that meets or exceeds the lower flammable limit.
3. Atmospheric oxygen concentration below 19.5% or above 23.5%
4. Atmospheric concentration of any substance for which a dose or a permissible exposure limit is published. Note: An atmospheric concentration of any substance that is not capable of causing death, incapacitation, impairment of ability or self-rescue, injury or acute illness due to its health effects is not covered by this provision.
5. Any other atmospheric condition that is immediately dangerous to life or health.

Hot Work

Any work involving burning, welding, riveting, or similar fire producing operations as well as work which produces a source of ignition, such as drilling or abrasive blasting.

Immediately Dangerous to Life or Health

Means any condition that poses an immediate or delayed threat to life or that would cause irreversible adverse health effects or that would interfere with an individuals' ability to escape unaided from a permit space.

Inerting

Displacement of an area's atmosphere by a non-reactive gas (such as nitrogen) to such an extent that the resulting atmosphere is non-combustible.

Isolation

The process whereby the confined space is removed from service and completely protected against an inadvertent release of material. Examples are blanking off lines, lockout of electrical systems, and disconnecting mechanical linkages.

Non-Permit Required Confined Space

A non-permit confined space means a confined space that does not contain a recognized acute hazard or does not have the potential to contain, any hazard causing death or serious physical harm.

Oxygen Deficiency

An atmosphere where the oxygen concentration is less than 19.5%.

Oxygen Enrichment

An atmosphere where the oxygen concentration is greater than 23.5%.

Permissible Exposure Limit (PEL)

The maximum 8 hours, time weighted average of an airborne contaminant to which an employee may be exposed. At no time shall the exposure level exceed the ceiling concentration for the contaminants as listed in 29 CFR 1910 Subpart Z.

Permit-Required Confined Space

A permit-required confined space has one or more of the following characteristics:

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

Permit System

The permit system is CBC Pipeline, LLC. 's written procedure for preparing and issuing permits for entry and for returning the permit space to service following termination of entry.

Purging

The method by which gases, vapors, or other airborne impurities are displaced from a confined space.

Retrieval system

The retrieval system (including a retrieval line, full-body harness, wristlets, if appropriate, and a lifting device or anchor) used for non-entry rescue of persons from permit spaces.

Threshold Limit Value (TLV)

An occupational exposure guide published by the American Conference of Government Industrial Hygienist (ACGIH), extensively used to judge acceptable exposure levels to hazardous substances.

GENERAL SAFETY HAZARDS

1. Mechanical

If the activation of any electrical or mechanical equipment could cause injury to persons in a confined space, each piece of equipment shall be manually isolated and inactivated (locked out) before workers are allowed to enter a confined space. Also, there may be other hazards associated with confined spaces, such as flammable vapors or gases, in which special precautions must be taken. Preventing vapor leaks, flashbacks, and other hazards by closing valves is not sufficient. All pipes should be physically disconnected or isolation blanks bolted in place. Some tanks or vessels must also be blanked off and a blanket of inert gas placed within the tank to prevent a build-up of flammable vapors.

2. Communications for Permit-Required Confined Spaces

Communication between the worker and personnel outside is of the utmost importance. If a worker becomes unconscious or suddenly feels distressed, an injury may quickly become a fatality without proper communication. Communications should include visual monitoring at a minimum. Frequently, there are situations where visual monitoring is impossible and communication by means of an electronic communication system will be necessary.

3. Entry and Exit

The extent of the time required to enter and exit is of major significance as a physical limitation and is directly related to the potential hazard of the confined space. The extent of precautions taken and the standby equipment needed to maintain a safe work area will be determined by the means of access and rescue. The following should be considered:

1. Type of confined space to be entered
2. Access to the entrance
3. Number and size of openings
4. Barriers within the space
5. Occupancy load
6. Time required to exit confined space

4. Physical Effects

A. Thermal Effects

When working in confined spaces, certain considerations must be taken to prevent conditions such as frostbite, hypothermia (excessive body heat loss), and heat stress. The use of protective clothing for both hot and cold

environments will add additional bulk to the worker and must be considered in allowing for movement in the confined space and also for exit time in emergencies.

B. Noise

Noise problems are usually intensified in a confined space because the interior tends to cause sound to reverberate and cause extremely high noise levels. This high noise level can sometimes cause hearing damage to workers and can create problems with communication between workers inside the confined space, and assisting workers outside the confined space. Hearing protection must be provided when the time-weighted sound level pressure exceeds 85 decibels.

C. General

Some physical hazards cannot be eliminated because of the nature of a confined space or the work to be performed. These hazards include such items as scaffolding, surface residues, and structural hazards. These hazards pose an almost unrecognizable threat when compared to threats posed by oxygen deficiency, combustible or lethal gas pockets, engulfment, entrapment, etc. These lesser problems, however, account for more injuries because of oversight. A sample of these problems are slips and falls, reaction of incompatible materials, improper scaffolding, electrical shock, etc. Because of these hazards, careful planning must be given to the relationship between the internal structure, the exit, and the worker.

D. Medical Requirements

Medical requirements of employees who enter a confined space must be taken into consideration due to the increased hazard potential. In this type setting, employees must rely more heavily upon their physical, mental, and sensory attributes, especially under emergency conditions. In areas where the hazard potential is high, a person certified in CPR and First Aid should be in attendance.

E. Training

Training of employees for entering and working in confined spaces is required because of the potential hazards and the use of life-saving equipment. To ensure worker safety, the training program must be especially designed for the type of problems encountered. Instructional areas to be covered in the training program are:

1. Potential dangers of confined space work
2. Emergency exit procedures
3. Use of respirators
4. First Aid and Cardio-Pulmonary Resuscitation
5. Lockout and Tagging procedures
6. Fire Protection
7. Communications
8. Air Quality Monitoring
9. Space Ventilation Procedures
10. Training employees in permitting requirements must be done by a qualified person or someone knowledgeable in all relevant aspects of confined space entry procedures. The qualified person must be proficient in the following areas:
 - a. Types of confined spaces that employees will be entering
 - b. Chemical and physical hazards
 - c. Work practices and techniques
 - d. Testing requirements, permissible exposure limits, etc.
 - e. Safety equipment such as respirators, protective clothing, and other protection such as helmets and shields
 - f. Rescue procedures
 - g. Knowledge of applicable Federal, State, and Local regulations
 - h. Evaluation and test methods

The effectiveness of the training program can be determined by the qualified person to see if safe work practices are being followed and testing the employee for knowledge of the operations and hazards. Training shall be provided an approved source. CBC Pipeline, LLC. shall provide training for all employees affected by confined spaces. Each affected employee must be trained prior to initial assignment, prior to a change in assigned duties, if a new hazard has been created or special deviations have occurred.

The RSO shall certify that the required training has been accomplished. The certification shall include employee name, trainer signature/initials, dates of training. Certification must be made available to employees & their authorized representative.

CONFINED SPACE IDENTIFICATION AND WARNING

All permit-required confined spaces located inside buildings shall be identified and posted with appropriate signs to discourage the entry of unauthorized individuals. Where possible, they shall be secured to prevent unauthorized entry. The RSO shall identify, classify, and log the location of confined spaces. A copy of the log shall be provided to the rescue service and to departments that have employees who enter confined spaces. Contractors that enter confined spaces shall be provided with a list of the confined spaces in the building or areas in which they will be working. If a location is encountered that appears to meet the definition of a confined space, and it is not posted as such nor does it appear on the log, contact the RSO.

PERMIT RETENTION AND RECORD KEEPING

Individual departments should maintain a copy of these forms. Any records kept by the RSO shall be retained for the time period specified below. The following records shall be maintained:

1. Training. Information to include the date, location, instructor, content of course, name, and signature of trainee, etc. 3 years
2. Permits and pre-entry check lists. 3 years
3. Equipment calibration and maintenance log. 3 years
4. Confined space log. Indefinitely

Additionally, records shall be reviewed for any entry operations that may not have provided enough protection for employees and corrective revisions for revising the program prior to subsequent entries shall be done. Examples of program review are: Any unauthorized entry of a confined space, a hazard not covered by the permit, the occurrence of an injury or near miss, employee complaints.

Review of the confined space program, using the canceled permits retained within 1 year after each entry and revise the program as necessary, to ensure that employees are protected. CBC Pipeline, LLC. may perform a single annual review covering all entries performed during a 12-month period. If no entry is performed.

EQUIPMENT

The RSO will provide and maintain at least one multi-channel gas detectors for use by CBC Pipeline, LLC. personnel. These units shall be calibrated per manufacturer's requirements. Departments may wish to purchase their own gas detectors or may borrow the detectors from the RSO. In addition, the RSO shall make available a single rescue tripod/winch, lifeline, and body harness for outside rescue.

CONTRACTORS

Contractors who work for CBC Pipeline, LLC. and enter confined spaces shall be appraised of this written program and the entry procedure. CBC Pipeline, LLC. shall inform the contractor of hazards present in the space, CBC Pipeline, LLC. 's experience, any precautions or procedures. When employees of CBC Pipeline, LLC. and the contractor enter a confined space together, the entry shall be coordinated to minimize hazards to the employees. The duties of "entrants", "attendants" and "entry supervisors" are to be clearly defined and label to each affected worker.

SPECIFIC PROCEDURES AND WORK PRACTICES

The Confined Space Entry procedure does not cover all possible situations or conditions that could be encountered. Additional or different safety features or procedures may be necessary for specific operations. Physical protection for pedestrian and vehicular traffic & other barriers as necessary to protect entrants from external hazards shall be provided

These procedures must be followed when entering confined spaces such as manholes, vaults, boilers, ductwork, vessels, etc. Its intent is to protect entering personnel against such hazards as oxygen deficiency, combustible gas and vapors, toxic gases and vapors, mechanical hazards, entrapment, etc.

Confined spaces may be closed on all sides, top and bottom, with entry provided through restricted openings, or may be open completely on one side, top or bottom. Entry is defined as breaking the plane of the confined space with any part of the body.

Permit-required confined spaces are of greater hazard than non-permit required confined space. The entry points to permit-required confined spaces located within a building are marked with red stenciled signs stating: Danger - Permit-Required Confined Space, Do Not Enter.

It is important to realize that a non-permit required confined space may require re-classification based on the type of work to be performed. For example, an underground vault may be classified as non-permit required; however, if an employee will be applying

a solvent within this space, it could be upgraded to a permit-required confined space. Therefore, there may be an ongoing need to re-evaluate the space if there is reason to believe changes have occurred, or employees or their representatives request additional monitoring.

WARNING: SMOKING IS NOT PERMITTED IN A CONFINED SPACE NOR NEAR THE ENTRANCE TO A CONFINED SPACE AT ANY TIME. THIS IS ESPECIALLY IMPORTANT WHEN THE SPACE IS BEING INITIALLY OPENED AND THE ATMOSPHERE TESTED.

WARNING: ALL ENERGY SOURCES MUST BE LOCKED OUT OR TAGGED OUT BEFORE ENTRY, UNLESS HOT WORK PERMITS HAVE BEEN AUTHORIZED BY THE SUPERVISOR.

- I. Before entering the confined space, a permit is filled out to verify that conditions in the permit space are acceptable for entry during its duration. CBC Pipeline, LLC. 's workers should follow these minimum requirements:
 - A. Employees may not enter the confined space without specific training in confined space entry and approval of their supervisor;
 - B. Any conditions making it unsafe to remove an entrance opening cover shall be evaluated and the necessary precautions applied before the cover is removed;
 - C. When an entrance opening cover is removed, the opening will be promptly guarded by a railing, temporary cover or other temporary barrier that will prevent an accidental fall through the opening and will protect each employee working in the space from foreign objects entering the space.
 - D. At this point a check list must be completed. The permit form can be used for permit-required confined spaces will serve as the check list in non-permit required confined spaces.
 - E. Employees or their representatives are entitled to request additional monitoring at any time.

- II. In addition to the minimum requirements before entry, the following procedures must be observed for entry into a permit-required confined space:
 - A. Before an employee enters the space, the internal atmosphere must be tested with a calibrated direct-reading instrument for oxygen content, flammable gases and vapors and toxic gases and vapors (in that order). Note that some instruments test for multiple gases simultaneously. If the presence of a toxic gas or vapor is suspected in a confined space, other

than carbon monoxide or hydrogen sulfide, contact the RSO for advice on air sampling. Hot air and steam shall be ventilated from steam vaults before testing the atmosphere.

1. If possible, the atmosphere immediately inside the cover (entry point) must be tested without removing the cover. This testing can be accomplished by using the gas meter and the hand-held probe and sampling line attached to the pump. If the cover does not have a sampling port, carefully open the cover a small amount and check the atmosphere immediately inside the cover by lowering the gas meter into the space or inserting the hand-held probe and sampling line attached to the pump;
 2. After testing the atmosphere immediately inside the confined space, carefully remove the cover. Test the atmosphere from the top to bottom and around ductwork and uneven surfaces. This testing can be done by slowly lowering the gas meter by its attached rope or string or using the hand-held probe and sampling line attached to the pump. Do not let the gas meter or end of the tubing submerge in any water that might be present. For horizontal confined spaces and confined spaces that must be entered from the bottom, it will be necessary to use a pole to test the atmosphere;
 3. Avoid leaning over the space or placing your head inside the confined space you are testing.
- B. If the oxygen concentration test indicates an oxygen deficiency (less than 19.5%) or an excess (more than 23.5%), the gas meter should sound an alarm and forced ventilation must be provided. For ventilation of confined spaces, see Appendix I at the back of this procedure. No entry into the confined space will be permitted until follow-up tests after ventilation indicate that the atmosphere is safe.
- C. If the flammability test (combustible gas) indicates a flammable concentrations greater than 10% of the lower explosive limit, the gas meter should sound an alarm and forced ventilation must be provided. No entry shall be permitted until follow-up tests indicate that the atmosphere is safe.
- D. The gas meters test for carbon monoxide and hydrogen sulfide. Carbon monoxide is produced by internal combustion engines and hydrogen sulfide is often found in sewers. If the gas meter indicates levels of either carbon monoxide that exceed 25 parts per million (ppm) or hydrogen sulfide that exceed 10 ppm, the gas meter should sound an alarm and

forced ventilation is required. No entry shall be made until the atmosphere is safe.

- E. After purging, sufficient ventilation shall be supplied to the confined space where needed, making sure that your source of ventilation air is not contaminating the confined space (i.e. carbon monoxide from traffic).
- F. At this point the confined space entry permit must be completed. Each person entering the confined space must sign the confined space entry permit. All authorized positions **MUST BE** listed and specific. The confined space entry permit must be posted near the entrance to the confined space. For outdoor entry points during wet or windy weather, the permit may be kept in a nearby safe location such as a company vehicle. It is now acceptable to enter the confined space. Continuous air monitoring must be conducted while the confined space is occupied. A gas meter should be worn by an employee in the confined space.
- G. Pre-entry retesting for air contaminants in the confined space atmosphere must be made after every work break.
- H. If a hazardous atmosphere is detected while individuals are in the space, each employee shall leave the space immediately.
- I. If an attendant outside the confined space orders an evacuation or if the gas meter signals an alarm, all employees must immediately evacuate the confined space. The space shall not be re-entered until the source of the problem has been identified and corrected.
- J. The completed confined space entry permit or check list must be kept in the department files.
- K. Upon completion of a work shift, the gas meter must be returned to its charger. If the next shift will continue the work, a gas meter with a fully charged battery must be obtained. If the gas meter is damaged or malfunctioning, tag the unit as being out of service. Repairs and recalibration must be performed before re-use.
- L. An attendant must be stationed outside the confined space to maintain voice and/or visual contact with entrants and to recognize the early symptoms of danger in the space. The attendant must be fully familiar with rescue procedures and be able to recognize hazardous conditions. The attendant must not enter the confined space in an emergency, nor allow anyone else to enter the confined space unless they are an authorized trained rescuer. The attendant must order an evacuation of the confined space if a hazardous condition develops or when the workers inside the

confined space appear to be in danger. The attendant will be on-duty for the duration of the entry. If more than one confined space is to be monitored by a single attendant, the RSO must be made aware and determine the method to enable the attendant to respond to emergencies in one or more permit spaces that he/she is monitoring without distraction from all responsibilities.

- M. When applicable, wristlets, life line or full-body harnesses will be provided for each person in the confined space. In some cases, it will not be possible to use these rescue features based on the shape, size or contents of the particular confined space;
- N. A mechanical winch and tripod, approved for rescue, must be provided for top entry permit-required confined spaces. The equipment shall be inspected upon set up. The attendant outside the confined space must be trained in the use of this equipment. In some cases, the winch and tripod cannot be used if they create a hazard.
- O. A portable radio or other device must be used to maintain communication between the attendant and the entrant(s);
- P. The number of employees allowed to enter a permit-required confined space must be kept to a minimum. The supervisor on site, or a designated authorized person, must complete the entry permit and make sure all entrants have signed before entry. The supervisor will cancel the permit at the completion of the job or when conditions substantially change within the confined space such that the permit is no longer valid.

RESCUE PROCEDURES

- A. If an employee is injured, or becomes unconscious in a permit-required confined space, the employee must be retrieved using the rescue tripod and winch or lifeline (if provided). Emergency personnel should be summoned via 911 as soon as possible after it is recognized that a problem exists. In some instances, the notification may have to be delayed until the injured person has been removed from the space.
- B. The attendant must never enter a confined space. If rescue cannot be accomplished outside the confined space by using a tripod/winch or lifeline, then rescue assistance must be summoned immediately by calling 911 or by using portable radios to contact the UT Police dispatcher.
- C. Rescue services shall be provided by the host facility, or outside services, and for IDLH conditions. If provided by the host facility: this must be noted in safety program and it is agreed upon by both parties. If outside services are used, they

must be given an opportunity to examine the entry site, practice rescue, and decline as appropriate. IDLH Conditions require trained rescuers on site while work is being performed. If there is reliance on the client Host rescue services for use, this MUST be stated and agreed to in contract language. Rescuers must have PPE at no cost, training, and practice rescues at least every 12 months.

MECHANICAL VENTILATION OF CONFINED SPACES

In many situations, it will be necessary to ventilate a confined space before entry and to maintain forced ventilation while the space is occupied. Forced ventilation is required to remove air contaminants, provide oxygen and to keep the air as clean as possible. The following is a guide to help ventilate confined spaces. Some confined spaces have a single opening, others have multiple opening; or are connected to tunnels, etc.

1. It is best to blow air into the confined space and draw it out simultaneously. This procedure generally requires two or more openings. For ventilation purposes, it is best to open as many of the adjacent entry points as possible.
2. With a confined space that has only a single entry point or when only a single fan is available, air should be blown into the confined space. A flexible hose is helpful in directing the air to the bottom of the confined space.
3. It is important that the fresh air intake not be contaminated. In some cases, a portable gasoline powered generator will be used to power the ventilation fan(s). The generator should be located as far as possible from the fan air intake. Motor vehicles or other internal combustion engines should not be allowed to operate with their exhaust pipes located near the air intakes.
4. When using ventilation, it is important to have a rough idea of the volume of the confined space to be entered. It is also important to know the rating of the ventilation fan. When forced ventilation of a confined space is required, at least three air changes should be provided before re-sampling. Here is an example:

An underground fault is 10 feet wide by 8 feet high by 10 feet long. Multiplying these three dimensions yields 800 cubic feet. The fan to be used is rated for 400 cubic feet per minute.

800 cubic feet = one air change every 2 minutes

400 cubic feet per minute

Thus it will take the fan two minutes to ventilate the confined space. It will take 6 minutes to provide the necessary three air changes.

EQUIPMENT FOR CONFINED SPACE ENTRY

The following is a list of equipment that may be necessary for safe entry into the confined space.

- A. Hard hats, safety shoes, safety glasses and ear protection
- B. Ladder, respirator, lock, key, multiple-lock hasp, tags, lights, fans, barriers and fire extinguisher
- C. Portable radios
- D. Harness, lifelines, wristlets, tripod and winch
- E. Permit or checklist

CONFINED SPACE ENTRY PERMIT

NOTE: This form must be completed prior to entry of the confined space and posted near the entry opening. Upon completion of the project or expiration of a permit, a copy must be forwarded to EHSS.

Date of Issue:	Expiration Date:
Time:	Time:
Location of Space:	
Description of Space:	
Purpose of Entry:	
Hazard Assessment:	
Attendant(s):	
Signature of Employees to Enter:	

SAFETY EQUIPMENT/REQUIREMENTS	Y		N		PERSONAL PROTECTIVE EQUIPMENT	Y		N	
PIPE LINES PURGES OR FLUSHED					AIR PURIFYING RESPIRATOR - TYPE				
AREA SECURE AND SIGNS POSTED					SAFETY GLASSES OR GOGGLES				
TRIPOD/RETRIEVAL SYSTEM					HARD HAT				
COMMUNICATION EQUIPMENT					CHEMICAL RESISTANT CLOTHING				
GAS DETECTOR					PROTECTIVE BOOTS AND/OR GLOVES				
FIRE EXTINGUISHER					HEARING PROTECTION				
GROUND FAULT CIRCUIT INTERRUPT					CHEST HARNESS AND LIFE LINE				
LIGHTING					OTHER				
LOCKOUT/TAGOUT									
PIPE LINES CAPPED OR BLANKED									
MECHANICAL VENTILATION									

TIME/DATE	%LEL(10%)	%O ₂ (19.5-23.5)	H ₂ S 10ppm	CO 35ppm	INITIALS	INSTRUMENT

SUPERVISOR AUTHORIZING ENTRY (PRINT)	SIGNATURE

Chapter 5

Electrical Safety

Policy

It is the policy of CBC Pipeline, LLC. 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 CBC Pipeline, LLC. .

Procedures

It is the policy of CBC Pipeline, LLC. 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.

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.

Identify hazards and anticipate problems. Think through what might go wrong and what the consequences would be. Do not hesitate to discuss any situation or question with your supervisor and coworkers.

Resist "hurry-up" pressure. Program pressures should not cause you to bypass thoughtful consideration and planned procedures.

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. 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.

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. Keep drawings and prints up to date. Dispose of obsolete drawings and be certain that active file drawings have the latest corrections.

Have designs reviewed. All systems and modifications to systems performing a safety function or controlling a potentially hazardous operation must be reviewed and approved at the level of project engineer or above.

Have designs and operation verified. All systems performing safety functions or controlling a potentially hazardous operation must be periodically validated by actual test procedures at least once a year, and both the procedures and actual tests must be documented.

Test equipment safety. Tests should be made when the electrical equipment is de-energized, or, at most, energized with reduced hazard.

Know emergency procedures. All persons working in areas of high hazard (with high-voltage power supplies, capacitor banks, etc.) must be trained in emergency response procedures, including cardiopulmonary resuscitation (CPR) certification.

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. Also special care shall be taken when working with conductive materials and equipment such as long dimensional conductor objects (ducts or pipes). Employees who handle may be working with such objects shall work with the RSO to determine if any additional steps for safe work practices need to be taken.

Safety related work practices that pertain to qualified and unqualified electrical workers are listed below.

Employees who face a risk of electric shock but who are not qualified persons shall be

trained & familiar with electrically related safety practices. Only qualified persons may work on electric circuit parts or equipment that have not been deenergized. Such persons shall be made familiar with the use of special precautionary techniques, PPE, insulating & shielding materials and insulated tools.

2. Employees shall be trained in safety related work practices that pertain to their respective job assignments, and 3. Clearance distances.

Safe work practices shall be employed to prevent electric shock or other injuries resulting from either direct or indirect electrical contacts when work is performed near or on equipment or circuits which are or may be energized. Conductors and parts of electrical equipment that have been deenergized but not been locked or tagged out shall be treated as live parts.

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. In any case, conductive apparel shall not be worn unless they are rendered non-conductive by covering, wrapping or other insulating means. Conductive items of jewelry or clothing shall not be worn unless they are rendered non-conductive by covering, wrapping or other insulating means.

Protective Systems/ GFCI's

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. For all 120 volt, 15 and 20 amp (branch) circuits that are cord/plug connected, Ground Fault Circuit Interrupters (GFCI's) shall be used. GFCI's are specifically designed to protect workers, and work much faster than standard circuit breakers, and at extremely low amperage – far below the threshold at which a hazardous shock can occur. This is the primary protection, and therefore it is required that GFCI's be used as the first component in any circuit used for tools/ extension cords.

Assured Equipment Grounding Conductor Program (AEGCP)

Secondary protection benefits may be realized from utilizing an Assured Equipment Grounding Conductor Program (AEGCP). This program provides for initial and periodic verification of ground continuity of all electrical power tool and extension cords. If used, continuity checks are made initially and at three month intervals. Cords that are checked shall have distinguishable taped markings placed within one foot of the male end of the cord. This program is not, however mandatory if GFCI's are faithfully used - which is the company policy.

A written assured equipment grounding conductor program continuously enforced at the site by one or more designated persons to ensure that equipment grounding conductors for all cord sets, receptacles that are not a part of the permanent wiring of the building or structure, and equipment connected by cord and plug are installed and maintained in good, properly grounded condition.

The following tests shall be performed on all cord sets, receptacles that are not part of the permanent wiring of the building or structure, and cord- and plug-connected equipment required to be grounded.

(1) All equipment grounding conductors shall be tested for continuity and shall be electrically continuous.

(2) Each receptacle and attachment plug shall be tested for correct attachment of the equipment grounding conductor. The equipment grounding conductor shall be connected to its proper terminal.

(3) All required tests shall be performed

(a) Before each use on site,

(b) When there is evidence of damage,

(c) Before equipment is returned to service following any repairs,

(d) At intervals not exceeding 3 months.

The tests required shall be recorded and made available to any authority having jurisdiction.

Safety Practices

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.

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.

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 if 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.

Working On or Near Live Circuits

Working on live circuits means actually touching energized parts. Working near live circuits means working close enough to energized parts to pose a risk even though you make be working on de-energized parts. Employees may not enter spaces containing exposed energized parts unless illumination is provided that enables the employees to work safely. Protective shields, protective barriers or insulating materials as necessary shall be used when working in confined or enclosed work spaces where electrical hazards may exist. Common tasks where you need to work on or near live circuits include:

- Taking voltage measurements
- Opening and closing disconnects and breakers
- Removing panels and dead fronts
- Opening electric equipment doors for inspection.

Working on or Around Overhead Lines

The lines shall be deenergized and grounded or other protective measures shall be provided before work is started. Proper clearances shall be maintained under and around energized overhead lines. For overhead lines under 50,000 volts, the minimum clearance is 10ft. around the conductors, or 4ft. when driving under lines. These distances shall be increased by 0.4in. for every additional 1,000 volts over 50,000 volts. This shall apply to employees of CBC Pipeline, LLC. for qualified and unqualified workers alike.

For other situations where you might need to work on or near live circuits, CBC Pipeline, LLC. may institute a written live work permit system which must be authorized by a qualified supervisor.

Chapter 6

LOCKOUT/TAGOUT PROCEDURE

POLICY

It is the policy of CBC Pipeline, LLC. that any individual engaging in the maintenance, repairing, cleaning, servicing, of energy-stored equipment will abide by the procedures outlined in this document and other safety measures outlined in the CBC Pipeline, LLC. Safety & Health Manual. These procedures are designed to meet or exceed applicable OSHA standards for safe work practices.

Lockout is a first means of protection; warning tags only supplement the use of locks. Tags alone may be used only when the application of a lock is not practically feasible and with approval of the RSO, Replace with safety Person's Name or the appropriate supervisor.

The following program addresses: 1) Who controls it (the RSO) 2) How is program enforced (through the RSO) 3) Specific procedures that outline the scope, purpose, authorization, rules and techniques to be utilized (as follows below) 4) Training(as follows below) 5) Inspections, etc. where unexpected energizing start up or release of stored energy could occur & cause injury (as follows below) 6) Equipment listings & surveys should be provided.

PURPOSE

To ensure that all individuals are protected from accidental or unexpected activation of steam, gas, chemical, kinetic, mechanical and/or electrical equipment during maintenance, repairing, cleaning, servicing, or adjusting of prime movers, machinery, or equipment. While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been deenergized, the circuits energizing the parts shall be locked out or tagged or both.

DEFINITIONS

LOCKOUT

If an energy source can be locked out this method shall be utilized. The practice of using keyed or combination security devices ("locks") to prevent the unwanted activation of steam, gas, chemical, kinetic, mechanical or electrical equipment. A device that utilizes a lock, either key or combination to hold an energy isolating device in a safe position. If an energy source cannot be locked out a tagout system shall be utilized. Devices shall indicate the identity of the employee applying the device.

TAGOUT

The practice of using tags in conjunction with locks to increase the visibility and awareness that equipment is not to be energized or activated until such devices are removed. Tagout devices will be of the non-reusable type, attachable by hand, self-locking, and non-releasable with a minimum unlocking strength of no less than 50 pounds, (weather & chemical resistant) standardized in size, color, with wording warning of hazardous energy (Do Not Start) (Do Not Open) (Do Not Close) (Do Not Energize) (Do Not Operate). Devices shall indicate the identity of the employee applying the device.

TRYOUT

The practice of attempting to set machinery into motion by starting, switching, pushing, moving, or otherwise engaging power sources for such equipment. There is typically local rules which may only allow authorized persons to make such attempts. Check first before trying out any equipment yourself.

ACTIVATION/ENERGIZATION

To set machinery into motion by starting, switching, pushing, moving, or otherwise engaging power sources for such equipment. To provide a flow of electricity or complete a circuit that is the main power source for the machinery/equipment.

3.5 HAZARDOUS MOTION

Motion of equipment under mechanical stress or gravity that may abruptly release and cause injury. Hazardous motion may result even after power sources are disconnected. Examples are coiled springs, raised hydraulic equipment, and any sources of potential energy that may cause injury.

RESPONSIBILITIES

- a. Ensure that the lockout/tagout procedures are in compliance with OSHA requirements.
- b. Provide training to employees affected by lockout/tagout procedures.
- c. Inspect energy control procedures and practices to ensure that general and specific lockout/tagout procedures are being followed.
 - i. Inspections must be carried out by persons other than those employees directly utilizing energy control procedures. Inspections shall be by the RSO.
 - ii. Inspections will include a review between the inspector and each authorized employee, of that employee's responsibilities under the energy control procedure being inspected.
 - iii. Certify that periodic inspections have been performed. A certified review of the inspection including date, equipment, employees & the inspector should be documented.

SUPERVISORS

- a. Ensure that each employee engaging in work requiring locking/tagging out of energy sources understands and adheres to adopted procedures.
- b. Assure that employees have received training in energy control procedures prior to operating the machinery or equipment.
- c. Provide and maintain necessary equipment and resources, including accident prevention signs, tags, padlocks, seals and/or other similarly effective means.

EMPLOYEES

- a. Adhere to Specific Procedures as outlined in this document for all tasks that require the use of lockout/tagout procedures as defined.
- b. Maintain lockout/tagout supplies in maintenance vehicles.

SPECIFIC PROCEDURES

PREPARATION FOR LOCKOUT/TAGOUT

- a. Make a survey to locate and identify all isolating devices to be certain which switch(es), valve(s), or other energy isolating devices apply to the equipment to be

locked or tagged out. More than one energy source (electrical, mechanical, stored energy, or others) may be involved.

SEQUENCE OF LOCKOUT OR TAGOUT SYSTEM PROCEDURE

- a. Notify affected employees that a lockout or tagout system is going to be utilized and the reason therefore. Before an authorized or affected employee turns off a machine or equipment, the authorized employee shall know the type and magnitude of energy that the machine or equipment utilizes, the methods or means to control the energy. and shall understand the hazards thereof.
- b. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open toggle switch, etc.). The machine or equipment shall be turned off or shutdown using the procedures established for the machine or equipment. An orderly shutdown must be utilized to avoid any additional or increased hazard(s) to employees as a result of the equipment stoppage.
- c. Operate the switch, valve, or other energy isolating device(s) so that the equipment is isolated from it energy source(s). Stored energy (such as that in springs, elevated machine members, rotating flywheels, hydraulic systems, and air, gas, steam, or water pressure, etc.) must be dissipated or restrained by methods such as repositioning, blocking, bleeding down, etc. All energy isolating devices that are needed to control the energy to the machine or equipment shall be physically located & operated in such a manner as to isolate the machine or equipment from the energy source.
- d. Lockout/Tagout the energy isolating devices with assigned individual lock(s) or tag(s).
 - 1) Lockout or tagout devices shall be affixed to each energy isolating device by authorized employees.
 - 2) Lockout devices, where used, shall be affixed in a manner that will hold the energy isolating devices in a safe or off position.
 - 3) Tagout devices, where used, shall be affixed in such a manner as will clearly indicate that the operation or movement of energy isolating devices from the safe or off position.
 - 4) Where tagout devices are used with energy isolating devices designed with the capability of being locked, the tag attachment shall be fastened at the same point at which the lock would have been attached.
 - 5) Where a tag cannot be affixed directly to the energy isolating device, the tag shall be located as close as safely as possible to the device in a position that will be immediately obvious to anyone attempting to operate the device.
- e.
 - 1) Following the application of lockout or tagout devices to energy isolating devices, all potentially hazardous stored or residual energy shall be relieved, disconnected, restrained & otherwise rendered safe.
 - 2) If there is a possibility of reaccumulation of stored energy level, verification of isolation shall be continued until the servicing or maintenance is completed, or until the possibility of such accumulation no longer exists. After ensuring that no personnel are exposed, and as a check on having disconnected the energy sources, operate the push button or other normal operating controls to make certain the equipment will not operate. CAUTION: Return operating control(s) to neutral or off position after the test.

f. The equipment is now locked out or tagged out. Prior to starting work on machines or equipment that have been locked or tagged out, the authorized employee shall verify that isolation & deenergization of the machine or equipment have been accomplished.

RESTORING MACHINES OR EQUIPMENT TO NORMAL OPERATIONS

- a. After the servicing and/or maintenance is complete and equipment is ready for normal production operations, check the area around the machines or equipment to ensure that no one is exposed.
- b. After all tools have been removed from the machine or equipment, guards have been reinstalled and employees are in the clear, remove all lockout or tagout devices. Operate the energy isolating devices to restore energy to the machine or equipment.
- c. This procedure should be documented (i.e., by the RSO).

PROCEDURE INVOLVING MORE THAN ONE PERSON

The authorized employee should ascertain the exposure status of individual group members. The procedures shall afford the group of employees a level of protection equal to that provided by a personal lockout or tagout device. In the preceding steps, if more than one individual is required to lockout or tagout equipment, each employee shall attach a personal lockout or tagout device to the group's device while he/she is working & then removes it when finished. When an energy isolating device cannot accept multiple locks or tags, a multiple lockout or tagout device (hasp) may be used. If lockout is used, a single lock may be used to lockout the machine or equipment with the key being placed in a lockout box or cabinet which allows the use of multiple locks to secure it. Each employee will then use his/her own lock to secure the box or cabinet. As each person no longer needs to maintain his or her lockout protection, that person will remove his/her lock from the box or cabinet. During shift change or personnel changes, there should be specific procedures to ensure the continuity of lockout or tagout procedures. Documentation should be specific.

TEMPORARY REMOVAL OF LOCKOUT/TAGOUT DEVICES

- a. In situations where lockout/tagout devices must be temporarily removed from the energy isolating device and the machine or equipment energized to test or position the machine, equipment or component thereof, the following sequence of actions will be followed:
 - i. Remove non-essential items and ensure that machine or equipment components are operationally intact.

- ii. Notify affected employees that lockout/tagout devices have been removed and ensure that all employees have been safely positioned or removed from the area.
- iii. Have employees who applied the lockout/tagout devices remove the lockout/tagout devices.
- iv. Energize and proceed with testing or positioning.
- v. Deenergize all systems and reapply energy control measures.

MAINTENANCE REQUIRING UNDISRUPTED ENERGY SUPPLY

a. Where maintenance, repairing, cleaning, servicing, adjusting, or setting up operations cannot be accomplished with the prime mover or energy source disconnected, such operations may only be performed under the following conditions:

- i. The operating station (e.g. external control panel) where the machine may be activated must at all times be under the control of a qualified operator.
- ii. All participants must be in clear view of the operator or in positive communication with each other.
- iii. All participants must be beyond the reach of machine elements which may move rapidly and present a hazard.
- iv. Where machine configuration or size requires that the operator leave the control station to install tools, and where there are machine elements which may move rapidly, if activated, such elements must be separately locked out.
- v. During repair procedures where mechanical components are being adjusted or replaced, the machine shall be de-energized or disconnected from its power source.

EMPLOYEE TRAINING

Employees of CBC Pipeline, LLC. will receive annual lockout/tagout training from the RSO, Replace with safety Person's Name or a designated representative. Note: Training requirements outlined in 29CFR [Specifically 1910.147 (c)(7)(i),(ii), & (iii)]. The training must include recognition of hazardous energy source, type & magnitude of energy available, methods & means necessary for energy isolation & control. Each authorized employee shall receive adequate training. The training should address that all affected employees are instructed in the purpose & use of the energy control procedure. There should be training provisions included for any other employee whose work operations are or may be in an area where energy control procedures may be utilized. The employee training should also address when tagout systems are used including the limitations of a tag (tags are warning devices & do not provide physical restraint). The training should also include that a tag is not to be removed without

authorization. The tag is never to be ignored or defeated in any way. Retraining is required when there is a change in job assignments, in machines, a change in the energy control procedures, or a new hazard is introduced. All training and/or retraining must be documented, signed & certified.

RECORDKEEPING

INSPECTION RECORDS

a. The RSO, Replace with safety Person's Name or a designated representative will supply and instruct employees in the use of LOCKOUT/TAGOUT INSPECTION FORMS.

TRAINING RECORDS

a. Training records will be maintained by the RSO, Replace with safety Person's Name or a designated representative. Training records will include an outline of topics covered and a sign in sheet of those employees attending.

REFERENCE

Code of Federal Regulations, Title 29, Part 1910, Section 147.

CBC Pipeline, LLC.

LOCKOUT/TAGOUT INSPECTION FORM

1. Inspection Date: _____

2. Inspector (Printed Name/Signature): _____ / _____

3. Employee(s) Inspected (Printed/Signature): _____ / _____

_____ / _____

_____ / _____

_____ / _____

5. Machine/equipment on which the energy control procedure was being utilized:

Item	Yes	No
Does employee have or have access to adequate lockout/tagout devices?		
Has employee tested the effectiveness of his/her lockout/tagout devices?		
Has employee received CPR and lockout/tagout training in the last year?		
Have all procedures been followed?		
Were tagouts legible and clearly displayed?		

6. Comments/Observations: _____

Chapter 7

Employee Emergency Action Plan

Organization

CBC Pipeline, LLC. requires that during every emergency an organized effort be made to protect personnel from further injury and to minimize property damage.

All of CBC Pipeline, LLC. resources can be made available to respond to an emergency. Each supervisor must know what to do during an emergency in his or her area and must be certain that his or her employees understand their roles.

Emergency Action Plan

A responsible party must be designated by Replace with safety Person's Name and oriented for each workplace or jobsite. Generally, the Responsible Safety Officer or designated representative is the person in charge of a workplace or jobsite. This person has specific responsibility for the preparation, updating, and implementation of the emergency plan. This responsibility includes recommending personnel to attend indoctrination and training programs.

Specifically, each plan must contain the following information and procedures as appropriate for each workplace.

Emergency Escape Procedures

Floor plans showing evacuation routes, the location of shutoff switches and valves for the utility systems (water, gas, electricity), and the locations of emergency equipment and supplies (including medical) shall be determined prior to the start of work at each at each jobsite or workplace. Indications on the floor plans of areas where specific hazards (i.e., toxic, flammable, and/or radioactive materials) exist. The location and description of special hazards or hazardous devices should be included in the text together with shutdown procedures if applicable.

Emergency Operator Personnel

A list of people with specific duties during an emergency and a description of their

duties shall be provided. For example, specific people should be assigned to supervise evacuation and to carry out a rapid search of the area (assuming this can be done safely).

Accounting For All Employees

Designation of a primary assembly point for evacuees that is well away from the building. An alternate site should also be designated in case the first choice cannot be used.

Reentry procedures

No one shall reenter an evacuated building or area without specific instructions from the RSO or other person in charge.

Rescue Medical Duties

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.

Reporting Fires And Other Emergencies

Report the emergency immediately. State what happened, the specific location, whether anyone was injured, and your name and phone number in addition to any other applicable information.

Additional Contacts For More Information

CBC Pipeline, LLC. has designated personnel at the central office for additional information. If you have any questions, please contact Replace with safety Person's Name.

Jobsite Alarm Systems

An employee alarm system shall be in accordance with CFR Part 1926.159. The RSO shall determine the particular alarm system to be utilized for each jobsite to alert all employees in the area of an emergency.

Types Of Evacuation

The RSO or designated person shall review each particular jobsite or workplace to

determine the type of evacuation to be utilized in emergency circumstances.

Supervisors Responsibilities

During an emergency, the supervisor must:

Ensure that those under his or her supervision are familiar with the plan for the workplace, particularly the recommended exit routes and how to report an emergency.

Render assistance to the person in charge during an emergency, as required.

Maintain familiarity with the shutdown procedures for all equipment used by those under his or her supervision.

Know the location and use of all safety equipment.

Keep employees from reentering an evacuated area until reentry 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 or other alarm system as designated by the RSO 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:

Comply with all guidelines and procedures as outlined by the RSO or designated person regarding the Emergency Action Plan. In an emergency situation the employee may, if there is threat of further injury or further exposure to the hazard, remove all injured persons if possible and leave the immediate vicinity. If there is no threat of further injury or exposure, the employee should leave seriously injured personnel where they are.

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.

Training Requirements

CBC Pipeline, LLC. shall review the Employee Emergency Action Plan with each applicable employee; initially when the plan is developed, when the employee's responsibilities or designated duties change, and, whenever the plan is changed.

Applicability

Employers with 10 (ten) or fewer employees may communicate the plan orally, and CBC Pipeline, LLC. need not maintain a written plan in the workplace.

Chapter 8

Fire Protection Program/ Hot Work

Introduction

Policy and planning for fire safety at CBC Pipeline, LLC. 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:

- * Non-combustible or fire-rated materials and construction practices suitable to the assigned uses of buildings and facilities.
- * Alarm systems and automatic extinguishing systems.
- * Availability of suitable hand extinguishers and local hose lines for use before firefighters arrive.
- * Access to professional fire department, always staffed and trained in the control of emergencies that could occur. (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 may 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, CBC Pipeline, LLC. 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 Supervisor, Responsible Safety Officer and/or 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.

Supervisor Responsibilities

Supervisors must ensure that their personnel are properly instructed regarding potential fire hazards involved in their work and around their workplaces, the proper precautions to minimize fires, and the procedures in case of fire. The local Fire Department and the Responsible Safety Officer also offer formal courses or training and materials on fire prevention and response for:

- * Fire Safety
- * Fire-Extinguisher Operation
- * Self-Contained Breathing Apparatus
- * Emergency Evacuation

Class A Combustibles

Class A combustibles are common materials such as wood, paper, cloth, rubber, plastics, etc. Fires in any of these fuels can be extinguished with water as well as other agents specified for Class A fires. They are the most common fuels to be found in non-specialized operating areas of the work place such as offices.

Safe handling of Class A combustibles means:

Disposing of waste daily.

Keeping work area clean and free of fuel paths, which can spread a fire once started.

Keeping combustibles away from accidental ignition sources such as hot plates, soldering irons, or other heat or spark-producing devices.

Keeping all rubbish, trash, or other waste in metal or metal-lined receptacles with tight-fitting covers when in or adjacent to buildings. (Exception: wastebaskets of metal or of other material and design approved for such use, which are emptied each day, need not be covered.)

Using safe ash trays for disposal of smoking materials and making sure that the contents are extinguished and cold to the touch before emptying them into a safe receptacle.

Planning the use of combustibles in any operation so that excessive amounts need not be stored.

Storing paper stock in metal cabinets and rags in metal bins with automatically closing lids.

Making frequent inspections and checks for noncompliance with these rules in order to catch fires in the potential stage.

Class B Combustibles

Class B combustibles are flammable and combustible liquids (including oils, greases, tars, oil-base paints, lacquers) and flammable gases. Flammable aerosols (spray cans) are treated here. Cryogenic and pressurized flammable gases are treated elsewhere in this manual.

The use of water to extinguish Class B fires (by other than trained firefighters) can cause the burning liquid to spread carrying the fire with it. Flammable-liquid fires are usually best extinguished by excluding the air around the burning liquid. Generally, this

is accomplished by using one of several approved types of fire-extinguishing agents, such as the following:

Carbon dioxide

ABC multipurpose dry chemical

Halon 1301 (used in built-in, total-flood systems)

Halon 1211 (used in portable extinguishers)

Fires involving flammable gases are usually controlled by eliminating the source of fuel, i.e., closing a valve.

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. It should be noted that many flammable and combustible liquids also pose health hazards.

NOTE: 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 the surface of the liquid or within the vessel used.

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 Responsible Safety Officer. Safe handling of Class B combustibles means:

Using only approved containers, tanks, equipment, and apparatus for the storage, handling, and use of Class B combustibles.

Making sure that all containers are conspicuously and accurately labeled as to their contents.

Dispensing liquids from tanks, drums, barrels, or similar containers only through approved pumps taking suction from the top or through approved self-closing valves or faucets.

Storing, handling, and using Class B combustibles only in approved locations, where vapors cannot reach any source of ignition, including heating equipment, electrical equipment, oven flame, mechanical or electrical sparks, etc.

Never storing, handling, or using Class B combustibles in or near exists, stairways, or other areas normally used for egress.

In rooms or buildings, storing flammable liquids in excess of 10 gallons in approved storage cabinets or special rooms approved for the purpose.

Knowing the locations of the nearest portable fire extinguishers rated for Class B fires and how to use them.

Never smoking, welding, cutting, grinding, using an open flame or unsafe electrical appliances or equipment, or otherwise creating heat that could ignite vapors near any Class B combustibles.

Electrical Fires

There are many combustible materials, including electrical equipment, oxidizing chemicals, fast-reacting or explosive compounds, and flammable metals, which present specialized fire safety and extinguishing problems.

Refer to other appropriate chapters of this manual for safe handling advice. If in doubt, request advice from the Responsible Safety Officer.

Welding and Other Permits

As part of the local Fire Department's program to control and reduce fire hazards, a permit system is in effect to cover welding, burning, or other operations with a high fire hazard. Typically, operations that require a permit are:

- Welding (arc, oxyacetylene, or heliarc)
- Soldering (which requires an open flame)
- Use of a torch (for cutting, bending, forming, etc.)
- Use of tar pots (for road work or roofing, etc.)
- Open fires for any purpose

HOT WORK PERMIT PROGRAM

Hot Work is any construction or maintenance procedure which requires heat or open

flame to complete. This includes, but is not limited to: cutting, grinding, brazing, welding, soldering, thawing pipes, sweating pipes or applying roofing materials with torches. This policy applies to any CBC Pipeline, LLC. employee or any contractor who is performing new construction, repair, renovations and/or alterations that require hot work. Sparks, in the presence of flammable vapors, may cause immediate fires or explosions.

Smoldering material hidden from sight can suddenly burst into flame long after work has been completed and personnel have left the area. Heat produced by hot work on one side of a wall can actually ignite combustible material on the other side. Due to the high fire potential, most hot work will require a HOT WORK PERMIT.

Supervisors, Project Managers, and Contractors will determine if welding, cutting, soldering and heating must be done as part of the project or work order. Then determine if the hot work can be performed outside the building, if so a permit is not required. If hot work is performed inside of a building then a hot work permit is required. Hot Work Permits will be requested at least 24 hours in advance of needed work.

Hot Work Permits may be issued for a period of two weeks and may be renewed at the end of two weeks if needed. Employees and contractors will comply with all requirements as outlined on the permit form and the RSO, or designated representative will inspect each hot work site to ensure compliance.

Upon completion of hot work the original copy of the Hot Work Permit will be sent to the main office.

Any area of a building (other than a work shop) that is determined to be a "hot work safe area" will require an initial inspection by the RSO, or designated representative to ensure that it meets all criteria. These "hot work safe areas" shall have no fuel loading or very low fuel loading, in addition to other requirements. Examples of this type of area would be a non-occupied cement basement or crawl space under a building.

Hot Work Permit Form

(Hot Work is not permitted unless this form is completed and signed by the Responsible Safety Officer, or designated representative and site owner notified of hot works location.)

Name of person/company performing Hot Work: _____

Date of Work: _____

Permit No: _____
(Work Order Number)

Location of Work: _____
(be specific including building and room number)

Description of Work:

This permit is valid from am/pm on ___/___/___ to am/pm on ___/___/___

Special Precautions:

The work site has been inspected by me, I have arranged for the fire panel to be isolated and all other necessary precautions taken.

Name: _____

Signed: _____

Date: _____

(Person performing the work)

The fire alarm and panel has been isolated and the work site has been inspected by me, and declared safe for hot-work to proceed.

Name: _____

Signed: _____

Date: _____

(RSO or designated representative)

FIRE WATCH (if required)

Work site and all adjacent areas where sparks may have spread were inspected by me during, and or at least thirty (30) minutes after the work was completed and no fire conditions were noted. The fire panel has been de-isolated.

Name: _____ (Fire Watcher)

Signed: _____

Date: _____

The fire alarms and thermal/smoke detectors must be isolated before hot work commences. This is done by informing the site owner of location of hot works and requesting a fire alarm isolation.

Hot work commenced at am/pm _____

Hot work completed at am/pm _____

PRECAUTIONS CHECKLIST/ GENERAL PRECAUTIONS

Yes No N/A

- Are flammable and combustibles removed or protected?
- Are available sprinklers, hose streams and extinguishers operable?
- Is floor swept clean and wet down where necessary?
- Is arc flash shielding in place?
- Is ventilation adequate?
- Is hot-work equipment in good repair?
- Is fire watch required?
- Is fire panel isolated? (Checked with Site Owner)
- Are smoke/thermal detectors isolated? (Checked with Site Owner)
- Are combustible liquid, vapor, gasses removed or protected?
- Are combustible floors protected?
- Are flammable liquids, dust, lint removed or protected?
- Is explosive atmosphere in area eliminated?
- Are all wall and floor openings covered?
- Is construction non-combustible and without combustible materials?
- Are combustibles on the other side of wall or ceiling moved away?
- Are fire resistant coverings under works to collect sparks?
- Is enclosed equipment cleaned of all combustibles?
- Are containers purged of flammable liquids/vapors?
- Is Fire Watcher required?
- If required, has Fire Watcher been briefed?
- Is Fire Watcher trained in use of this equipment and sounding alarm?

Is Fire Watcher supplied with appropriate fire extinguisher?

Spray painting

To obtain additional information or to request a permit for these operations, contact the Responsible Safety Officer or Fire Department on its business line, not the emergency 911 number.

Portable Heaters

The use of these devices, whether privately or company owned, is allowed only where there is no chance of causing injury to personnel or of creating a fire hazard. This provision obviously requires common sense in safely locating such devices and ensuring that they do not operate when they are unattended. These devices may not be used in locations where:

Flammable or explosive vapors or dusts may be present.

Smoking, eating, or drinking are prohibited because toxic or radioactive materials may be present.

The area has been designated as unsafe for such devices.

The following practices should be carried out when operating portable heating appliances:

- * Do not place the appliance on unstable or readily combustible materials.
- * Maintain a clearance of at least 12 inches between the appliance and combustible materials.
- * Ensure that the appliance is approved by either Underwriters Laboratories, Inc., or Factory Mutual Research Corporation.
- * Connect the appliance directly to a proper electrical outlet using only the cord with which it was originally equipped. Do not use extension cords in lieu of permanent wiring.
- * Do not operate appliances during off hours if they are unattended unless they are controlled by a timer installed by an CBC Pipeline, LLC. electrician. The timer will automatically de-energize the appliance during off hours and energize it not more than 30 minutes before the arrival of personnel. If 24 hour operation is desirable, the proposed operation and arrangement must be reviewed by the local Fire Department

and a permit obtained. This permit must be posted near the operating appliance for the information of off-shift personnel who may be checking the area.

Fire Fighting Equipment

This section describes the fixed and portable equipment that is provided in working areas for fire protection. The fixed equipment may include automatic sprinklers, detectors and alarms, fire doors, etc. The portable equipment consists of fire extinguishers and hoses to be operated by employees before the arrival of the local Fire Department.

Fire Extinguishers

Fire extinguisher maintenance programs shall be adhered to in accordance with the manufacturers' recommendations. Maintenance programs shall be maintained and portable fire extinguishers are subjected to monthly visual checks and an annual maintenance check. CBC Pipeline, LLC. shall assure that portable fire extinguishers are subjected to monthly visual checks and an annual maintenance check

Fire Detectors

Several types of automatic fire detectors may be used throughout CBC Pipeline, LLC. , according to particular needs and purposes. All of them will detect fire (by one of several means) and transmit an alarm to the fire station. In the many buildings equipped with evacuation alarm bells, the automatic detectors activate those alarms, as do the manual pull boxes. In some cases, automatic extinguishing systems are activated by automatic detectors. The Fire Department always dispatches firefighters and apparatus to the scene of any automatically actuated alarm.

Sprinkler Systems

Many buildings are provided with automatic sprinkler systems. The sprinkler heads contain a fusible element (most commonly fused at 212 degrees F) which, on melting, opens the head and starts a spray of water. The resulting flow of water in the piping activates an alarm at the fire station, and firefighters are dispatched.

Automatic sprinkler heads can be damaged if they are subjected to mechanical abuse. A protective cage should be installed where such damage is possible. Heat inadvertently applied to the sprinkler head can also activate the sprinkler when no actual fire is present. Normal heat sources should therefore be kept away from sprinkler heads. To avoid decreasing the flow or spread of water or altering the spray pattern, do not allow material or furniture to be located too near the sprinkler head.

Allow at least 18 inches of clearance around sprinkler heads.

Sprinkler system control valves must be kept accessible for Fire Department use. Allow at least 3 feet of clearance (enough for a man to pass through easily) around such valves.

Alarm System

In most buildings, evacuation alarm bells are automatically activated when fire is detected. They can also be activated manually at strategically located pull boxes. The emergency actions of personnel and the evacuation procedures for each building or operating area are usually set forth in the Operational Safety Procedures for each building and posted near the main entrance or fire exit or elevator. Never use the elevator in case of a fire.

Fire Doors

Automatic fire doors and dampers are provided at strategic points to close and block the spread of smoke and fire when these are sensed by automatic detectors. Automatic fire doors must never be blocked or left in disrepair so that they cannot close and latch automatically as intended in the event of a fire.

Self-closing fire doors are those doors designed and installed to close each time after being opened. They too must never be blocked, wedged, or tied open. If such doors must be kept open, the self-closers must be replaced with approved automatic smoke-activated release hold-open devices.

Fire Exits

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. "Temporary" storage of furniture, equipment, supplies, or anything else is not permitted in exit ways. Combustibles, including recyclable waste paper, are not permitted in exit ways.

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:

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.

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.

All doors must return automatically to the closed position when not held open manually.

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.

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.

Liquids and chemicals are not to be stored in corridor lockers.

All cabinets must be kept locked, with one key being retained by the Building Manager.

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 the Responsible Safety Officer.

Mechanical Equipment Rooms

Mechanical equipment rooms contain boilers, blowers, compressors, filters, electrical equipment, etc. Such rooms must be separated from other areas of a building by fire-resistant walls and doors. To maintain the integrity of these separations, the fire doors

must never be left open.

Fan rooms house ventilation equipment which often includes automatic shut down and dampers activated by interlocking with the building smoke and fire detectors. Fire dampers and other automatic shut-down provisions must not be disabled without Fire Department or Responsible Safety Officer approval (as for temporary maintenance procedures).

Mechanical equipment rooms and fan rooms must not be used for storage of any kind.

Construction Areas

Construction areas under control of either CBC Pipeline, LLC. or outside contractors must be maintained in a fire-safe condition and accessible to emergency response forces.

Life Safety Code

The Life Safety Code of the National Fire Protection Association, NFPA 101, requires that emergency lighting be provided for means of egress in certain areas.

The Code states emergency lighting is required in exit corridors in any office-type building where the building is two or more stories in height above the level of exit discharge.

In industrial occupancies such as laboratories and shops, the Code requires emergency lighting in all exit aisles, corridors, and passageways. Emergency lighting may be installed in areas where not required by the Code when such areas present an egress hazard during a power failure.

Several types of emergency lights that satisfy the specifications of the Life Safety Code are:

Battery Type - Only rechargeable batteries may be used. The rating of the battery must be such that it provides power for illumination for one and one-half hours in the event of a failure of normal lighting.

Generator Type - When emergency lighting is provided by an electric generator, a delay of not more than 10 seconds is permitted.

Exit sign lights, when burned out, should be reported to Maintenance for service.

Exit Corridors

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. "Temporary" storage of furniture, equipment, supplies, or anything else is not permitted in exit ways. Combustibles, including recyclable waste paper, are not permitted in exit ways.

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:

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.

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.

All doors must return automatically to the closed position when not held open manually.

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.

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.

Liquids and chemicals are not to be stored in corridor lockers.

All cabinets must be kept locked, with one key being retained by the Building Manager.

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.

No Smoking

Smoking is forbidden in certain areas for fire safety reasons. Such areas include the following:

Where flammable gases or liquids are stored, handled, or used.

Where significant quantities of combustible materials, such as paper, wood, cardboard, or plastics are stored, handled, or used.

Where liquid- or gaseous-oxygen is stored, handled, or used.

Within 20 ft. of a smoke detector.

In tape and record storage vaults and computer equipment areas .

Areas that are designated as "No Smoking" areas for fire safety reasons are indicated by large rectangular signs consisting of white backgrounds with red letters stating "NO SMOKING."

Training

Since CBC Pipeline, LLC. has provided portable fire extinguishers for employees use in the workplace, CBC Pipeline, LLC. also shall provide an educational program to familiarize employees with the general principles of fire extinguisher use and the hazards involved in incipient stage fire fighting. This training will be conducted prior to initial assignment and at least annually thereafter.

Chapter 9

Gases/ Welding & Cutting

Introduction

This chapter contains guidelines and requirements for the safe use of flammable and/or compressed gases. It covers the use of flammable-gas piping systems, high-pressure gas cylinders, manifolded cylinders, and compressed air. Cutters, welders and their supervisors must be suitably trained in the safe operations of their equipment and the safe use of the process.

Hazards

All gases must be used in a manner that will not endanger personnel or property in routine shop use or experimental operations. Hazards associated with handling and use of flammable and/or high-pressure gases include the following:

Injuries caused by flying objects accelerated by an explosion or pressure release:

Asphyxiation;:

Secondary accidents such as falls or electrical shocks:

Fire caused by ignition of flammable gases:

Confined spaces: Ventilation is required, prohibiting cylinders in the space, lifelines for permit-required spaces, electrode removal when not in use, and gas cylinder shutoff when not in use and warning signs are required. The RSO shall be consulted prior to welding or cutting in any confined space.

Hazardous Fumes, Gases, Dusts: Any welding, cutting or burning of lead base metals, zinc, cadmium, mercury, beryllium or exotic metals or paints not listed here shall have proper ventilation or respiratory

Relief Valves Required

All systems, system components, and piping subject to over-pressures must be equipped with relief devices.

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 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.

Firewatch/ Fire Safety

Before cutting or welding is permitted the area shall be inspected by position responsible for inspection and granting authorized welding and cutting operations. Precautions that are to be taken shall be in the form of a written permit. In many cases a firewatch may be required.

Assigned fire watchers must be trained in the use of fire extinguishing equipment and familiar with the facilities for sounding an alarm in the event of a fire. If the object to be welded or cut cannot readily be moved, all moveable fire hazards should be removed. If all the fire hazards cannot be removed, then guards shall be used to confine the heat, sparks and slag and to protect the immovable fire hazards.

If the object to be welded or cut cannot be moved and if all the fire hazards cannot be removed, then guards shall be used to confine the heat sparks and slag and to protect the immovable fire hazards. If welding cannot be conducted safely the welding and

cutting shall not be performed.

There are several conditions that require a fire watch.

- 1) Locations where other than a minor fire might develop.
- 2) Combustible materials closer than 35 ft. (10.7M) to point of operation..
- 3) Combustibles that are 35 ft. (10.7M) or more away but are easily ignited.
- 4) Wall or floor openings within 35 feet (10.7M) radius expose combustible materials.
- 5) Combustible materials are adjacent to the opposite side of metal partitions, ceilings or roofs.

Fire watchers shall have fire extinguishers readily available. A fire watch shall be maintained at least a half an hour after the welding or cutting operation was completed.

First aid equipment shall be available at all times.

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: A piping (schematic) diagram of the apparatus and an operating procedure that includes safety considerations and emergency instructions must be developed, and the installed piping must be inspected to ensure that it is installed as shown on the piping diagram. Only personnel authorized to work on the experiment are allowed in the operations area. Appropriate warning devices and signs, such as "Danger-Acetylene" and "No Smoking and Open Flames," must be posted on or near the work area and at the doors to the operating area. Flammable gas shutoff valves must be located outside flammable gas operating areas. Good housekeeping practices must be observed; unnecessary combustible material must be kept out of flammable gas operating areas. Only the flammable gas cylinders actually required for the experiment are allowed in the operating area. Extra cylinders must be stored in an approved area outside the building or work area. 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. 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.

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.

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.

Cracking a Acetylene 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.

Never use a flame to detect flammable gas leaks. Use soapy water or use other approved methods.

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 contact the CBC Pipeline, LLC. Responsible Safety Officer and the local Fire Department immediately.

Oxygen

Oxygen supports combustion but is itself nonflammable. Oxygen lowers the ignition point (in air) of flammable substances and causes them to burn more vigorously. Materials such as oil and grease burn with nearly explosive violence in oxygen, even in minute quantities. Therefore, oxygen cylinders must not be handled with greasy or oily hands or gloves and must not be stored near highly combustible materials such as oil, grease, or reserve acetylene.

Oxygen must never be used to purge lines, to operate pneumatic tools, or to dust clothing - cloth, plastics, etc., saturated with oxygen burn explosively. Accordingly, oxygen cylinders must never be used as hat racks, clothes hangers, etc., since leaky fittings can result in accumulations of gas in the covering material.

Insects in oxygen "pigtails" can ignite spontaneously and may cause sufficient heat and over-pressure to burst the pigtail, valve, or manifold: don't leave pigtails disconnected for more than a few minutes.

Do not use white lead, oil, grease, or any other non-approved joint compound for sealing oxygen-system fittings. Threaded connections in oxygen piping must be sealed with joint compounds or Teflon tape approved for oxygen service. Litharge and water is recommended for service pressures above 300 psig (2.0 MPa). Gaskets must be made of non-combustible materials.

When high pressure oxygen cylinders are stored inside a building, they must be separated from flammable gas cylinders by at least 20 feet or by a fire-resistive partition.

Acetylene

Acetylene is used principally with welding and cutting torches. Commercial acetylene gas is colorless and highly flammable with a distinctive garlic-like odor. Acetylene, in its free state under pressure, may decompose violently - the higher the pressure, the smaller the initial force required to cause an explosion. Therefore, acetylene is stored in acetone, which dissolves 300 times its volume of acetylene. Acetylene cylinders are filled with a porous filler material that holds the acetone. The combination of filler and acetone allows acetylene to be contained in cylinders at moderate pressures without danger of explosive decomposition. Full cylinder pressure is 250 psig at 70 degrees F.

CAUTION: when acetylene is withdrawn from its cylinder too rapidly, the gas cannot come out of solution fast enough, the downstream pressure drops, and liquid acetone is thrown out of the cylinder and may limit the flow of the pressure-reducing regulator.

The following precautions are recommended when working with acetylene:

To prevent flashbacks check valves are required in welding gas lines and at the welding/cutting torch. If the acetylene pressure drops, the oxygen pressure at the torch can push oxygen back up the acetylene line, where it can mix with acetylene and cause a flashback.

Copper must not be used in acetylene piping - copper forms an impact-sensitive copper acetylide.

NEVER use free acetylene gas outside the cylinder at pressures over 15 psig (30 psia) -- it can decompose violently.

Acetylene cylinders should be used or stored only in an upright position to avoid the possibility of acetone leaking from the cylinder. If an acetylene cylinder has been stored horizontally, the cylinder should be put upright and left in that position for about 30 minutes before being used.

When cylinders are empty of acetylene, valves must be closed to prevent evaporation of the acetone.

Acetylene cylinders may be filled only by the supplier.

Magic Gas

Magic Gas (magic gas II). This particular mixture is denser than air and consists of the following:

Isobutane _____ 23.52%

Methylal (dimethoxy-methane) _____ 4.00% (nominal)

Freon 13-B1 _____ 0.48%

Argon _____ 72.00%

This gas is purchased premixed in Matheson 1F (Fat Boy) cylinders pressurized to 35 psig. The flammable limits of this gas are about 1.8% to 7% in air.

CBC Pipeline, LLC. safety rules for high pressure cylinders and flammable gases apply to all uses of Magic Gas.

Cylinders

Only cylinders meeting Department of Transportation (DOT) regulations may be used for transporting compressed gases. Each cylinder must bear the required DOT label for the compressed gas contained, except under certain specified conditions set forth in DOT regulations.

It is illegal to remove or to change the prescribed numbers or other markings on cylinders - do not deface, cover, or remove any markings, labels, decals, or tags applied or attached to the cylinder by the supplier. Each cylinder that is in use at CBC Pipeline, LLC. must carry a legible label or stencil identifying the contents. Do not repaint cylinders unless authorized by the owner.

Compressed-gas containers must not contain gases capable of combining chemically, nor should the gas service be changed without approval by Responsible Safety Officer.

The cylinder-valve outlet connections on cylinders containing gas mixtures are provided by the gas supplier, based on the physical and chemical characteristics of the gases.

Gas mixtures having a flammable component must have a cylinder-valve outlet connection with left-handed threads, even though the gas mixture is nonflammable,

unless Responsible Safety Officer has authorized otherwise.

Regulators, gauges, hoses, and other appliances provided for use with a particular gas or group of gases must not be used on cylinders containing gases having different chemical properties unless information obtained from the supplier indicates that this is safe.

Gases must not be mixed at CBC Pipeline, LLC. sites in commercial DOT cylinders and must not be transferred from one DOT cylinder to another. Gases that are mixed at CBC Pipeline, LLC. must never be put into a CBC Pipeline, LLC. - or vendor-owned compressed gas cylinder.

Vendor-owned cylinders must not be used for any purpose other than as a source of vendor-supplied gas. Only the vendor may pressurize these cylinders.

It is illegal to transport a leaking cylinder (charged or partially charged) by common or contract carrier.

Cylinder Handling

Compressed gases should be handled only by experienced and properly instructed personnel. When in doubt about the proper handling of a compressed gas cylinder or its contents, consult the Responsible Safety Officer.

Compressed gas cylinders are dangerous when handled incorrectly. Always assume that a cylinder is pressurized. Handle it carefully. Never throw, bang, tilt, drag, slide, roll, or drop a cylinder from a truck bed or other raised surface. If a cylinder must be lifted manually, at least two people must do the lifting. Because of their shape, smooth surface, and weight, gas cylinders are difficult to move by hand. A truck or an approved cylinder handcart must always be used to move a cylinder. Cylinders must be fastened in metal cradles or skid boxes before they are raised with cranes, forklifts, or hoists. Rope or chain lifting slings alone must not be used. Cylinders, even empty ones, must never be used as rollers for moving materials, as work supports, etc.

If damaged, a cylinder can cause severe injuries, including lung damage from inhalation of toxic contents and physical trauma from explosion. A pressurized gas cylinder can become a dangerous projectile if its valve is broken off.

Workers in charge of oxygen or fuel-gas supply equipment (including distribution piping systems and generators) must be instructed and judged competent for such work.

When a cylinder is not connected to a pressure regulator or a manifold, or is otherwise not in use, it is extremely important that the cylinder valve be kept closed and the safety cap be kept in place -- the cap protects the cylinder valve (do not lift cylinders by their caps). Notify the Responsible Safety Officer, giving details and cylinder serial number, if you believe that a foreign substance may have entered the cylinder or valve.

Cylinders containing compressed gases should not be subjected to a temperature above 125 degrees F. Flames, sparks, molten metal, or slag must never come in contact with any part of a compressed gas cylinder, pressure apparatus, hoses, etc. Do not place cylinders where they might become part of an electric circuit. When cylinders are used in conjunction with electric welding, ensure that the cylinders cannot be accidentally grounded and burned by the electric welding arc.

Cylinders must not be subjected to artificially low temperatures. Many ferrous metals become extremely brittle at low temperatures. The loss of ductility and thermal stress at low temperature may cause a steel cylinder to rupture.

Never attempt to repair, alter, or tamper with cylinders, valves, or safety relief devices.

Working With Gases

Always identify the contents of a gas cylinder before using it. If a cylinder is not clearly labeled, return it to the Responsible Safety Officer.

Before using a cylinder, be sure it is properly supported with two metal chains or the equivalent to prevent it from falling. Contamination of compressed gas cylinders by feedback of process materials must always be prevented by installation of suitable traps or check valves.

Suitable pressure-regulating devices and relief devices must always be used when gas is admitted to systems having pressure limitations lower than the cylinder pressure.

Gas cylinder valves can be "cracked" (opened slightly) momentarily before regulators are attached to blow dirt off the valve seats, but the valve outlet should always be pointed away from people or equipment. (Cracking the valve is not recommended with Acetylene because it can be ignited by static charge or friction.) After the regulator is securely attached to the cylinder valve, fully release (turn counter-clockwise) the pressure-adjusting screw of the regulator before opening the cylinder valve. Open gas cylinder high pressure valves slowly; this gives compression heat time to dissipate and prevents "bumping" the gauges. Never use a wrench on any cylinder-valve hand wheel.

Keep removable keys or handles on valve spindles or stems while cylinders are in service.

Never leave pressure in a system that is not being used. To shut down a system, close the cylinder valve and vent the pressure from the entire system. Equipment must not be disassembled while it is under pressure. Be aware that any valved-off portion of the system may still be under pressure; bleed the hose, line, or vessel before disassembly to ensure that there is not enough pressure energy stored in the trapped gas or in piping distortion to propel loose objects.

Connections to piping, regulators, and other appliances should always be kept tight to prevent leakage. Where hose is used, it should be kept in good condition.

Manifold pigtails should not be left disconnected for more than a few minutes. Certain insects are attracted to pure gases and will quickly clog these lines.

Never use compressed gas to dust off clothing; this may cause serious injury or create a fire hazard.

About 30 psi gauge pressure (0.2 MPa) must be left in "empty" cylinders to prevent air from entering the cylinder and contaminating it; air contamination in a Acetylene cylinder is extremely dangerous.

Before a regulator is removed from a cylinder, close the cylinder valve and release all pressure from the regulator.

Before returning an empty cylinder, close the valve and replace the cylinder-valve protective cap and outlet cap or plug, if used.

Cylinder Storage

When transporting, moving and storing compressed gas cylinders and oxygen cylinders shall be stored in an upright secured position 20 feet from any flammable gases or petroleum products. Oxygen cylinders shall be stored in an upright secured position 20 feet from any flammable gases or petroleum products.

Cylinders not actively in use inside of buildings must be stored outside in areas approved by Responsible Safety Officer and must be fastened - with two metal chains or bars or in a fixture - to prevent them from falling if they are bumped or shaken, as during an earthquake.

When gases of different types are stored at the same location, cylinders must be grouped by types of gas, and the groups must be arranged in accordance with the gases contained, e.g., flammable gases must not be stored near oxygen.

Charged cylinders and empty cylinders should be stored separately in an arrangement that permits removal of "old stock" (cylinders in storage the longest) with minimum handling of other cylinders.

Storage rooms or areas should be dry, cool, well ventilated, and, where practical, fire resistant; must have solid, level floors or storage surfaces; and must be away from traffic. Storage in sub-surface locations should be avoided. Cylinders must not be stored at temperatures above 125 degrees F. or near radiators or other sources of heat, near sparking devices, or near salt or other corrosive chemicals. If stored outside, cylinders must be protected from continuous direct sunlight, extreme weather, or moisture.

Compressed Air

Compressed air for general shop or laboratory use must be restricted to 30-psig (207-kPa) maximum pressure by restricting nozzles. Compressed air at pressures up to 100-psig (700-kPa) may be used to operate pneumatic tools, certain control instruments, and research equipment with properly designed over-pressure relief devices. Use of air-pressurized research equipment must be approved by the Responsible Safety Officer.

Building compressed air (house air) may be used to dry parts and to help accomplish many other jobs in the shop or laboratory, but always ensure that no one is in line with the air stream and always wear goggles or a face shield.

Compressed air must not be used for breathing unless it has been especially installed for this purpose and such use has been approved by Responsible Safety Officer.

Never apply air pressure to the body or use compressed air to clean clothing. Compressed air injected into the body openings can be fatal. Compressed air used to clean clothing drives particles into the fabric, where they can cause skin irritation and infections. Use a clothes brush.

Compressed air must not be used to transfer liquids from containers of unknown safe working pressure. A pressurized commercial drum of unknown pressure rating is a hazardous device; for example, a 55-gal (200liter) drum pressurized to 14.5 psig (100 kPa) has a force on the drum head of about 3 tons. To transfer liquids use a pump or a

siphon with a bulk aspirator. The transfer pressure for commercial-type liquid nitrogen dewars must be less than 14.5 psig. For most laboratory-type liquid nitrogen systems, transfer pressures of less than 5 psig are adequate. Compressed air must never be used for transferring liquid hydrogen or liquid helium.

When an automatic shut-off coupling is not used on air-operated tools, a short metal chain (or its equivalent) should be attached to the hose to prevent it from whipping in case it separates from the tool. When using an air-operated tool, shut off the compressed air and vent the hose before changing nozzles or fittings.

Welding & Cutting

Protecting yourself when performing welding operations depends on your understanding of the hazards involved and the proper way to control them. Control of welding hazards include avoiding eye injury, respiratory protection, ventilation of the work area, protective clothing and having safe equipment to use. Workman assigned to operate arc welding equipment must be properly instructed and qualified to operate such equipment. Workmen assigned to operate or maintain equipment be familiar with section (1910.254) and with 1910.252(a)(b) & (c).

Operators of equipment shall report any equipment defect or safety hazards and discontinue use of equipment until its safety has been assured and repairs shall be made only by qualified personnel.

Eye hazards include exposure to ultraviolet and infrared light. Welders and their helpers should wear filter glasses with shades ranging from 2 to 14, depending on the type of welding being done, to protect their eyes. Unless a welding arc is behind a screen, not only the welder, but also people nearby may need eye protection. Other workers should be excluded within a 30 foot radius from gas or low powered arc welding, or also be protected with appropriate filter lenses. Heavy welding requires a 100 foot radius. Inert gas welding produces 5 to 30 times as much ultraviolet light as arc welding and requires shielding for even greater distances. Keep in mind that ordinary untreated plastic lenses absorb ultraviolet light very poorly and should not be relied on for protection.

Virtually all welding processes generate gases, fume and dusts. Gases generated include carbon monoxide, carbon dioxide, ozone, and nitrous gases. Other gases may also be formed in the presence of chemicals which may be on the material being welded. For example 1,1,1 Trichloroethane generates phosgene gas when exposed to the heat of welding. Welding and cutting can also generate fumes from cadmium, lead, cyanide, beryllium, arsenic, fluorides, nickel, cyanide, and other materials when can be hazardous if inhaled. Proper respiratory protection should always be worn when cutting or welding. The best type of protection to use can be determined by reading the Material Safety Data Sheet for the material being welded, or the manufacturer of the rod or flux

being used.

Mechanical ventilation at the rate of 2,000 cubic feet per minute per welder is required if the area is more crowded than 10,000 cubic feet per welder; has a ceiling height of less than 16 feet; or in confined spaces where structural barriers significantly obstruct cross ventilation. Additional specific ventilation requirements are necessary for fluorine compounds, zinc, lead, beryllium, cadmium, mercury, and for stainless steel that is oxygen cut using either a chemical flux or iron powder or gas shielded arc cutting. Where it is not possible to provide this ventilation, airline respirators, hose masks, or self contained units must be used. Oxygen should never be used for ventilation.

All parts of the body should be protected from radiant energy, sparks, and molten metal splashes. Clothing made from wool, or wool blends, is generally better than cotton. Some cutting operations such as inert-gas metal arc welding will cause exposed cotton clothing to rapidly deteriorate. Leather capes, jackets, leggings, and aprons provide additional protection especially in vertical, or overhead operations. Use of dark clothing will help reduce reflected light.

All welding equipment should be inspected each day prior to use. Report any defects found in regulators, torches or electrical components to a person that is qualified to make the necessary repairs.

VENTILATION

The fumes produced in a welding operation can be hazardous to the welder or workers in the near vicinity. Reducing the exposure to fumes through an effective local exhaust or area ventilation system is the first line of defense in preventing discomfort or illnesses from toxic welding fumes.

Respirators are another means of reducing exposure. This personal protective equipment should be considered a temporary process until more appropriate measures to control the exposure are in place. However, when the level of the exposure cannot be entirely eliminated by an exhaust ventilation system, some form of respiratory protection will be required when welding is performed. Highly toxic or concentrated welding fumes may require the welder to use a supplied air hood-type respirator, no matter what type of ventilation is in place.

Testing equipment is needed to effectively evaluate the levels of toxicity welding fumes emit. Many toxic fumes are colorless and odorless, and chronic effects of overexposures may not be immediately detectable. Harmful levels of welding fumes cannot be determined by relying on your body's senses. You may see smoke in the air, smell an irritant and not be adversely affected. In order to accurately determine the level of the contaminants present, air quality testing equipment in the way of air sampling pumps are placed in the area and on the welder. This equipment pulls air through a filter

for a specified amount of time. The sample is then evaluated at a laboratory to determine the levels of the exposure.

The degree of exposure present determines which type of ventilation system is most appropriate. In field locations, such as construction projects and shipyards, 'sucker' hoses can be set up to pull fumes from the welding zone. Welding booths with local exhaust hoses at each station gives the welder some flexibility and mobility in performing the operation. In situations where the welder must go to the work area (due to size, weight or the unwieldy configuration of the work piece), portable exhaust systems could be an option to consider. In some situations, laboratory-type hoods may be used for ventilation. This type of system creates a high velocity exhaust vacuum within an enclosure. Using Laboratory-type hoods allow only the welder's hands/arms in the enclosure while welding is being performed.

Determining the needed ventilation and/or respiratory protection must be taken very seriously. Systematically evaluate the process, exposures and possible controls to determine which will help ensure providing an employee a safe place to work.

Once protective measures have been determined, it is the responsibility of each welder and their supervisor to make sure they are being used properly. Taking a proactive step in reducing *your* exposure to welding fumes is the professional approach to working as a welder.

Chapter 10

Hand & Power Tools /Guarding

Whether furnished by CBC Pipeline, LLC. or the employee, all hand and power tools shall be maintained in a safe condition. Guards shall be in place and operable at all times while the tool is in use. The guard may not be manipulated in such way that will compromise its integrity or compromise the protection in which intended. Guarding shall meet the requirements set forth in ANSI B15.1. Employees using hand and power tools and exposed to the hazard of falling, flying, abrasive, and splashing objects, or exposed to harmful dust, fumes, mists vapors, or gases shall be provided with the particular PPE necessary to protect them from the hazard. Any tool which is not in compliance with any applicable requirement of this part is prohibited and shall be identified as unsafe by tagging or locking the controls to render them inoperable. Such tool shall either be identified as unsafe by tagging or locking the controls to render them inoperable or shall be physically removed from its place of operation.

Grinders

1. Do not use grinding wheels that have chips, cracks or grooves.
2. Do not use the grinding wheel if it wobbles. Tag it "Out of Service."
3. Adjust the tongue guard so that it is no more than 1/4 inch from the grinding wheel.
4. Do not try to stop the wheel with your hand, even if you are wearing gloves.

Drills

1. Do not use dull, cracked or bent drill bits.

Hydraulic/Pneumatic Tools

1. Do not point a compressed air hose at bystanders or use it to clean your clothing.
2. Tag defective or damaged tools "Out of Service" to prevent usage of the tool.
3. Do not use tools that have handles with burrs or cracks.
4. Do not use compressors if their belt guards are missing. Replace belt guards before use.
5. Turn the tool "off" and let it come to a complete stop before leaving it unattended.
6. Disconnect the tool from the air line before making any adjustments or repairs to the tool.

General Hand Tool Safety

1. Tag worn, damaged or defective tools "Out of Service" and do not use them.
2. Do not use a tool if its handle has splinters, burrs, cracks, splits or if the head of the tool is loose.
3. Do not use impact tools such as hammers, chisels, punches or steel stakes that have mushroomed heads.
4. When handing a tool to another person, direct sharp points and cutting edges away from yourself and the other person.
5. When using knives, shears or other cutting tools, cut in a direction away from your body.
6. Do not carry sharp or pointed hand tools such as screwdrivers, scribes, snips, scrapers, chisels or files in your pocket unless the tool or pocket is sheathed.
7. Do not perform "make-shift" repairs to tools.
8. Do not throw tools from one location to another or from one employee to another.
9. Transport hand tools only in tool boxes or tool belts. Do not carry tools in your clothing.

Powder Actuated Tools

1. Wear impact resistant safety goggles or face shields when operating any powder actuated tools.
2. When using powder actuated tools, do not drive fasteners into structural steel without first looking to see if the steel is backed by a steel plate or barricade, and to see if all personnel are away from the direct line of fire.
3. Do not attempt to fasten through a pre-drilled hole unless the powder actuated tool has a hole locator.
4. Keep your head and body behind the powder actuated tool when firing it.
5. Do not fasten steel beams at a distance closer than 1/2 inch from the edge of the steel.
6. Before using powder actuated tools do not alter, bypass, or remove the shield or guard at the muzzle end of the powder actuated tool.
7. Do not load a powder actuated tool until you are ready to fire it.

Chapter 11

Materials Handling

Introduction

CBC Pipeline, LLC. 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.

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.

Manual Lifting Rules

Manual lifting and handling of material must be done by methods that ensure the

safety of both the employee and the material. It is CBC Pipeline, LLC. policy that employees whose work assignments require heavy lifting be properly trained and physically qualified, by medical examination if deemed necessary.

The following are rules for manual lifting:

Inspect the load to be lifted for sharp edges, splinters, and wet or greasy spots.

Wear gloves when lifting or handling objects with sharp or splintered edges. These gloves must be free of oil, grease, or other agents that may cause a poor grip.

Inspect the route over which the load is to be carried. It should be in plain view and free of obstructions or spillage that could cause tripping or slipping.

Consider the distance the load is to be carried. Recognize the fact your gripping power may weaken over long distances.

Size up the load and make a preliminary "heft" to be sure the load is easily within your lifting capacity. If it is not, get help.

If team lifting is required, personnel should be similar in size and physique. One person should act as leader and give the commands to lift, lower, etc.

Two persons carrying a long piece of pipe or lumber should carry it on the same shoulder and walk in step. Shoulder pads should be used to prevent cutting shoulders and help reduce fatigue.

To lift an object off the ground, the following are manual lifting steps:

Make sure of good footing and set your feet about 10 to 15 inches apart. It may help to set one foot forward of the other.

Assume a knee-bend or squatting position, keeping your back straight and upright. Get a firm grip and lift the object by straightening your knees - not your back.

Carry the load close to your body (not on extended arms). To turn or change your position, shift your feet - don't twist your back.

The steps for setting an object on the ground are the same as above, but in reverse.

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.

Inspections

Each mechanical lifting or moving device must be inspected periodically. Each lifting device must also be inspected before lifting a load near its rated capacity. Defective equipment must be repaired before it is used. The rated load capacity of lifting equipment must not be exceeded.

Material moving equipment must be driven forward going up a ramp and driven backward going down a ramp.

Traffic must not be allowed to pass under a raised load.

The floor-loading limit must be checked before mobile lifting equipment enters an area. Passengers must not be carried on lifting equipment unless it is specifically equipped to carry passengers.

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.

Clean Work Areas

All areas controlled by CBC Pipeline, LLC. must be kept in orderly and clean condition and used only for activities or operations for which they have been approved. The following specific rules must also be followed:

Keep stairs, corridors, and aisles clear. Traffic lanes and loading areas must be kept clear and marked appropriately.

Store materials in work rooms or designated storage areas only. Do not use hallways, fan lofts, or boiler and equipment rooms as storage areas.

Do not allow exits, passageways, or access to equipment to become obstructed by either stored materials or materials and equipment that is being used.

Arrange stored materials safely to prevent tipping, falling, collapsing, rolling, or spreading - that is, any undesired and unsafe motion.

Do not exceed the rated floor capacity of stored material for the area. The load limit and the maximum height to which material may be stacked must be posted.

Place materials such as cartons, boxes, drums, lumber, pipe, and bar stock in racks or in stable piles as appropriate for the type of material.

Store materials that are radioactive, fissile, flammable, explosive, oxidizing, corrosive, or pyrophoric only under conditions approved for the specific use by the Responsible Safety Officer.

Segregate and store incompatible materials in separate locations.

Remove items that will not be required for extended periods from work areas and put them in warehouse storage. Call for assistance.

Temporary equipment required for special projects or support activities must be installed so that it will not constitute a hazard. A minimum clearance of 36 inches must be maintained around electrical power panels. Wiring and cables must be installed in a safe and orderly manner, preferably in cable trays. Machinery and possible contact points with electrical power must have appropriate guarding. The controls for temporary equipment must be located to prevent inadvertent actuation or awkward manipulation. When heat-producing equipment must be installed, avoid accidental ignition of combustible materials or touching of surfaces above 60 degrees C (140 F). Every work location must be provided with illumination that meets OSHA requirements. Evaluation of illumination quality and requirements is made by the Responsible Safety Officer, but

the supervisor of an area is responsible for obtaining and maintaining suitable illumination.

Areas without natural lighting and areas where hazardous operations are conducted must be provided with enough automatically activated emergency lighting to permit exit or entry of personnel if the primary lighting fails.

OSHA Standards for Forklifts

Forklift users must familiarize themselves with and comply with OSHA Standard 29 CFR 1910.178 and ANSI B56.1.

Modifications and additions must not be performed by the customer or user without manufacturer's prior authorization or qualified engineering analysis. Where such authorization is granted, capacity, operation and maintenance instruction plates, tags, or decals must be changed accordingly.

If the forklift truck is equipped with front end attachments other than factory installed attachments, the user must ensure that the truck is marked with a card or plate that identifies the current attachments, shows the approximate weight of the truck with current attachments and shows the lifting capacity of the truck with current attachments at maximum lift elevation with load laterally centered.

The user must see that all nameplates and caution and instruction markings are in place and legible.

The user must consider that changes in load dimension may affect truck capacities.

Forklift Maintenance

Because forklift trucks may become hazardous if maintenance is neglected or incomplete, procedures for maintenance must comply with ANSI B56.1 Section 7 and OSHA Standard 29 CFR 1919.178 (g).

Forklift Extension

Maximum efficiency, reliability, and safety require that the use of fork extensions be guided by principles of proper application, design, fabrication, use, inspection, and maintenance. The user must notify the Responsible Safety Officer before purchasing extensions or having them fabricated.

Fork extensions are only appropriate for occasional use. When longer forks are

needed on a regular basis, the truck should be equipped with standard forks of a longer length.

Routine on-the-job inspections of the fork extension must be made by the fork lift operator before each use unless, in the judgment of the supervisor, less frequent inspections are reasonable because of his or her knowledge of its use since the last inspection. Extensions must be inspected for evidence of bending, overload, excess corrosion, cracks, and any other deterioration likely to affect their safe use.

All fork extensions must be proof load tested to establish or verify their rated capacities, whether they were supplied commercially or fabricated at CBC Pipeline, LLC. . A load equal to the rated capacity of the pair at a particular load center multiplied by 1.15, must be placed on each fork extension pair and fork assembly and supported for a period of five minutes without any significant deformation. Rated capacity must be determined at significant load centers, including the midpoint of the extension and at the tip. Once determined, the rated capacity and load center information must be shown by stamping or tagging the extensions in a protected location of low stress. The proof load test must be witnessed by a mechanical engineer or designer.

Whenever evidence of deterioration is detected or whenever the extensions have been overloaded, magnetic particle inspection must be performed.

Chapter 12

Hearing Conservation

Introduction

This chapter contains information on the effects, evaluation, and control of noise. For assistance in evaluating a noise problem, contact the Responsible Safety Officer.

Danger of Noise

Exposing the ear to high levels of noise may cause hearing loss. This loss can be temporary or permanent. Temporary hearing loss or auditory fatigue occurs after a few minutes exposure to an intense noise but is recoverable following a period of time away from the noise. If the noise exposure is repeated, there may be only a partial hearing recovery and the loss becomes permanent. Typically, significant hearing losses occur first in the frequency range of 3,000 to 6,000 hertz (Hz). Losses in this frequency range are not critical to speech perception, and the individual usually is completely unaware of this initial symptom. With longer exposures, the hearing loss spreads to lower frequencies, which will affect speech perception. Workers' Compensation laws regard hearing losses in the speech frequency range of 500 to 3,000 Hz as being compensable.

The evaluation of hearing loss due to noise is complicated by the fact that hearing acuity normally decreases with increasing age. Further, the losses associated with age are quite similar to those caused by excessive noise since the hearing for high frequency sounds is most affected in both instances. Hearing impairment may also result from infections, tumors, and degenerative diseases.

ACGIH Standards

OSHA has prescribed the limits established by the American Conference of Governmental Industrial Hygienists as a standard for occupational noise exposure. Both the sound pressure level of the noise and the total duration of the noise exposure are considered to determine if these limits are exceeded. The sound pressure levels are expressed as dBA or decibels A-weighted. A-weighting filters are used when measuring sound levels to more accurately predict the response of the human ear to different frequencies.

When the daily noise exposure is composed of two or more periods of noise of different levels, their combined effect must be considered rather than the individual effect of each.

Permissible Noise Exposure

Duration per day (hours) vs. Sound level dBA (slow response)

8 Hours - 85 dBA

6 Hours - 92 dBA

4 Hours - 95 dBA

3 Hours - 97 dBA

2 Hours - 100 dBA

1.5 Hours - 102 dBA

1 Hour - 105 dBA

.5 Hour - 110 dBA

.25 Hour or less - 115 dBA

Levels in excess of the permissible exposure limit as outlined in this section require use of the appropriate personal protective equipment- (hearing protection).

Reducing Noise Exposure

Noise exposure can be reduced by using engineering controls, administrative procedures, or personal protective devices.

Engineering Controls

Reduction of noise production at the source:

Proper design of new machines

Modification of present machines

Proper repair and upkeep of equipment

Use of appropriate mufflers

Use of vibration dampeners on machines

Reduction of noise transmission:

Increase distance between noise and personnel exposed

Construction of barriers between noise source and personnel

Sound treatment of ceilings and walls

Administrative Procedures:

Job schedule changes

Personnel rotation

Personnel Protective Devices:

Ear plugs

Earmuffs

Federal and state occupational safety and health regulations require that whenever employees are exposed to excessive noise levels, feasible engineering or administrative controls must be used to reduce these levels. When these control measures cannot be completely accomplished and/or while such controls are being initiated, personnel must be protected from the effects of excessive noise levels. Such protection can, in most cases, be provided by wearing suitable protective hearing devices.

The appropriate Medical Services provider and/or the supervisor of the Department will supply ear plugs for employees upon request or before going into a high noise area. There is a need for medical supervision when ear plugs are used because their effectiveness depends on proper fitting. Only approved plugs should be used. Ear plugs should be cleaned daily to prevent ear infections.

Protection greater than that provided by a single device can be obtained by wearing ear plugs under an earmuff. While the reduction provided by wearing both devices

simultaneously is considerably less than the sum of the individual attenuations, it is still greater than when either device is worn separately.

Hearing Conservation Program

CBC Pipeline, LLC. shall administer a continuing effective hearing conservation program when employees are exposed to sound levels greater than 85 dbA on an 8 hour time-weighted average basis.

When information indicates that employee exposure may equal/exceed the 8 hr time-weighted avg. of 85 decibels, CBC Pipeline, LLC. shall implement a monitoring program to identify employees to be included in the hearing conservation program.

CBC Pipeline, LLC. shall establish & maintain an audiometric testing program by making audiometric testing available to all employees whose exposures equal or exceed an 8-hr. time-weighted avg. 85 decibels. The elements of this program is as follows:

Within 6 months of an employee's first exposure at or above the action level, CBC Pipeline, LLC. shall establish a valid baseline audiogram against which future audiograms can be compared. When a mobile van is used, the baseline shall be established within 1 yr.

Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protection may be used to meet the requirement. Employees shall also be notified to avoid high levels of noise.

At least annually after obtaining the baseline audiogram, CBC Pipeline, LLC. shall obtain a new audiogram for each employee exposed at or above an 8-hour time-weighted average of 85 decibels. Each employee's annual audiogram shall be compared to that employee's baseline audiogram to determine if the audiogram is valid and if a standard threshold shift has occurred. If a comparison of the annual audiogram to the baseline audiogram indicates a standard threshold shift, the employee shall be informed of this fact in writing, within 21 days of the determination.

If a threshold shift has occurred, use of hearing protection shall be re-evaluated and/or refitted and if necessary a medical evaluation may be required.

This is done at no cost to employee(s). Hearing protection shall be replaced as necessary. Employers shall ensure that hearing protectors are worn. Employees shall be properly trained in the use, care & fitting of protectors.

CBC Pipeline, LLC. Safety Plan

CBC Pipeline, LLC. shall evaluate hearing protection for the specific noise environments in which the protector will be used.

CBC Pipeline, LLC. shall maintain accurate record of all employee exposure measurements and that all records are maintained as required by the regulation.

CBC Pipeline, LLC. shall institute a training program for all employees who are exposed to action level noise. The training shall be repeated annually for each employee. Training shall be updated consistent to changes in PPE and work processes. CBC Pipeline, LLC. shall make available to affected employees copies of the noise exposure procedures and shall also post a copy in the workplace. CBC Pipeline, LLC. shall also allow the Assistant Secretary and the Director access to records.

Chapter 13

Personal Protective Equipment

Introduction

CBC Pipeline, LLC. 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.

Personal protective equipment shall be provided, used, and maintained in a sanitary and reliable condition wherever it is necessary by reason of hazard due to processes or environment. Activities involving specialized operations may present hazards that are difficult or impossible to completely eliminate, or adequately safeguard against, by using engineering controls. When a hazard still exists after all practical engineering control measures have been taken, personnel must be provided with adequate protection through the use of personal protective equipment. The type of personal protective equipment required for any hazardous operation depends upon the nature and severity of the hazards involved. The Supervisor shall conduct a Hazard Assessment so that proper PPE can be selected.

The Hazard Assessment shall be documented in writing and shall include, at a minimum, identification of the area(s) assessed, the date of the assessment, the name of the person(s) conducting the assessment, identification of the hazards present (*or likely to be present*), and identification of the specific PPE required to be used to mitigate the hazard(s). The Hazard Assessment shall be maintained on file. Additional assessments shall be conducted whenever new hazards become present, or become likely to be present. Ultimately, it is the responsibility of the supervisor to ensure a safe work environment, and provide proper personal safety protection, for their employees. The hazard assessment must indicate a determination if hazards are present or are likely to be present, which necessitate the use of PPE. Certifier's name, signature, date(s) & identification of assessment documents.

Based on the results of the supervisor's hazard assessment, the supervisor shall select the type of PPE to be utilized. The rationale for the PPE selection shall be communicated to the employees by the supervisor and the supervisor shall ensure that the selected PPE is furnished to the employee and is properly used by the employees.

CBC Pipeline, LLC. will be responsible for the adequacy, maintenance, and sanitation of any PPE provided or owned by employees for any reason. Regardless of origin, no PPE considered for use shall be defective or damaged.

The supervisor will ensure that all employees are properly trained in the following:

- When PPE is necessary
- What PPE is necessary
- How to properly don, doff, adjust and wear PPE
- The limitations of the PPE, and
- The proper care, maintenance, useful life and disposal of the PPE

The supervisor shall certify in writing that each employee has been properly trained in the above and that each employee has demonstrated an understanding of the training discussed above and the ability to use the selected PPE, before being allowed to perform work requiring the use of PPE. Employees shall be provided retraining as the supervisor deems necessary to ensure compliance with 29 CFR 1910.132.

When the supervisor has reason to believe that any affected employee who has already been trained does not have the understanding and skill required to properly use PPE, the supervisor shall provide additional training to each such employee. Other circumstances where retraining is necessary include, but are not limited to, situations where the workplace render previous training obsolete; or changes in the types of PPE to be used, render previous training obsolete.

PPE equipment will not be used as a substitute for the elimination of hazardous conditions, but as a supplemental safety measure that is required when engineering controls cannot successfully eliminate or satisfactorily control the hazard. Supervisory personnel shall ensure that the PPE is being used correctly. Equipment must be maintained in reliable condition at all times. The RSO Replace with safety Person's Name, or designated person will be responsible for ensuring that all contractor personnel, including subcontractors, comply with 29 CFR 1910.132. PPE worn in areas where chemicals or asbestos contaminants have been encountered shall not be taken to the wearer's residence for cleaning, care or maintenance without first being decontaminated.

Protection Issued

Protective clothing is not a substitute for adequate engineering controls. Protective clothing will be issued to employees who work with hazardous material for the purpose of protecting their health and safety to protect body parts from inhalation, absorption or physical contact.

The Responsible Safety Officer is available for consultation as needed.

Protective Shoes

CBC Pipeline, LLC. 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.

Protective Gloves

CBC Pipeline, LLC. provides proper hand protection to employees exposed to known hand hazards. The supervisor must obtain the suitable hand protection and ensure that it is used. The individual should maintain a supply of special or infrequently used hand protection.

Assistance in selecting the proper hand protection may be obtained by consulting the Responsible Safety Officer.

Head Protection

CBC Pipeline, LLC. provides appropriate head protection devices for employees to protect them from head or other injuries that could result from their working environment. Some head protection devices are available from stock. The supervisor must also maintain sufficient supply of head protection devices for visitors in the area.

Eye Protection

CBC Pipeline, LLC. 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.

The Responsible Safety Officer will assist the supervisor and/or employee in defining eye-hazard operations and in selecting appropriate eye protection. A supervisor is available to issue, repair, adjust, fit, or dispose-of personal safety glasses and also for consultation regarding occupational 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.

Proper training includes at least, when PPE is necessary, what PPE is necessary; how to properly don, doff, adjust & wear PPE; the limitations of PPE; the proper care, maintenance, useful life & disposal of PPE. Retraining of the employee is required when the workplace changes, making the earlier training obsolete; the type of PPE changes; or when the employee demonstrates lack of use, improper use, or insufficient skill or understanding. The certification must include the employee name, the dates of training, and the certification subject.

If employee-owned equipment is permitted, CBC Pipeline, LLC. must be responsible for the assurances of its adequacy, maintenance & sanitation.

Chapter 14

Respiratory Protection

The Respiratory Protection Program has been established to protect the health of workers who wear respirators and assure compliance with State and Federal law. Every worker who uses a negative pressure cartridge or canister respirator must be included in the program. Medical monitoring, training, fit testing, maintenance and quality assurance components are basic parts of this program.

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, or during emergency situations with high exposure appropriate respiratory protection must be used in accordance with CBC Pipeline, LLC. 's requirements as prescribed by OSHA & ANSI Standard Practices for Respiratory Protection. Every worker who uses a negative pressure cartridge or canister respirator must be included in the program. Workers using other types of respirators may be required to comply with some program requirements. If required by the site owner, a site-specific written program containing specific work-site procedures where respirators are required to protect the health of the worker shall be implemented and updated as necessary by the RSO.

Lightweight single use respirators may sometimes be worn in situations where respiratory protection is required, such as to control exposure to airborne particles. However, workers must be fit tested with the make and model of respirator they will wear, instructed in its use, and meet the other maintenance and quality assurance components requirements of this program.

Responsibilities

To ensure that the respiratory protection program is conducted in accordance with OSHA & ANSI, certain responsibilities are required of each employee, supervisor, Responsible Safety Officer, and CBC Pipeline, LLC. medical services provider. An employee has the responsibility to use provided respiratory protection in accordance

with this program. Male employees must remain clean shaven where an issued respirator touches their face; this is to assure proper fit of the respirator under conditions of use.

Employees are also responsible for:

Wearing the respirator in accordance with the instructions and training received.

Maintaining and storing the respirator in good condition.

Returning the respirator at the end of the required use for overhaul, cleaning, and disinfection.

Supervisors are responsible for:

Identifying those employees who may need to use respiratory protection (*The Responsible Safety Officer will provide assistance upon request in this determination*).

Note: Users of lightweight single-use respirators are not required to be included in this program if they work in situations where overexposure to chemical substances is not going to occur and respirator misuse is not likely. These exposures are generally described as nuisance situations where the worker is more comfortable with some respiratory protection. Workers may also use lightweight single-use respirators to control exposure to a non-occupational condition such as an allergy without being included in the program.

Ensuring that their employees have been properly trained and fitted.

Ensuring that their employees use the respirators as required.

Surveillance of the work area. Before the start of any project, as part of the Hazard Analysis, a careful determination shall be made as to present, or potential airborne hazards to which employees may be exposed.

The Responsible Safety Officer is responsible for:

Understanding and knowledgeable of the complexity of the program, have the ability to conduct evaluations, and be properly trained.

Providing respiratory equipment.

Maintaining the equipment in good condition.

Fitting employees with proper respirators and providing training for their use.

Evaluating employee exposures and work conditions, including inspection of respirator use.

Medical, respirators, and training are required to be provided free to the employee.

Procedure

Respiratory protection devices will be chosen after considering the following factors:

- Health of the worker and ability to wear a respirator
- Nature of the hazard, e.g. toxicity, chemical and physical properties
- Extent of the hazard (*concentration*) and time of exposure
- Work requirements and conditions
- Characteristics and limitations of available respirators

Medical monitoring

CBC Pipeline, LLC. must make employees available and pay for medical monitoring. In addition, it must be confidential, during normal working hours, convenient, understandable, and the employee given chance to discuss results with PLHCP. CBC Pipeline, LLC. may contract with a local health care provider. Medical status for workers who use respirators shall be reviewed annually.

Persons must not be assigned to tasks requiring the use of respirators unless it has been determined that they are physically able to perform the work and use the equipment. The Examining Physician responsible for the employee's care will determine what diagnostic method is necessary to determine whether medical conditions exist which would prohibit or limit respirator use. Pulmonary function tests, including forced vital capacity (FVC) and forced expiratory volume at one second (FEV1.0), and a medical questionnaire may be given to employees. The Respiratory Medical Evaluation Form may be used by the Examining Physician to evaluate any person, except asbestos workers, who may use a respirator.

Asbestos workers must be asked to fill out a Respirator Program Medical Evaluation Form for Asbestos Workers. Asbestos workers are individuals who routinely work in areas where exposure might exceed the OSHA action level for asbestos. Presently, the action level means an airborne concentration of asbestos, tremolite, anthophyllite, actinolite, or a combination of these minerals of 0.1 fibers/cc of air as calculated on an 8-hour time weighted average. However, if an employee requests a respirator because

of a belief that exposure to asbestos will exceed the action level for asbestos, then the employee must meet all requirements of the program for asbestos.

Medical certification

Pertinent health factors, conditions on the job site, and the employee's health status will be considered by the Examining Physician. The Examining Physician will certify whether the employee is capable of wearing a respirator and describe any physical limitation.

Fit testing

Fit testing must be done whenever something happens which could affect the fit of a respirator such as when an employee's facial characteristics change or the respirator design changes. Fit testing is required annually for workers exposed to benzene and semi-annually for workers exposed to asbestos, arsenic, lead, acrylonitrile. Workmen with facial hair in the respirator area will not be issued respirators requiring a fit test because it cannot be determined that the respirator will fit under conditions of use. Therefore, things that can affect the seal must be prohibited and include facial hair, glasses, etc. The shall check the seal each time the unit is put on. Fit testing shall include face-to-seal fit, wearing in normal air for a long familiarity period, and testing in a test atmosphere. Fit testing will be done after the employee's annual medical evaluation, if one is required. Employer is required to ensure employees pass qualitative fit test (QLFT) or quantitative fit test (QNFT) before initial use, if a different respirator is used, and annually. SARs are required to be fit tested as well.

Monitoring of Air Contaminants

Air contaminant levels during routine operations will be monitored by CBC Pipeline, LLC. before the type of respiratory protection is selected. Existing operations undergoing a change that might significantly alter the concentration of air contaminants should be evaluated by CBC Pipeline, LLC. to determine if another method of protection is appropriate.

Identifying Hazards

CBC Pipeline, LLC. is required to identify hazards, select and provide respirators based on those hazards and factors affecting performance. Brands and models must be listed. CBC Pipeline, LLC. is required to estimate exposures and contaminant information. If this is not done, then exposures must be addressed as Immediately Dangerous to Life & Health (IDLH). Section (d)(2) only applies to IDLH atmospheres.

Categories of respiratory hazard

Oxygen deficient atmospheres require the use of an independent respirable atmosphere. For SARs and SCBAs. Air must be Grade D or better. Compressor located in a "clean" atmosphere, with in-line purification and tagged to indicate date or changeout. Carbon monoxide monitor in place & set to alarm at 10 PPM or monitored frequently. Fittings are incompatible for non-respirable gases and containers. Employees who work in areas where "emergency use only" SCBA pressure-demand respirators are available shall be trained in SCBA use, but medical monitoring is not required.

Immediately dangerous conditions are defined as: Conditions that pose an immediate threat to life or health and/or conditions that pose an immediate threat of severe exposure to contaminants that are likely to have delayed adverse effects on health.

The Confined Space Entry Program must be followed. An attendant must be present in a safe location at the entrance to oxygen deficient or immediately dangerous areas in order to maintain communication and to provide proper rescue equipment in case of emergency.

Selection of Respirators

Once a respiratory hazard is identified, the RSO or designated personnel will select the proper respiratory

protection based on the nature of the hazard.

Selection will be made in compliance of

OSHA Respiratory Protection Standard.

Only NIOSH/MSHA approved respirators will be assigned to personnel.

Respirators will be selected based on the exposure hazard. Any choice of respirator will be based on American National Standard Practices for Respiratory Protection Z88.2.

Particulate Respirator Protection

To select the correct respirator for protection against particulates, the following conditions must be known:

The identity and concentration of the particulates in the workplace air

The OSHA or MSHA permissible exposure limit (*PEL*), the NIOSH recommended

exposure limit (*REL*), or other occupational exposure limit for the contaminant

The hazard ratio (*HR*) (*i.e., the airborne particulate concentration divided by the exposure limit*)

The APF for the class of respirator (*the APF should be greater than the HR*)

The immediately dangerous to life or health (*IDLH*) concentration, including oxygen deficiency [NIOSH 1994]

Any service life information available for combination cartridges or canisters

Multiplying the occupational exposure limit by the APF for a respirator gives the maximum workplace concentration in which that respirator can be used. For example, if the commonly accepted APF for a half-mask respirator is 10 and the PEL is 5 mg/m³, then 50 mg/m³ is the highest workplace concentration in which a half-mask respirator can be used against that contaminant. If the workplace concentration is greater than 50 mg/m³, a more protective respirator (*with a higher APF*) should be used. In no case should an air-purifying respirator be used in IDLH concentrations. Our employees are prohibited from entering an area that contains or can potentially contain an IDLH atmosphere.

The RSO shall provide appropriate surveillance, and ensure employees leave the area to wash, change cartridges, or if they detect break-through or resistance.

Any required air quality monitoring of the workplace will be done by CBC Pipeline, LLC. , which will maintain records. Monitoring results will also be provided to affected individuals.

Respirator Distribution

Whenever possible, reusable respirators should be assigned to individual workers for their exclusive use. Permanently assigned respirators must be durably marked with the name of that person and the date issued. When disposable respirators are issued, the same models that were fit tested must be kept in stock.

CBC Pipeline, LLC. will issue a respirator from its stock when an employee is first fit tested or when a new type of respirator is issued on a subsequent fit. CBC Pipeline, LLC. shall maintain a stock of replacement respirators and/or cartridges and issue them to the employee as necessary.

Those who issue canisters-cartridges must see that they are properly labeled and colored before they are put into service. The labels and colors must be maintained until they are disposed.

If it is necessary to replace a reusable respirator because of loss or damage, the newly issued respirator must be fit tested before it is used. This is to ensure that the respirator is not defective.

Training

Training must be provided before requiring the employee to use the respirator. The training program must address employee knowledge of respirators, fit, use, limitations, emergency situations, wearing, fit checks, maintenance & storage, medical signs & symptoms of effective use, and general requirements of the OSHA standard.

Employees who will use respirators will be given training initially and on a yearly basis. Training may be performed after fit testing is done or other arrangements may be made. CBC Pipeline, LLC. will maintain records of training. Training certificates shall include at a minimum, employee name, date of training, and type of training. In areas where job tasks and materials change, CBC Pipeline, LLC. must be contacted to provide an updated training.

Inspection

Each respirator must be inspected routinely before and after each use by the employee using it. Respirators for emergency use must be inspected after each use, or at least once each month, by the employees to whom they are assigned. Inspections of emergency respirators should be done according to manufacturers' instructions.

Cleaning and Disinfecting

Respirators issued for exclusive use must be cleaned and disinfected after eight hours of use, or as necessary to ensure protection for the wearer. Respirators used by more than one person and emergency respirators must be cleaned and disinfected after each use. During cleaning, an inspection shall be made, and any worn or deteriorated parts or components shall be repaired or replaced (in accordance with 1910.134 Appendix B). Respirators for emergency use (*such as SCBA's*) shall be inspected at least once a month, and after every use.

Maintenance

Employees shall arrange for replacement or repairs by experienced persons with

parts designed for the respirator. Do not attempt to replace components or make adjustments or make repairs beyond the manufacturer's recommendations. Self-contained breathing apparatus or air line respirators must be returned to a professional repair service or the manufacturer when it is required for repair or testing.

Storage

After inspection, cleaning and necessary repair, store respirators to protect them against dust, sunlight, heat, extreme cold, excessive moisture, or damaging chemicals. For emergency use, storage shall be accessible, clearly marked. Inspections: Routine use - before use and during cleaning; emergency - monthly, and before and after each use; escape-only - before being carried into workplace.

Program Evaluation

CBC Pipeline, LLC. will evaluate this program through periodic and random inspections to assure that respirators are properly used, cleaned and maintained. Periodically, CBC Pipeline, LLC. will survey to determine whether anyone is using a respirator who is not included within the program. To verify written program effectiveness, employees must be asked about fit, selection, use, maintenance, etc. Program evaluation reports will be kept by the RSO, Replace with safety Person's Name.

Record keeping

CBC Pipeline, LLC. will maintain the following records:

Operations requiring respiratory protection, specific respiratory protection used, and names of employees who wear the respirators. Number and types of respirators in use. These records must be maintained for 30 years.

A record of employee training programs. Records will be maintained for five years past the date of employment of that employee.

Fit tests performed on employees. The records will be maintained for 30 years.

Records on respirator inspection and maintenance activities. These records will be maintained for five years

The Examining Physician will maintain medical records according to State law.

CBC Pipeline, LLC. will maintain asbestos exposure measurements for thirty years.

Monitoring records will include the following information.

Date of any measurements, operations involving exposure, sample and analytic measure, number, duration and results, and type of respiratory protection worn. Records shall include the name, social security number and exposure of employees whose exposures are represented.

Chapter 15

Employee Environmental Protection

Protective Clothing

Workers in the normal course of their duties are required to perform work in adverse weather conditions. Precautions and continuing measure shall be taken by each worker to minimize health risks and discomfort from working in these conditions.

Hot Weather

Employees who work in outdoor places of employment or on job tasks in other areas at those times when the environmental risk factors for heat illness are present, are at risk for developing heat illnesses if they do not protect themselves appropriately. The objective of this program is employee awareness regarding heat illness symptoms, ways to prevent illness, and what to do if symptoms occur.

POLICY

It is the policy of CBC Pipeline, LLC. that any employee participating in job tasks when environmental risk factors for heat illness are present will comply with the procedures in this document.

PURPOSE

To ensure that all employees of CBC Pipeline, LLC. are protected from heat illness while working on job tasks where environmental risk factors for heat illness are present and to establish the minimum requirements for working in this environment.

DEFINITIONS

The term "acclimatization" means temporary adaptation of the body to work in the heat that occurs gradually when a person is exposed to it. Acclimatization peaks in most people within four to fourteen days of regular work for about two hours per day in the heat.

“Environmental risk factors for heat illness” means working conditions that create the possibility that heat illness could occur, including air temperature, relative humidity, radiant heat from the sun and other sources, conductive heat sources such as the ground, air movement, workload severity and duration, protective clothing and personnel protective equipment worn by employees.

The term “heat illness” means a serious medical condition resulting from the body’s inability to cope with a particular heat load, and includes heat cramps, heat exhaustion, heat syncope, and heat stroke.

“Personal risk factors for heat illness” means factors such as an individual’s age, degree of acclimatization, health, water consumption, alcohol consumption, caffeine consumption, and use of prescription medications that affect the body’s water retention or other physiological responses to heat.

“Preventative recovery period” means a period of time to recover from the heat in order to prevent heat illness.

The term “shade” means blockage of direct sunlight. Canopies, umbrellas, and other temporary structures or devices may be used to provide shade. One indicator that blockage is sufficient is when objects do not cast a shadow in the area of blocked sunlight. Shade is not adequate when heat in the area of shade defeats the purpose of shade, which is to allow the body to cool. For example, a car sitting in the sun does not provide acceptable shade to a person inside it, unless the car is running with air conditioning.

RESPONSIBILITIES

The RSO. or designated representative is responsible for:

Assisting with providing training to all potentially impacted employees and their supervisors on the risks and prevention of heat illness, including how to recognize symptoms and respond when they appear.

Directors, Managers, and Supervisors are responsible for:

Identifying all employees who are required to work outdoors where potential heat illness could occur and identifying the supervisor of the employees.

Assuring that adequate water and shade are available at a job site when the environmental risk factors for heat illness are present.

Ensuring that all affected employees have received proper training on heat illness prevention.

Ensuring that the requirements in this document are followed.

Contacting EMS to request emergency medical services in the event medical assistance is required.

Affected employees are responsible for:

Complying with the provisions of this Heat Illness Prevention Program, as described in this document and in the training sessions they attend.

Ensuring they have drinking water available at all times when the environmental risk factors for heat illness are present.

Ensuring they have access to a shaded area to prevent or recover from heat related symptoms.

Reporting heat related illness symptoms to your supervisor.

BASIC REQUIREMENTS

The following basic requirements apply to all employees while working where environmental risk factors for heat illness are present.

All employees shall be identified who are required to work where environmental factors for heat illness are present.

Training shall be provided for all potentially impacted employees working where environmental risk factors for heat illness are present and their supervisors. Training information shall include but not be limited to the topics listed in the training section of this written program. All potentially impacted employees and supervisors who supervise these employees must be trained on the risks and prevention of heat illness, including how to recognize symptoms and respond when they appear.

Drinking water in the quantity of 1 quart per hour shall be available at all times for each employee for the duration of the entire shift while working outdoors in the heat. Supervisors shall remind employees to drink frequently and this topic will be addressed at tailgate meetings.

Employees shall have access to a shaded area to prevent or recover from heat illness

symptoms and where they can take their rest breaks. The importance of taking rest breaks and recognizing when a preventative recovery period is needed allowing employees to cool shall be addressed at tailgate meetings.

In the event an employee feels discomfort from the heat, a preventative recovery period is needed to allow the employee to cool down and prevent the onset of heat illness.

Supervisors and employees shall carry radios or other means of communication to ensure that emergency services can be called. Verification that the radios or other means of communication are functional at the worksite shall be carried out prior to each shift.

TRAINING

Training shall be provided for employees working on job tasks where environmental risk factors for heat illness are present, and training for their respective supervisors.

All employees working on job tasks where environmental risk factors for heat illness are present shall receive instruction before being assigned to work tasks. Training topics shall include the following:

- Environmental and personal risk factors for heat illness.

- Procedures for identifying, evaluating, and controlling exposures to the environmental and personal risk factors for heat illness.

- Employees who experience excessive sweating require frequent consumption of small quantities of water, up to 4 cups per hour when working in extreme conditions of heat.

- Importance of acclimatization.

- Different types, signs, and symptoms of heat illness.

- Importance of immediately reporting symptoms or signs of heat illness in themselves or in coworkers to their supervisor.

- Procedures for responding to symptoms of possible heat illness, including how emergency medical services will be contacted and provided, should they become necessary.

SUPERVISORS OF AFFECTED EMPLOYEES

Supervisors or their designees shall receive training on the following topics prior to being assigned to supervise outdoor employees:

Information as detailed above in employee training requirements.

Procedures the supervisor shall follow to implement the provisions of this program.

Procedures the supervisor shall follow when an employee exhibits symptoms consistent with possible heat illness, including emergency response procedures.

Cold Weather

Workers should prepare for cold weather by wearing several layers of clothing. This allows the worker to remove or add layers as necessary throughout the work shift as temperature, and the worker's heat changes. Coffees, teas, and other hot drinks may help the worker maintain body temperature. Under no circumstances shall any alcoholic beverages be used. Hoods, facemasks, insulated boots, gloves and glove liners should all be considered in extreme weather conditions. Certain combinations of temperature, wind, and jobsite location may make it impractical to work. In those extreme cases, workers should check with their supervisor, or the responsible safety officer, Replace with safety Person's Name for direction.

Wet or Inclement Weather

Workers exposed to rain, sleet, snow, or other wet conditions shall wear protective, waterproof clothing. Careful assessment of the jobsite under inclement weather conditions must be made. Slips and falls may happen in the general jobsite area of work, in addition to slips from ladders, scaffold, or other work surfaces. Any electrically-operated tools shall not be used in wet conditions due to the risk of electrical shock.

Windy Conditions

Some workers in windy conditions are at great risk. Handling large, lightweight materials, working on ladders, or elevated work surfaces, and working with small lightweight materials are all examples of job duties which pose special hazards in windy conditions. Therefore, each jobsite and work assignments shall be assessed for dangers from high winds.

Chapter 16

Ladders

Ladders

Ladders must be in good condition, made of suitable material, of proper length, and of the correct type for the use intended. Ladders shall not be altered, modified, or attached to other ladders to extend their reach. Ladder rungs, cleats, and steps shall be parallel, level, and uniformly spaced, when the ladder is in position for use. Damaged ladders must never be used; they should be repaired by a qualified person or destroyed. Ladders used near electrical equipment must be made of a nonconducting material (fiberglass or equivalent). For construction activities, ladders must be class 1 rated (heavy Duty) or higher.

Ladders shall not be loaded beyond the maximum intended load for which they were built, nor beyond the manufacturer's rated capacity. Ladders shall be used only for the purpose for which they were designed. 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, unless designed for such use. A portable ladder must not be placed in front of doors that open toward the ladder, unless locked or blocked to prevent use. Never set ladders on boxes, barrels, or other unstable bases. Ladders must not be used as guys, braces, or skids. The height of a stepladder should be sufficient to reach the work station without using the top or next to the top steps. Bracing on the back legs of stepladders must not be used for climbing.

Ladders shall be placed on stable, level surface. CBC Pipeline, LLC. 's employees shall not stand on top two rungs, or top of step ladders. CBC Pipeline, LLC. 's employees shall not be allowed to carry anything in their hands that could cause injury in case of fall and shall always face the ladder when ascending or descending.

The proper angle (75-1/2 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. The ladder side rails shall extend at least 3 feet (.9m) above the upper landing surface. When ladders are not able to be extended then the ladder shall be secured at its top to a rigid support that will not deflect. Ladders must be ascended or descended facing the ladder with both hands free to grasp the ladder. Tools must be carried in a tool belt or sling or raised with a hand line attached at the top of the ladder. Extension ladders should be tied at or near

the top to prevent side slip. In some cases where ground conditions are slippery or unstable, the bottom of the ladder shall also be secured by some means. Ladders used to gain access to another level needs to extend at least three feet above the landing area.

Remember to always “Look up, and Live” by checking the area for any exposed electrical devices or powerlines. Never use a ladder when any part of your body or materials will be within three feet (3ft.) of any exposed electrical devices or insulated powerlines 300 Volts or below, and ten feet (10ft.) for any other uninsulated powerlines or any powerlines or electrical devices from 300 Volts to 50,000 Volts. Higher voltages may require greater distances - check with the local utility for recommended clearances. Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.

Some Ladder Do's and Don'ts

General

1. Read and follow the manufacturer's instructions label affixed to the ladder if you are unsure how to use the ladder.
2. Do not use ladders that have loose rungs, cracked or split side rails, missing rubber foot pads, or are otherwise visibly damaged.
3. Keep ladder rungs clean of grease. Remove buildup of material such as dirt or mud.
4. When performing work from a ladder, face the ladder and do not lean backward or sideways from the ladder.
5. Do not stand on the top two rungs of any ladder.
6. Do not stand on a ladder that wobbles, or that leans to the left or right.
7. Do not try to "walk" a ladder by rocking it. Climb down the ladder, and then move it.
8. Allow only one person on the ladder at a time, unless the ladder is designed for such use.
9. Do not allow your center of gravity (usually your belt buckle) outside of the two siderails. Leaning any farther may cause the ladder to slide or tip sideways.
10. Only use ladders with sufficient load rating for the anticipated weight of the worker, tools, and materials (minimum of class 1).
11. Maintain a three-point contact by keeping both hands and one foot or both feet and one hand on the ladder at all times when climbing up or down.
12. Do not carry items in your hands while climbing up or down a ladder.
13. Do not climb up or down an extension ladder that is not secured unless another person is holding the bottom of the ladder.
14. If you are afraid of heights - DO NOT climb a ladder!

Chapter 17

Scaffolds

PROCEDURE

The following procedures apply to all scaffold and aerial platform/lift operations for CBC Pipeline, LLC. .

TRAINING

CBC Pipeline, LLC. is required to train all employees regarding hazards by "qualified" persons. "Qualified" in this context means a person with a recognized certification as having specialized knowledge in scaffold erection, dismantling, and use (for instance a factory representative). The training program must address three hazards (fall, electrical, falling objects), personnel fall protection, scaffold use and load capacity. Re-training is required when a lack of proficiency is noted, or a new hazard or scaffold type is introduced into the workplace for which the employee was not trained.

INSPECTIONS

A competent person must direct the erection, alteration, and dismantling of all scaffold. In addition, a competent person must make an inspection of the entire scaffold assembly at the start of each workshift to ensure that scaffolds are safe prior to and during use. The competent person shall determine if additional inspections are necessary during the workshift. After an inspection, if any defects are noticed, the competent person shall tag the scaffold "Do Not Use" and disallow use of the scaffold until the defect(s) has been corrected. No employee shall use any scaffold that is tagged out of service.

CAPACITY

Taking into account the OSHA rules that must apply and the engineering/manufacturing requirements of our scaffolds, the following rules apply. NOTE: The manufacturer's safety requirements for particular scaffold assemblies are to be followed over and above any OSHA regulation.

Each scaffold and scaffold component used will support, without failure, its own weight

and at least four times the maximum intended load applied or transmitted to it.

When non-adjustable suspension scaffolds are used, each suspension rope, including connecting hardware, will support, without failure, at least six times the maximum intended load applied or transmitted to that rope.

Capacity - each scaffold and scaffold component shall be capable of supporting, without failure, its own weight and at least four times the maximum intended load applied or transmitted to it.

SUPPORTED SCAFFOLDS

1. Direct connections to roofs and floors, and counterweights used to balance adjustable suspension scaffolds, shall be capable of resisting at least 4 times the tipping moment imposed by the scaffold operating at the rated load of the hoist, or 1.5 (minimum) times the tipping moment imposed by the scaffold operating at the stall load of the hoist, whichever is greater.

2. Each suspension rope, including connecting hardware, used on non-adjustable suspension scaffolds shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope.

3. Each suspension rope, including connecting hardware, used on adjustable suspension scaffolds shall be capable of supporting, without failure, at least 6 times the maximum intended load applied or transmitted to that rope with the scaffold operating at either the rated load of the hoist, or 2 (minimum) times the stall load of the hoist, whichever is greater.

4. The stall load of any scaffold hoist shall not exceed 3 times its rated load.

PLATFORM CONSTRUCTION

This section documents the procedures and safety requirements to construct scaffold platforms. The following safety rules apply for scaffold construction:

1. Each scaffold plank will be installed so that the space between adjacent planks and the space between the platform and uprights is no more than one inch wide. If, in certain situations, it is required to make this space wider, the demonstration of this situation(s) will be in the appendix to this plan.

2. Except for outrigger scaffolds (3 inches) and plastering and lathing

operations (18 inches), the front edge of all platforms will not be more than 14 inches from the face of the work, unless we have a guardrail or personal fall arrest system in place that meets regulations.

3. [1926.451(b) Scaffold platform construction.

1. Each platform on all working levels of scaffolds shall be fully planked or decked between the front uprights and the guardrail supports as follows:

1. Each platform unit (e.g., scaffold plank, fabricated plank, or fabricated platform) shall be installed so that the space between adjacent units and the space between the platform and the uprights is no more than 1 inch wide, except where CBC Pipeline, LLC. can demonstrate that a wider space is necessary (for example, to fit around uprights when side brackets are used to extend the width of the platform).

2. Where CBC Pipeline, LLC. makes the demonstration provided for in paragraph (b)(1)(i) of this section, the platform shall be planked or decked as fully as possible and the remaining open space between the platform and the uprights shall not exceed 9 ½ inches.

Exception to paragraph (b)(1): The requirement in paragraph (b)(1) to provide full planking or decking does not apply to platforms used solely as walkways or solely by employees performing platform erection or dismantling. In these situations, only the planking that CBC Pipeline, LLC. establishes is necessary to provide safe working conditions is required.

2. Except as provided in paragraphs (b)(2)(i) and (b)(2)(ii) of this section, each scaffold platform and walkway shall be at least 18 inches wide.

1. Each ladder jack scaffold, top plate bracket scaffold, roof bracket scaffold, and pump jack scaffold shall be at least 12 inches wide. There is no minimum width required for boatswains' chairs.

2. Where scaffolds must be used in areas that CBC Pipeline, LLC. can demonstrate are so narrow that platforms and walkways cannot be at least 18 inches wide, such platforms and walkways shall be as wide as feasible, and employees on those platforms and walkways shall be protected from fall hazards by the use of guardrails and/or personal fall arrest systems.

3. Except as provided in paragraphs (b)(3)(i) and (ii) of this section, the front edge of all platforms shall not be more than 14 inches from the face of the work, unless guardrails are erected along the front edge and/or personal fall arrest systems

are used in accordance with paragraph (g) of this section to protect employees from falling.

1. The maximum distance from the face for outrigger scaffolds shall be 3 inches (8 cm);

2. The maximum distance from the face for plastering and lathing operations shall be 18 inches.

4. Each end of a platform, unless cleated or otherwise restrained by hooks or other equivalent means, shall extend over the centerline of its support at least 6 inches.

5. Each end of a platform 10 feet or less in length shall not extend over its support more than 12 inches unless the platform is designed and installed so that the cantilever portion of the platform is able to support employees and/or materials without tipping, or has guardrails which block employee access to the cantilevered end.

1. Each platform greater than 10 feet in length shall not extend over its support more than 18 inches unless it is designed and installed so that the cantilevered portion of the platform is able to support employees without tipping, or has guardrails which block employee access to the cantilevered end.

2. On scaffolds where scaffold planks are abutted to create a long platform, each abutted end shall rest on a separate support surface. This provision does not include the use of common support members, such as "T" sections, to support abutting planks, or hook on platforms designed to rest on common supports.

6. On platforms where scaffolds are overlapped to create a long platform, the overlap shall occur only over supports, and shall not be less than 12 inches unless the platforms are nailed together or otherwise restrained to prevent movement.

7. At all points on the scaffold where the platform changes direction, such as turning a corner, any platform that rests on a bearer at an angle other than a right angle shall be laid first, and platforms which rest at right angles over the same bearer shall be laid second, on top of the first platform.

8. Wood platforms shall not be covered with opaque finishes, except that platform edges may be covered or marked for identification. Platforms may be coated periodically with wood preservatives, fire retardant finishes, and slip resistant finishes; however, the coating may not obscure the top or bottom wood surfaces.

9. Scaffold components manufactured by different manufacturers shall not be intermixed unless the components fit together without force and the scaffolds' structural integrity is maintained by the user. Scaffold components manufactured by different manufacturers shall not be modified in order to intermix them unless a competent person determines the resulting scaffold is structurally sound.

10. Scaffold components made of dissimilar metals shall not be used unless a competent person has determined that galvanic action will not reduce the strength of any component to a level below that required by paragraph (a)(1) of this section.]

SUPPORTED SCAFFOLDS

1. Supported scaffolds with a height to base width of more than four to one (4:1) must be restrained from tipping by guying, tying, bracing, or equivalent means.

2. Supported scaffold poles, legs, posts, frames, and uprights will always bear on base plates and mud sills or other adequate firm foundations.

3. [1926.451(c) Criteria for supported scaffolds.

1. Supported scaffolds with a height to base width (including outrigger supports, if used) ratio of more than four to one (4:1) shall be restrained from tipping by guying, tying, bracing, or equivalent means, as follows:

1. Guys, ties, and braces shall be installed at locations where horizontal members support both inner and outer legs.

2. Guys, ties, and braces shall be installed according to the scaffold manufacturer's recommendations or at the closest horizontal member to the 4:1 height and be repeated vertically at locations of horizontal members every 20 feet or less thereafter for scaffolds 3 feet wide or less, and every 26 feet or less thereafter for scaffolds greater than 3 feet wide. The top guy, tie or brace of completed scaffolds shall be placed no further than the 4:1 height from the top. Such guys, ties and braces shall be installed at each end of the scaffold and at horizontal intervals not to exceed 30 feet (measured from one end [not both] towards the other).

3. Ties, guys, braces, or outriggers shall be used to prevent the tipping of supported scaffolds in all circumstances where an eccentric load, such as a cantilevered work platform, is applied or is transmitted to the scaffold.

2. Supported scaffold poles, legs, posts, frames, and uprights shall bear on base

plates and mud sills or other adequate firm foundation.

1. Footings shall be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.

2. Unstable objects shall not be used to support scaffolds or platform units.

3. Unstable objects shall not be used as working platforms.

4. Front-end loaders and similar pieces of equipment shall not be used to support scaffold platforms unless they have been specifically designed by the manufacturer for such use.

5. Fork-lifts shall not be used to support scaffold platforms unless the entire platform is attached to the fork and the fork-lift is not moved horizontally while the platform is occupied.

3. Supported scaffold poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement.]

FALL PROTECTION

1. All workers shall be physically protected from falling from a scaffold platform where the fall distance is 10 ft. or greater. Physical protection includes guardrails, Personal Fall Protection Systems (including a minimum 5,000# attachment point overhead), fall restraint- where the worker is tied off to where he/she cannot fall over the platform edge.

2. In addition, when building, or taking down scaffolds greater than 10 ft. in platform height, fall protection must be considered by the onsite Competent Person. This requirement will be judged on a case-by-case basis. The RSO shall be contacted and appraised of the situation if the Competent Person determines fall protection cannot be used (for instance if it's unfeasible, or causes a greater danger to the worker(s)).

3. Narrow scaffolds (30 inches or less in width) typically have manufacturer's requirements for fall protection at 6ft. or less. Check with the manufacturer of the scaffold you're using for fall protection height requirements.

FALLING OBJECT PROTECTION

1. All workers shall wear hardhats when working on, assembling, or

dismantling scaffolds. This is our primary protection from falling objects. Additionally, we shall:

1. Install guardrail systems with openings small enough to prevent passage of potential falling objects.

2. Prevent tools, materials, or equipment that inadvertently fall from our scaffolds from striking any person(s) by barricading the area below the scaffold.

3. [1926.451(h) Falling object protection.

1. In addition to wearing hardhats each worker on a scaffold shall be provided with additional protection from falling hand tools, debris, and other small objects through the installation of toeboards, screens, or guardrail systems, or through the erection of debris nets, catch platforms, or canopy structures that contain or deflect the falling objects. When falling objects are too large, heavy or massive to be contained or deflected by any of the above-listed measures, CBC Pipeline, LLC. shall place such potential falling objects away from the edge of the surface from which they could fall and shall secure those materials as necessary to prevent their falling.

2. Where there is a danger of tools, materials, or equipment falling from a scaffold and striking employees below, the following provisions apply:

1. The area below the scaffold to which objects can fall shall be barricaded, and employees shall not be permitted to enter the hazard area; or

2. A toeboard shall be erected along the edge of the platforms more than 10 feet above lower levels for a distance sufficient to protect employees below, except on float (ship) scaffolds where an edging of $\frac{3}{4}$ x $1\frac{1}{2}$ inch wood or equivalent may be used in lieu of toeboards;

3. Where tools, materials, or equipment are piled to a height higher than the top edge of the toeboard, paneling or screening extending from the toeboard or platform to the top of the guardrail shall be erected for a distance sufficient to protect employees below; or

4. A guardrail system shall be installed with openings small enough to prevent passage of potential falling objects; or

5. A canopy structure, debris net, or catch platform strong enough to withstand the impact forces of the potential falling objects shall be erected over the employees below.

3. Canopies, when used for falling object protection, shall comply with the following criteria:

1. Capable of withstanding, without failure, a force of at least 50 pounds applied in any downward or horizontal direction at any point along the toeboard (toeboards built in accordance with Appendix A to this subpart will be deemed to meet this requirement); and

2. At least three and one-half inches high from the top edge of the toeboard to the level of the walking/working surface. Toeboards shall be securely fastened in place at the outermost edge of the platform and have not more than ¼ inch clearance above the walking/working surface. Toeboards shall be solid or with openings not over one inch in the greatest dimension.]

Aerial Lifts

Manlifts and scissor lifts are two pieces of equipment that many workers can't imagine working without. This equipment, if used correctly, provides quick and safe access to work areas that at one time could only be reached from scaffolding or a crane's manbasket. These lifts, collectively called Aerial Work Platforms, are important tools. But as with any tool, there are right and wrong ways to use them safely.

The most important tip to remember before operating any aerial lift platform, is *always read and follow* the manufacturer's safety and operation manual! This information must be kept on the rig, and can usually be found in a PVC tube that's tied to the machine's frame or rails.

Safe Operating Procedures for Both Manlifts and Scissor Lifts:

- Only trained and authorized people should operate the lift. A qualified instructor must make sure that every operator reads and/or understands the equipment's safety and operating instructions. This includes all of the warning decals and labels mounted on the machine.
- Always check for overhead obstructions before driving or elevating the platform.
- Refuel tanks only when the unit is turned off. If battery powered, the batteries should be charged only in a well ventilated area, away from any open flame.
- Prior to each shift a safety inspection should be completed by the operator; this includes both a visual inspection and a function test. If a problem is found, get the lift repaired.

- Elevate the platform only when it is on a firm, level surface. Although many lifts look like a rough terrain piece of equipment, they are not. Their large tires do allow the equipment to access somewhat difficult areas, but once in position they are designed to be out of level only 5° while in operation. This amounts to 10 inches in a 10 foot wheel span. In addition, the lift must have an tilt alarm that activates when the machine is more than 5° out of level.

Scissor lifts are efficient one-direction lifts. They provide a solid surface to work from, but always remember:

- Guardrail, midrails and toeboards must be in place. The toe board can be omitted at the door.
- The platform must be equipped with a mechanical parking brake that will hold the unit securely on any slope it is capable of climbing. The brake should be tested periodically.
- Never use the lift's rails, planks across the rails, or a ladder, to gain additional height.

Unique hazards for manlifts: Manlifts can move in more than a single direction, increasing the risk of mishaps, so it's important to remember the following:

- When ever working out of a manlift, a full body harness must be worn, and properly attached to the basket. A sudden jolt has thrown people from manlifts, before they could react.
- Always maintain a safe distance from debris piles, drop-offs, floor openings, etc.
- Never drive the manlift when it is elevated above the limit the manufacturer considers safe. Each piece of equipment will state what the maximum extension can be while being driven.

Chapter 18

Fall Protection

Company Policy

Injuries from falls are a leading occupational injury. It is the intent of CBC Pipeline, LLC. to provide maximum protection to its staff in the prevention of falls. Known fall hazards will be identified, inspected and fall protection provided to ensure the safety of personnel. Engineering controls, administrative procedures and the use of personal protective equipment will be utilized. The Fall Protection Standard must be followed where personnel can possibly fall six feet or more, but does not apply *"when personnel are making an inspection, investigation, or assessment of workplace conditions prior to the actual start of construction work or after all construction work has been completed."* This exemption does not apply when inspections are carried out two feet or less from an unprotected edge. Under OSHA's interpretation, work conducted within six feet of an unprotected edge(i.e. roof line) must comply with the Fall Protection Standard.

Training

Training in fall protection must be obtained prior to working where potential for a fall exists. This training will be conducted by an authorized training resource. Training will consist of learning to identify fall hazards, minimize fall hazards, and the function, use, inspection, and maintenance of personal fall arrest systems (PFAS) and other restraint equipment. Trainees will also be taught how to identify and inspect anchor points, substantial members of the building structure, or securely rigged lines, which will safely suspend the worker in case of fall. Only attendees of the fall hazard training classes will be allowed to conduct work where potential for a fall exists. Training shall be provided by CBC Pipeline, LLC. to all affected workers before they are exposed to fall hazards. Retraining shall occur when any of the following are noted:

- Deficiencies in training
- Workplace changes
- Fall Protection Systems or equipment changes that render previous training obsolete.

Workers who complete fall protection training will have written training certification

showing at a minimum the following:

Employee's Name, Date of training

Signature of trainer and Date

Employer Date when determined adequate training was performed

The RSO, Replace with safety Person's Name will maintain written records of employee training.

Applicable Federal Regulations

The policies in the CBC Pipeline, LLC. Fall Protection Program are derived from OSHA standards as found in 29 CFR 1910: Occupational Safety and Health Standards and in 29 CFR 1926: Safety and Health Regulations for Construction. Any questions or comments about the interpretation of the OSHA standards or the company policy should be directed to the job superintendent, project manager, or the Responsible Safety Officer, Replace with safety Person's Name.

All jobsites with a potential for falls shall be inspected for fall hazards. CBC Pipeline, LLC. 's RSO, or another competent person will evaluate each potential fall hazard, and for any fall protection plan(s). Engineering controls (*handrails, etc.*) will be constructed where possible, and safe work practices and personal protective equipment will be used. Fall hazards include, but are not limited to, unprotected sides and edges of roofs, excavations, overhead construction and maintenance, roof work, floor holes, wall openings, and all other walking or working surfaces where personnel can possibly fall six feet or more to a lower level. At CBC Pipeline, LLC. , fall hazards specifically include work on building roofs, transferring materials through the floor opening of an air handling room, maintenance work conducted where a fall of six feet or more from the floor is possible (*this does not apply to work on scaffolds or ladders*), including work on overhead cranes, lighting, or rafters. Protection from falling hazards must be provided. The use of guard rails, safety nets, or personal or fall arrest systems should be used first. When the standard methods of protection are not feasible or a greater hazard would be created, other fall protection methods may be utilized – check with the RSO for guidance. The placement of toe boards and the use of hard hats will be strictly enforced. Equipment shall not be stored within six feet of an unprotected edge.

Certain fall protection requirements (for instance the placement of horizontal lifelines, and preparation of a fall protection program for specific situations) will require the use of a qualified person. A qualified person in this context may be a registered professional engineer, or a factory technician.

ENGINEERING CONTROLS

The first step in minimizing work hazards is to determine if engineering controls can eliminate or lessen the hazard of the job. Engineering controls of fall hazards consist of guardrails, toe boards, covers, and other rails or barriers that prevent falls. CBC Pipeline, LLC. will provide engineering controls where possible to minimize fall hazards. Personnel should alert CBC Pipeline, LLC. 's RSO or supervisor to potential fall hazards not already identified and controlled. Additionally anchor points(if necessary) will be installed at locations where personal fall arrest systems(PFAS) will be used.

ADMINISTRATIVE PROCEDURES (Work Practices)

In all cases, safe work practices must be followed where potential for a fall exists. Evaluate the work and potential hazards. Prepare for hazards. Contact CBC Pipeline, LLC. 's RSO or supervisor for implementation of engineering controls. Personnel must work in pairs at all times while conducting work where a potential for a fall exists. All work conducted within six feet of an unprotected edge where a fall exists must wear fall protection equipment. Only properly maintained and inspected equipment shall be used for fall protection. Equipment must be in compliance with the OSHA Fall Protection Standard. Workers shall inspect all equipment before use; if any equipment exhibits signs of wear, it must immediately be removed from service. Equipment must be maintained, and stored where it will not be subject to wear. In case of emergency, follow CBC Pipeline, LLC. 's Emergency Procedures.

Body harnesses must be worn, lanyard attached to harness securely with locking snap hook, lifeline (if used) attached securely to lanyard, deceleration device attached correctly and securely to lifeline and lanyard, and lifeline or lanyard must be securely connected, by locking snap hook, to the anchor point before any work shall be conducted. Inspections are exempted from this requirement per OSHA guidelines. However OSHA does require fall protection when inspections occur two feet or less from an unprotected edge or side.

Inclement weather, including but not limited to snow, ice, high winds or rain, pose even greater hazards during work where a potential for a fall exists, i.e. roof work. Personnel shall take additional precautions during such weather. Personnel should contact their supervisor to review additional precautions before beginning affected work. Work shall not be conducted on roofs during lightning storms.

SAFETY MONITORS

Safety monitors shall be employed where no other alternate methods have been implemented, as part of an overall fall protection program, or for use in a controlled

access zone. There is no expectation, however that CBC Pipeline, LLC. will require the use of a controlled access zone. The safety monitor shall be a competent person, able to properly assess fall hazards that exist in the type of work being performed. The safety monitor shall:

- Be within sight, and at the same working level as the workers being monitored.
- Be close enough for oral communication.
- Warn monitored workers if they are unaware of a fall hazard, or is acting in an unsafe manner.
- Be able to recognize fall hazards.
- Not have other duties which would take attention away from the monitoring duties.

PERSONAL PROTECTIVE EQUIPMENT

The use of personal protective equipment to minimized fall hazards shall be strictly enforced. The optimal solution is to use engineering controls, but if engineering controls do not eliminate the hazard, work practices and personal protective equipment must be used. The use of personal fall arrest systems (PFAS) are the allowed personal protective equipment for fall hazards at CBC Pipeline, LLC. . A PFAS consists of a full-body harness, lanyard, and anchor point. A second option is to use a full-body harness, lanyard, lifeline, anchor point, and deceleration (grabbing) device. Only full-body harnesses shall be used, the use of a body belt is prohibited. Non-locking snap hooks are unacceptable for personal fall arrest systems.

Requirements(from OSHA 1926.502) of a personal fall arrest system(PFAS) include:

- D-rings and snap hooks shall have a minimum tensile strength of 5000 pounds. A proof test of 3600 pounds is required.
- Lanyards and lifelines shall have a minimum breaking strength of 5000 pounds.
- Lanyards shall not exceed six feet in length.
- Self-retracting lifelines and lanyards shall have a strength of at least 3000 pounds and limit free fall to two feet or less.
- Anchor points for fall arrest systems shall be capable of supporting at least 5000 pounds per employee when the system is designed, installed (temporarily or permanently), and used under the supervision of a qualified person.
- Personal fall arrest systems shall limit the maximum arresting forces to 1800 pounds with a full body harness.
- The maximum free fall distance is six feet for systems.
- The maximum deceleration distance is 3.5 feet.
- Personal fall arrest systems shall have sufficient strength to withstand twice the potential impact energy of the falling employee.

- Impacted components shall be removed from service.
- Arrangements for prompt rescue shall be provided for employees in the event of a fall or shall assure the employees are able to rescue themselves.
- Personal fall arrest systems shall be inspected prior to each use.
- Lifelines subject to cutting or abrasion shall be a minimum of 7/8 inch wire core manila rope. All other lifeline applications shall use a minimum of 3/4 inch manila rope or its equivalent.

Any other personal protective equipment deemed necessary for the task under the Personal Protective Equipment Standard must be worn. This includes but is not limited to hardhats, gloves, safety glasses, and steel toed boots. Hard hats must be worn within an area beneath elevated work where objects could fall from a height and strike a worker.

EQUIPMENT INSPECTIONS

Equipment inspections will be conducted by personnel prior to use. If, upon inspection, a piece of equipment shows any of the following signs of wear it must immediately be removed from service. Consult an approved state vendor for intensive maintenance or inspection of equipment.

- Cuts or frayed edges
- Abrasions
- Mildew or mold
- Undue stretching
- Chemical burns
- Dryness
- Corrosion or charring
- Broken stitches
- Inner fiber fuzziness
- Rivets that are loose or distorted
- Substances that have penetrated and hardened in the fibers
- Deformed thimbles or enlarged buckle tongue holes or grommets
- Damaged or distorted snap hooks or faulty springs
- Cracks or distortions in fall protection hardware

DEFINITIONS

Anchor point-A secure point of attachment for lifelines, lanyards or deceleration (grabbing) devices.

Body belt-A strap with means both for securing it about the waist and for attaching it to a lanyard, lifeline, or deceleration (grabbing) device. Body belts are prohibited at CBC

Pipeline, LLC.

Body harness-An interconnected set of straps that may be secured about a person in a manner that distributes the fall arrest forces over at least the thighs, pelvis, waist, chest, and shoulders with a means for attaching the harness to other components of a personal fall arrest system.

Connector-A device that is used to connect parts of a personal fall arrest system together (i.e. D-rings, and snap hooks).

Deceleration device-Any mechanism, such as a rope, grabbing device, ripstitch lanyard, specially woven lanyard or automatic self-retracting lifeline/lanyard, which serves to dissipate a substantial amount of energy during a fall arrest, or otherwise limits the energy imposed on an employee during fall arrest.

Deceleration distance-The additional vertical distance a falling person travels, excluding lifeline elongation and free fall distance, before stopping, from the point at which a deceleration device begins to operate.

Guard rail-A barrier erected to prevent personnel from falling to lower levels.

Hole-A void or gap in a floor, roof, or other walking/working surface.

Lanyard-A flexible line of rope or strap that generally has a connector at each end for connecting the body harness to a deceleration device, lifeline or anchor point.

Lifeline-A component consisting of a flexible line for connection to an anchor point at one end to hang vertically and that serves as a means for connecting other components of a personal fall arrest system to the anchor point.

Opening-A gap or void in a wall or partition through which personnel can fall to a lower level.

Personal fall arrest system (PFAS)-A system including but not limited to an anchor point, connectors, and a body harness used to arrest a worker in a fall from a working level.

Rope grab (grabbing device)-A deceleration device that travels on a lifeline and automatically, by friction, engages the lifeline and locks to arrest a fall.

Self-retracting lifeline/lanyard-A deceleration device containing a drum-wound line which can be slowly extracted from, or retracted onto, the drum under minimal tension

during normal movement and which, after onset of a fall, automatically locks the drum and arrests the fall (usually within two feet or less).

Snap hook-A connector consisting of a hook-shaped member with a normally closed keeper, or similar arrangement, which may be opened to permit the hook to receive an object and, when released automatically closes to retain the object. Only locking snap hooks are permitted at CBC Pipeline, LLC. .

Toe board-A low protective barrier that prevents material and equipment from falling to lower levels and which protects personnel from falling.

Unprotected sides and edges-Any side or edge of a walking/working surface where there is no wall or guardrail system at least 1 meter high (i.e. roof lines).

Walking/working surface-Any surface, whether horizontal or vertical, on which personnel walk or work, including but not limited to floors, roofs, or ramps. It does not include ladders or vehicles on which personnel must be located to perform their work duties.

Components of a Fall Protection System

There are three components to a personal fall protection system. These are A) anchor point, B) belt and/or harness, and C) connecting device. Each component is explained below:

A) Anchor Point - An anchor point is a secure point of attachment for lifelines, lanyards or deceleration devices and is independent from the means supporting the worker. Examples of OSHA approved anchor points are eye bolts, bolt holes, or any other structures capable of supporting 5000 pounds per attached person.

B) Belt or Harness - Fall protection safety belts and harnesses are the second component of a personal fall protection system. A qualified person must evaluate the type of falling hazards and choose the appropriate belt or harness. Safety belts are only allowed for positioning devices after January 1, 1998. Therefore, a full body harness will be used by employees. The type of anchor point and available connecting devices will also be a factor in choosing a belt or harness.

C) Connecting Device - Lanyards, rope grabs, and deceleration devices are all examples of connecting devices. As with belt and harnesses, the proper choice of a connecting device is dictated by the other system components and the

jobsite requirements.

Categories of Fall Protection

OSHA requires that a personal fall protection device be used when an employee is working at an unprotected elevation 6 ft. and above and are at risk of a fall, or need both hands free to work. Three categories of fall protection systems have been identified based on the different situations faced by the employee. Personal fall protection equipment is designed for use with one or more of the categories of fall protection. Do not ever use fall protection safety equipment for a purpose it was not designed for. Severe injury or death could result from the improper use of fall protection equipment. It is important that all employees understand the nature of the falling hazards facing them. The three categories of fall protection systems are:

- 1) Fall Arrest - Fall arrest safety equipment protects against accidental falls while at or moving between work areas.
- 2) Positioning - Positioning equipment primarily secures the worker so that both hands are free to work. A positioning device can be used as a fall protection if only it is attached such that the worker would be limited to only a 2 ft. free fall.
- 3) Climbing Protection - Climbing protection equipment provides fall protection while ascending or descending a structure.

Fall Protection Policies

Note: Instructions in the use and inspection of fall protection safety equipment provided herein are meant to supplement the manufacturer's safety instructions. Employees are required to read and obtain a full understanding of the manufacturer's instructions in addition to this safety plan. In the event of a contradiction between the manufacturer's instruction and this safety plan, the manufacturer's instructions take precedence. Bring any contradictions to the attention of the Responsible Safety Officer, Replace with safety Person's Name as soon as possible. All Personal Fall Protection System equipment and raw materials shall be ANSI and ASTM rated equipment, acceptable to OSHA. All accidents and serious incidents (near accidents) must be investigated by the RSO. Changes to the fall protection plan shall be implemented as necessary.

Site Safety Issues

The lead inspector is a competent person and is responsible for evaluating the safety implications of any deficiency identified in the site safety inspection. If any structure is

deemed unsafe to climb by the lead inspector, the responsible safety officer, Replace with safety Person's Name and the project manager should be immediately notified. **Do Not** climb any structure deemed unsafe by the lead inspector. If the unsafe condition is not corrected prior to leaving the site, the tower should be posted with a sign reading **"Safety Hazard: Do Not Climb"**.

Proper Use of Fall Protection Equipment

CBC Pipeline, LLC. has determined that a full body harness with D-ring in the center of the back (for fall arrest protection), a D-ring in the center of the chest (for use with ladder safety climb devices), and two (2) D-rings at the waist (for positioning and/or fall protection) will be used. A 6 ft. or shorter lanyard with integral deceleration device (for fall protection) and a 6 ft. or shorter lanyard (for positioning and/or fall protection) will be used for connecting devices. Note only self-locking hooks or self-locking carabines will be used in fall protection safety equipment. It has been determined by CBC Pipeline, LLC. that this equipment best meets the requirements of the type of work to be performed by its employees.

Ascending or Descending a Structure

CBC Pipeline, LLC. requires its employees to make use of safe climb devices when they are present on the structure to be climbed and the job superintendent deems the system safe for use. Climbing protection is provided by connecting a safe climb device to the front chest ring. The safe climb device will vary depending on what type of system the structure has (safety rail or safety cable).

Any other attachment (lanyard) to the front chest D-ring increasing the distance between the climber and the climbing device will not be allowed. The distance between the safety cable/rail and the climber may not exceed nine inches (9 in.). The system is designed with specific compatible components and no other devices or equipment may be used. Under the right circumstances up to 4 people may be connected to a safety climb cable at one time, but not more than one person in between the cable guides (approx. every 25 ft.). The limiting factor is the strength of the ladder and the top bracket. The number of people (1 to 4) allowed on the system will depend on the design of the ladder and the top bracket. All climbers shall exercise good judgment and maintain a safe distance from those above or below them.

Positioning for Work or Inspection Activities

Fall protection while at or moving between work areas is provided by connecting a lanyard with integral deceleration device to the D-ring in the center of the back of the harness. The other end of the lanyard strap will be connected to an anchor point. The

lanyard will have a maximum length of 6 ft. When no anchor point is readily available for use with a snap-lock hook, than the lanyard can be wrapped around a member and connected back to itself. This may only be done if the lanyard has a locking hook and has been specifically designed for this application.

When performing work or inspection activities at a specific area only, not moving around, and the use of the back D-ring and lanyard is not feasible, then the rope lanyard connected to the waist D-rings (positioning device) must be used. A positioning device must be rigged so that a climber can never free fall more than 2 ft. Never connect both locking hooks to the same D-ring. Never wrap a rope lanyard around sharp edges. Tie off of a rope lanyard around an "H" or "I" beam can significantly reduce its strength due to the cutting action of the beam edges. Minimizing the potential fall distance reduces the possible force a lanyard would be subject to. Therefore, unless the rope lanyard is adequately protected and the potential free fall distance is limited to 2 ft., a nylon webbing strap lanyard or a wire core lanyard should be use.

Special Circumstances

CBC Pipeline, LLC. recognizes that, due to the unique nature of the work performed, there will be times when exceptions to the above policies will have to be made. Approval for any exceptions to the fall protection policies can be granted by the project manager, or the job superintendent after consulting with the project manager. Before any exception will be made a competent person knowledgeable in fall protection will be consulted. ***Under no circumstances will any safety equipment ever be altered.***

Personal Fall Protection Safety Equipment

Check In/Out Procedures

Every employee of CBC Pipeline, LLC. that is required to periodically work at elevations will be provided with all necessary fall protection safety equipment. This equipment will be assigned to the employee for the duration of his/her employment and shall be returned upon termination of that employment. It is the employees' responsibility to report any damaged safety equipment so that it can be replaced.

Safety Equipment Inspection and Maintenance Procedures

General Inspection

Before each use carefully inspect the harness and associated equipment for signs of wear and deterioration, or evidence of impact loading per the manufacturer's inspections. Visually inspect for loose threads, pulled rivets, burns, cuts, abrasions, or

evidence of chemical or physical deterioration that may have weakened the material or assembly. Inspect all hardware for malfunctions or cracks. **Immediately destroy any component that does not pass inspection.**

Harness Inspection Procedure

- 1) Tongue and billet end - Inspect the tongue and billet end first. They are subject to the most wear as a result of repeated opening and closing. If your harness is equipped with grommets be sure to check that none are loose or distorted.
- 2) Stitching and webbing - Stitching should be checked for broken, burned, cut or pulled stitches. Broken strands of webbing appear as tufts on the surface. To inspect, hold the harness with your hands 6-8 inches apart. Bend the webbing in an inverted "U" fashion which will cause surface tension, exposing problem areas. Inspect the entire length of webbing. Damage caused by cuts, abrasions, corrosives, heat or chemicals should be apparent.
- 3) D-rings - All D-rings should be checked for distortion. D-ring attachment points should be checked for unusual wear or damaged fibers. Badly pitted D-rings may indicate chemical corrosion, and the equipment should be destroyed and replaced immediately.
- 4) Stitching or rivets at hardware points - For stitched attachment points, check that stitching is not broken, burned, cut or pulled. For riveted attachment points, check all rivets for tightness, especially those at D-ring wear pads. Badly pitted rivets indicate chemical corrosion, and the equipment should be destroyed and replaced immediately.
- 5) Tongue buckles - All tongue buckles should be checked for distortion, sharp edges and cracks. The tongue should move freely and overlap the frame. Rollers should not be distorted and should roll freely.
- 6) Friction buckles - All friction buckles should be checked for sharp edges, cracks, distortion and to see that outer bars and center bars are straight. Especially check corners and attachment points for wear and cracks.
- 7) **Destroy and replace all worn or damaged fall protection safety equipment.** If excessive wear, deterioration or mechanical malfunction is observed, replace the harness immediately. **Never work with worn or damaged fall protection safety equipment. Using damaged or worn equipment can cause serious injury or death.**
- 8) The inspector is the most important part of any inspection procedure. Check all equipment thoroughly and follow all safety procedures and guidelines. Do not take any shortcuts.

Safety Equipment Maintenance

- 1) Clean and maintain equipment in accordance with the manufacturers' recommended practice. Wash nylon harnesses only in warm water and mild cleanser. Avoid harsh chemicals agents such as degreasing compounds, turpentine, paint thinner, gasoline, and other solvents.
- 2) Allow nylon objects to dry naturally. Do not use heat to speed up the process. Inspect and lubricate (light motor oil or equivalent) snap hooks after cleaning to make sure they operate properly and close securely.

Fall Arrestor Systems Required

When workers are required to work from surfaces that are 6 foot or greater above an adjacent safe workplace (surface) and are unprotected by railings, warning line systems, or safety net systems, the following procedures and guidelines must be applied:

Before selecting personnel for work at elevated work stations, supervisors must consider the worker's physical condition, such as medical problems, fear of heights, coordination, etc. All employees who engage in work involving fall arrest systems must be thoroughly trained and understand the selection, usage, and operational characteristics of such systems as well as the state and federal regulations governing such, as found in: The Code of Federal Regulations 29 - Part 1926, Subpart M - Fall Protection.

Approved fall-arrestor systems are required for work at heights of 6 or more feet. A fall-arrestor system consists of a full body-harness & a lanyard made of synthetic fibers, with a minimum break strength of 5000 lbs. Lifelines/lanyards (self-retracting type) shall limit free fall distance to 2 feet or less. When the lifeline/lanyard does not limit free fall distance to 2 feet or less, ripstitch lanyards, and tearing and deforming lanyards shall be applied to the lifeline/lanyard in the fully extended position.

Anchorage points used for attachment of personal fall arrest systems shall be independent of any anchorage being used to support or suspend platforms and capable of supporting at least 5000 lbs.

The attachment point of a body harness shall be located in the center of the wearer's back near shoulder level, or above the wearer's head.

Personal fall arrest systems components subjected to impact loading shall be removed from service until inspected and determined by a competent person to be suitable for reuse.

Personal fall arrest systems and their components shall be inspected prior to each

use for wear, damage, etc. and removed from service if found defective.

Personal fall arrest systems shall not be attached to guardrail systems, nor shall they be attached to hoists.

Lifelines/lanyards shall be designed, installed, and used under the supervision of a qualified person.

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.

Guardrail Systems / Safety Net Systems

Where lifelines/lanyards are not used as a means of fall protection at working levels 6 feet or more above lower levels, guardrail systems and [or] safety net systems shall be utilized as outlined in: CFR 29, 1926 Subpart M.

The Responsible Safety Officer will advise, on request, regarding usage and procedures.

Personnel Platforms

Work may be performed from a crane-suspended platform where another procedure is not possible because of structure design or work site conditions.

Personnel platforms must be designed by a qualified engineer and reviewed by the Responsible Safety Officer. The suspension system must minimize tipping.

The platform itself must be capable of supporting without failure its own weight and at least 5 times the maximum intended load based on the ultimate strength of the members. The design must conform to 29 CFR 1926.550(g).

Load lines shall be capable of supporting without failure at least 7 times the maximum intended load. Where rotation resistant rope is used, the lines shall be capable of supporting without failure at least 10 times the maximum intended load.

Chapter 19

Safety Training

Safety Training

CBC Pipeline, LLC. policy and federal law require that CBC Pipeline, LLC. staff, participating guests, and visitors receive appropriate health and safety training. Managers are responsible for ensuring that employees and guests under their supervision receive this training so they are fully informed about possible occupational health hazards and know how to work safely.

Training must include CBC Pipeline, LLC. 's health and safety orientation for new employees plus any additional training specific to the nature of hazards on the job; employees must complete this training before they can work unsupervised. All new employees must attend the new employee orientation within the first month of employment.

OSHA and other federal regulations spell out several specific health and safety training requirements for special hazards. These include, but are not limited to, radiation safety, hazard communication for exposure to hazardous substances, asbestos exposure, respirator use, hearing conservation, laser safety, confined space hazards, and certification for using material in moving equipment such as forklifts and overhead cranes. Employees who do hazardous work, such as working with high-voltage power supplies, or who are members of building emergency teams are required to have CPR and First Aid certification.

Managers should identify training needs for the job classifications for which they are responsible. Please refer to specific chapters in this manual for further information on training requirements. Consult with the Responsible Safety Officer about other training needs and requirements.

Training not provided by Responsible Safety Officer, such as on-the-job training, is the responsibility of line management. This includes information on procedural changes or system modifications that impact safety. Responsible Safety Officer provides several health and safety training courses, technical assistance on training needs, and resources to help supervisors fulfill their training responsibilities.

Educational resources such as fact sheets, hazard summaries, and other written

materials, as well as videos or slide shows, are available from Responsible Safety Officer. Supervisors can get a catalog from Responsible Safety Officer describing audio-visual materials that may be used to supplement safety training programs.

ALL health and safety training must be documented. Supervisors must note the participants' names and employee numbers, topics discussed, instructor(s), and date. Supervisors are responsible for maintaining training records. A copy of this information should be sent to the Responsible Safety Officer training/education coordinator for inclusion in CBC Pipeline, LLC. 's training data base.

Chapter 20

Excavations

Prior to Starting Work

Excavation work whether it be pit excavations, or trenching is required to be assessed first by a competent person. The RSO, Replace with safety Person's Name has on file who is qualified and designated as competent persons for excavation. Unlike some other types of works, excavation work relies to a great extent on having almost continuous supervision by a competent person at all stages of progress. Before starting work, a competent person must make a hazard assessment, or Excavation Safety Plan of the area to be worked. This includes the following:

Understand the nature of the area to be worked. Areas to be worked have normal characteristics that require action, and may have unusual characteristics that may require additional precautions when working, such as:

Underground utilities: Before any work is performed, a complete location survey of underground utilities shall be performed. Typically, most states have a "one call" system which coordinates all utilities in a given area. This notwithstanding, it's the competent person's responsibility to determine that all utilities have either marked or confirmed there are no underground lines present before any excavation work starts. When utility companies or owners cannot respond to a request to locate underground utility installations within 24 hours, or cannot establish exact location of these installations, CBC Pipeline, LLC. 's employees may proceed, provided we do so with caution and provided detection equipment or other acceptable means to locate utility installations are used. Any underground utilities exposed by our work shall be protected from physical damage and hazardous contact with workers.

Vibration sources: Heavy traffic, heavy equipment working in close proximity, or other sources need to be assessed for their affect on an excavation. In most cases, heavy vibration will require a more shallow slope of excavation walls, or shielding or shoring where they would otherwise not be used (such as less than 5ft. in depth).

Close proximity of heavy or dynamic loads: Excavations adjacent to or in streets

where there are heavy vehicular traffic such as tractor trailer rigs will usually require substantial shoring to counter the increased transient loads on the excavation edges or walls.

Hazardous atmospheres: The area to be worked shall be checked for the likelihood of dangerous gases, or insufficient oxygen levels. These conditions can occur when excavations are made in landfills, or where hazardous substances are or were stored nearby. Any excavations in which hazardous gases or insufficient oxygen levels exist, or are likely to exist shall have gas monitoring performed before any workers are allowed into the excavation. In most cases, areas with these characteristics may be rendered safe either by the configuration of the excavation (sloped walls, shallow pit or trench), or by mechanical ventilation. Excavations in which the competent person determines is configured to present a confined space hazard, and is in an area with hazardous gases or insufficient oxygen levels may have to resort to confined space procedures and controls to perform work in the excavation.

Worker or pedestrian controls: The excavation perimeter needs to be assessed for possible accidental egress to the excavation edges. Footpaths, sidewalks, or shortcuts likely to be used, or areas where hedges or other growths may conceal the excavation until its too late, may all have to be either barricaded or warning tape placed to prevent unauthorized or accidental egress.

Worker protection in excavations: A determination shall be made by the competent person to determine which method of worker protection shall be employed. Any equipment required shall be onsite and used before any workers enter an excavation. The present controls involve sloping excavation walls, trench boxes (shielding) or shoring excavation walls. These controls are itemized later in this section.

Worker protection outside excavations: Workers exposed to vehicular traffic shall wear warning vests at all times. Workers exposed to traffic at night shall either have sufficient ambient light to illuminate the workers, or shall have reflective, or illuminated warning vests.

Starting work

The competent person shall be experienced in their field,(in this case excavation work), have knowledge of specific and potential safety hazards that could occur, and have authority from CBC Pipeline, LLC. to take immediate corrective action if a safety problem occurs.

The competent person's role after excavation starts is to monitor the work's progress for any change in conditions that may affect the worker's safety. At a minimum, daily inspections shall be made to determine if existing worker protection controls are sufficient. If any dangerous conditions exist, the competent person is required to have the workers immediately exit the excavation, and reassess the methods or controls used. Some of the items that a competent person should look for are:

Water accumulation: Water accumulation and saturation is a leading cause of trench collapse. Accumulated water weakens the base of the excavation, allowing the upper portions of the trench wall to push into the saturated, muddy level, sliding large sections into the excavation. Water should always be immediately pumped out, and trenches protected from rains, etc. Water that accumulated into an excavation when unattended shall be pumped out, and will likely cause a reassessment of the excavation by the competent person to determine if other or additional worker protection is warranted.

Worker egress: Workers are required to have immediate egress from the excavation. Ladders, ramps or other such means shall be placed in and along an excavation to allow the workers to exit the excavation without traveling more than twenty five (25) lf. along the excavation wall.

Worker/ pedestrian crossing: Any situations which require workers or pedestrians to cross excavations will be provided with fabricated walkways at least three (3) ft. wide, with handrails on both sides capable of supporting a 200 lb. outward and downward force. The walkways shall be capable of supporting four (4) times the anticipated load.

Worker overhead protection: Not all danger to workers is in the excavation. Careful assessment and precautions shall be made by the competent person to prohibit workers working under loads of digging equipment, or other suspended loads. All spoils, materials, and tools shall be kept back at least two (2) ft. from the excavations edge to prevent them from falling rolling, or sliding materials or equipment. onto workers in the excavation.

Excavation and Shoring

All Excavations shall be inspected by Replace with safety Person's Name, or another Competent Person who shall have an excavation plan if necessary. Inspections shall be made at the initial hazard assessment of the work to be performed, at the start of the excavation, at the beginning of each work shift, and at any time there occurs a hazard-increasing event. Inspections shall examine the possibility of cave-ins, failures or protective systems, etc. If problems are found, personnel shall be immediately removed

until the problem is corrected, and the excavation determined safe for entry by the competent person.

Excavations less than five (5) feet in depth may require some form of personnel protection, depending on site conditions. The Competent Person shall make this determination, and any excavation determined to be in unstable soil that could collapse shall employ protective measures.

However, all other excavations that are five (5) or more feet in depth must have some form of personnel protection. This protection shall be by the employment of sloping or benching the excavation walls, by shoring the excavation walls, or by means of a trench shield (box) to protect the workers. Excavations in stable rock do not require protection. Care must be taken, however, to classify the soil type when employing sloping, benching or shoring methods.

OSHA has four (4) classifications of soil types that will be followed by CBC Pipeline, LLC. that is shown in 29 CFR 1926, Subpart P; however, the following is a guideline of our company policy. The following are the OSHA classifications of soil type with a brief explanation of each type.

Stable Rock - is the most stable soil type, which may be excavated with vertical walls. However, this rock must be free of defects such as cracks, fissures, seeping water, or other defects. Rock with these defects will usually classify as Type B Soils.

Type A Soils - is the next most stable soil which is best described as "perfect". In essence, this soil can no defects such as cracks, fissures, seeping water, vibration sources nearby, and cannot have been previously disturbed. This soil must also be cohesive, with an unconfined compressive strength of at least 3,000psf. In short, this type of soil is rare, and will have to be rigorously tested by visual and manual methods in order to classify any soils type A.

Type C Soils - is the least stable soil which may be best described as "junk": there is no worse. Non-cohesive granular soils having an unconfined compressive strength of 1,000 psf or less, sand, gravel, loose backfill, and even submerged soils are all considered Type C Soil. However, OSHA requires that all soils are to be considered Type C with regard to worker protection requirements unless and until a determination is made by a Competent Person that it is another type.

Type B Soils - tend to fill in the gap between Types A & C. Typically, Type B Soils are cohesive (although some hard, granular soils may test out as granular Type B) with an unconfined compressive strength between 1,000 and 3,000 psf. Unstable rock (with cracks, fissures, seeping water and other defects), good soils that may be Type A,

but having one or more defects, and formerly Type C soils that have been upgraded to Type B after classifying are examples of Type B Soils.

Therefore the protective methods described below for sloping, benching, and shoring is highly dependent on the soil types you're working in. Typically, since trench shields (boxes) do not prevent a cave-in per se (they only protect the worker inside the box from being crushed), the type of soil is not relevant.

Excavations greater than 20 feet in depth shall be reviewed first by a registered professional engineer. The engineering report should contain detailed data to Replace with safety Person's Name, or designated representative for alternative effective shoring and sloping systems. This data shall include soil evaluations, slope stability, and estimation of forces to be resisted, together with plans and specifications of the materials and methods to be used. When sheet piling is to be used, full loading due to ground water table must be assumed unless prevented by weep holes and drains or other means. Additional stringers, uprights, and bracing must be provided to allow for any necessary temporary removal of individual supports.

Sloping. The sides or walls of an excavation may be sloped, if this provides sufficient protection. The degree of sloping is dependent on the type of soil and the depth of excavation, but essentially the firmer the soil, the steeper the slope angle may be. Soil strengths, and classifications are shown in 29 CFR 1926, Subpart P, and Appendix B. Specific sloping requirements and values are shown in 29 CFR 1926, Subpart P, and Appendix B.

Shoring. The sides or walls of an excavation may be shored, if this provides sufficient protection. Shoring walls may consist of vertical beams placed intermittently, or full wall sheathing, depending on soil strength. All materials shall be used shall while in good repair and maintenance; if damaged, they must be inspected. Specific shoring requirements and values are shown in 29 CFR 1926, Subpart P, and Appendix C.

Trench shield (box). Workers may be protected by the use of trench shields, if this provides sufficient protection. Shielding protects the workers if the walls of an excavation collapses up against the box. All materials shall be used shall while in good repair and maintenance; if damaged, they must be inspected. The nature of shielding, therefore requires worker egress over the top of the shielding, and under no circumstances shall any worker exit the shielded area. Workers shall not be in the shield's footprint when installing or removing the shield(s). Shielding shall be of sufficient height and location to prevent the trench walls from collapsing over the top of the shields, and to resist calculated trench forces. Trench wall above the trench box may be sloped back to allow for a minimum required 18 inches of exposure of the trench box. Specific shielding requirements and values are shown in 29 CFR 1926, Subpart P,

and Appendix D.

Excavated material, tools, and equipment must be located at least two feet back from the edge of excavations of 5 ft. or greater depth. Excavations 4 ft. or greater in depth shall be tested for hazardous gases if the excavation is in a suspect area (such as proximate to underground fuel storage, landfills, chemical plants etc.).

A ladder (*or ramp, or other means*) projecting 3 ft. above the upper landing surface to be reached must be provided for emergency exit. Travel distance to the ladder must not exceed 25 ft., therefore, the section of trench where workers are present shall have ladders spaced not more than 50 ft. apart.

Supervision. Excavation work must always be under the immediate supervision of a competent person designated by Replace with safety Person's Name with authority and qualifications to modify the shoring system or work methods as necessary to provide greater safety.

Chapter 21

Tool & Machine Guarding

Company Provided Tools

CBC Pipeline, LLC. provides hand and powered portable tools that meet accepted safety standards. 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. 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. Supervisors are responsible for ensuring that their subordinates are properly trained in the operation of any tool that they are expected to operate. An employee is not permitted to use a powder-actuated tool unless instructed and licensed by the manufacturer.

Grounding

Tools that are not double-insulated must be effectively grounded and tested. 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.

Grounded tools must always be used with an effectively grounded circuit. Any extension cord used with a grounded tool must be a three-wire, grounded type.

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).

The responsibility for implementing and maintaining this program rests with the individual supervisors involved.

Tool testing equipment will be maintained by the Responsible Safety Officer.

Documentation of tool testing will be maintained by the group owning powered hand tools.

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

Machine/Equipment Safety

1. Replace the guards before starting machines, after making adjustments or repairs.
2. Do not remove, alter or bypass any safety guards or devices when operating mechanical equipment such as mechanical power presses, metal working lathes, cutting, notching, riveting or bending and forming machinery.
3. Do not wear loose clothing or jewelry in the machine shop.
4. Long hair must be contained under a hat or hair net, regardless of gender.
5. Read and obey safety warnings posted on or near any machinery.
6. Do not try to stop a workpiece as it goes through any machine. If the machine becomes jammed, disconnect the power before clearing the jam.

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:

The guard must provide positive protection equal to that specified in ANSI B15.1.

The guard must be considered a permanent part of the machine or equipment, capable of being easily or quickly removed or replaced.

The guard must not interfere with efficient operation or maintenance of the machine or give discomfort to the operator.

The guard must not weaken the machine structure.

The guard must be designed for a specific job and a specific machine.

The guard must be durable, resistant to fire and corrosion, and easily repaired.

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:

Enclosing the operation (preferred)

Interlocking devices

Moving barriers

Removal devices

Remote control

Two-handed tripping devices

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.

Chapter 22

Traffic and Transportation Control

Traffic Control Measures

Any workers of CBC Pipeline, LLC. performing traffic control shall, at a minimum, be familiar with the applicable sections of ANSI Standards D6.1-1971- Manual on Uniform Traffic Control Devices for Streets and Highways. In lieu of this standard, all flaggers, or workers erecting, moving, and maintaining traffic control devices shall perform all work in accordance with applicable sections of the State DOT traffic control regulations. All flaggers required by State DOT to be certified shall be certified before starting any work. Hand signaling by flagmen shall be by use of red flags at least eighteen inches square, or sign paddles, or at night by the use of red lights.

Warning Vest

Workers exposed to vehicular traffic, including flagmen shall be protected by the use of red or orange warning vests, reflectorized type if used at night.

Official Vehicle Use

CBC Pipeline, LLC. requires that an operator hold a valid driver's license for the class of vehicle that he/she is authorized to operate. Persons intending to operate forklifts are required to successfully complete the appropriate course as outlined in this manual.

Responsibility

Each Division Director and Department Head is responsible for restricting the use of Company-furnished vehicles to official Company business only. They are also responsible for limiting use of such vehicles to properly authorized personnel. Use of an official vehicle for an employee's personal convenience or benefit constitutes misuse and is prohibited. Employees who misuse Company vehicles are subject to disciplinary action and financial responsibility for any accident.

All drivers of Company vehicles are responsible for reporting any damage or deficiency to management. Repairs, adjustments, and maintenance can only be

accomplished if the driver adequately documents and reports these items. Failure to report unsafe vehicle conditions can result in an accident.

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

Any accident involving Company vehicles (including private, rented, or leased vehicles used on official Company business) must be reported to the driver's supervisor. If the driver is unable to make a report, another employee who knows the details of the accident must make the report.

It is CBC Pipeline, LLC. '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. The law requires that each driver involved in a vehicle accident must show his/her license on request by the other party. Be sure to obtain adequate information on the drivers involved as well as on the owner of the vehicles. Names, addresses, driver's license numbers, vehicle descriptions, and registration information are essential. In addition, a description of damages is needed for completion of accident reports. If the accident is investigated by off-site police agencies, request that a copy of the police report be sent to CBC Pipeline, LLC. , or obtain the name and department of the investigating officer.

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.

The driver of any CBC Pipeline, LLC. 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.

The supervisor should interview the driver and complete the supervisor's portion of the report. The completed form and vehicle must be taken to the Administration Office so that damages may be estimated and repairs scheduled.

CBC Pipeline, LLC. Safety Plan

Forms for obtaining appropriate information about an accident are carried in the job trailer or may be obtained from Administration. The Responsible Safety Officer will receive copies of all accident reports and will prepare any required OSHA reports.

Chapter 23

Trucks/ Heavy Equipment Operation

Backhoe/ Front End Loader/ Skid Steerer Requirements

Anyone who operates a backhoe, excavator, front end loader, or skid steerer, or who works in the vicinity when one is operating, runs a risk of being seriously injured or killed if struck by the machine or any of its components. Before work begins, make sure that the work site has been fully checked and prepared by following these steps:

Contact local utilities and other responsible parties to locate overhead and underground utility lines.

Avoid work around overhead power lines. If it can't be avoided, develop a plan to ensure that contact with the lines does not occur. The plan, along with OSHA regulations for minimum clearance (typically 10ft.) should be followed carefully.

Identify and avoid grades steeper than those specified by the manufacturer for operation of hydraulic excavators or backhoes.

Keep machinery at a safe distance from excavations such as trenches.

Just as the site should be fully prepared, the equipment operators should be fully trained in the proper use of their equipment. Operators should be familiar with equipment specifications and follow the manufacturer's recommendations carefully.

Check all safety features to make sure that they are working.

Reevaluate and adjust safety programs as work site conditions change.

Identify and label all machine controls clearly.

Install, operate and maintain all equipment attachments according to the manufacturer's specifications.

Latch quick-disconnect buckets securely before work begins and inspect frequently. Follow the manufacturer's instructions for using positive locks on

quick-disconnect equipment.

Operators should conduct visual and operational checks on all machine systems and operating controls before working the machine.

Operators should use the supplied seat belts!

Operators should not exceed load capacities when lifting materials.

Without exception, operators should lower the boom to a safe position with the bucket on the ground and turn off the machine before stepping off.

Like the machine operators, anyone who will be working in the vicinity of the equipment should also receive appropriate training to recognize and avoid unsafe conditions and to follow required safe work practices that apply.

Before each work shift begins, machine operators and those working on foot should review and confirm communication signals.

Anyone working at the site should be aware the established swing areas and blind spots for each machine in operation before the machine begins operation.

These areas should be marked with rope, tape or other barriers.

Workers attaching loads for hoisting should wait until the operator has lowered the bucket as close to the ground as possible.

Workers should stay outside the hydraulic excavator swing areas and stay clear of attachments when using the machines for hoisting materials.

Workers should not be allowed to stand under suspended loads or suspended machine components such as the boom, arm or bucket.

Workers should not approach the hydraulic excavator or backhoe on foot until they signal the operator to shut down the machine and receive acknowledgment from the operator.

When necessary, spotters or signal persons should be used around operating equipment.

Workers should never ride in or work from excavator or backhoe loader buckets.

Appropriate personal protective equipment should be available to workers, and supervisors should insist that workers use and maintain it.

Vehicle/Trailer Safety

1. Set the parking brake in the towing vehicle and use wheel blocks to chock the wheels of the trailer before removing any equipment from the trailer.
2. Secure equipment to the vehicle with chains or straps to eliminate or minimize shifting of the load.
3. No one is permitted to ride in the trailer.
4. Take slow, wide turns when towing trailers containing equipment or materials.
5. Do not exceed the load capacity as posted on the trailer door of the trailer.
6. Do not place all the heavy equipment on one side of the trailer.

Heavy Equipment Operators

Do not start work until barricades, barrier logs, fill or other protection have been installed to isolate the work area from local traffic.

Do not work outdoors during lightning storms.

No passengers are permitted on heavy equipment.

Keep windows and windshield clean.

Do not use heavy equipment if its horn or backup alarm does not sound.

Turn off the engine before leaving heavy equipment unattended.

Do not jump off of or onto any heavy equipment.

Keep heavy equipment in gear when going down grade. Do not use neutral.

Display the "Slow Moving Vehicle" sign when operating heavy equipment on roads.

Do not operate backhoes, power shovels and other heavy equipment within two (2) feet from the edge of an excavation.

Backhoe/ Skid Steerer Operations

Do not use a bucket or other attachments for a staging or temporary platform for workers.

Do not operate backhoe over or across underground utilities that are marked by paint, flagged or staked.

Set swing brake of the bucket arm when moving the vehicle to and from the digging site.

Stay in the compartment during operation of the backhoe or power shovel. Do not reach in or attempt to operate controls from outside the backhoe or power shovel.

Lifting Equipment for Backhoes/ Front End Loaders

Do not use chain slings if links are cracked, twisted, stretched or bent.

Do not shorten slings by using make-shift devices such as knots or bolts.

Do not use a kinked chain.

Protect slings from the sharp edges of their loads by placing pads over the sharp edges of the items that have been loaded.

Wear work gloves when handling rough, sharp-edged or abrasive chains, cables, ropes or slings.

Do not alter or remove the safety latch on hooks. Do not use a hook that does not have a safety latch, or if the safety latch is bent.

Trucks/ Heavy Equipment Policy

Only authorized employees shall be able to operate the vehicle and/ or the articulating mounted equipment.

Definitions

Authorized – An employee of CBC Pipeline, LLC. who has the education, training and certification to operate the equipment specified.

Caution – A potentially hazardous situation which, if not avoided, may result in minor or moderate injury. It should be used to identify unsafe practices

Danger – Immediately hazardous situation which, if not avoided, will result in serious injury or death

Warning – A potentially hazardous situation which, if not avoided, could result in serious injury or death.

In order to become an authorized operator of the truck or equipment, the employee must...

Have the necessary training, including actual operation of the mounted equipment. The training must include at least a 30-minute discussion on the contents of this policy, the location and understanding of the controls, decals and manuals found on the vehicle and a practical demonstration of knowledge actually using the lift.

Certification will be provided to the authorized employee and should be kept on their person at all times, when operating the articulating mounted equipment.

Understand the written instructions supplied by the manufacturer.

User/Operator Responsibility

It is the responsibility of the user / operator to read and understand the safety and user's manual for vehicles or equipment before operating the equipment. Any questions or concerns can be referred to the RSO or an authorized representative. Safety policies and procedures protect the individual operator, the Company and the people around you.

User's Manual

As required, a copy of the user's manual must be kept in the job trailer at all times as a reference guide. The manual shall be placed in the compartment closest to the base controls for the aerial platform, or articulated equipment, rear compartment at the passenger's side. Know and follow the established safety rules and regulations for the work environment

Equipment Required:

The vehicles should have the following equipment and material on board at all times:

User's Manual (1)

Chock blocks (2)

Fire Extinguisher (ABC) (1)

Traffic cones (2)

First Aid Kit (1)

The user / operator of the vehicle shall wear appropriate clothing. Loose fitting clothing, hair and the like must be restrained to prevent accidental introduction into electrical or mechanical equipment.

Safety Check – Daily

As required, the operator of the vehicle for that particular day shall conduct a safety / “circle check” of the vehicle to determine hazards, identify damage and leaks and report same to the RSO.

The “daily check” shall include but is not limited to...

a visual inspection of the vehicle exterior, including;

broken, damaged, loose or missing parts

tire bulges, cuts and pressure

oil and hydraulic leaks

weld integrity, such as cracks and rust

lighting (beam, directional and safety)

all required decals and stickers on or around the articulating boom (they must be in place, legible and understandable)

The inspection form and the identified deficiencies shall be provided to the RSO as soon as possible for corrective action. If no problems have been identified by the user / operator, a copy of the inspection form does not have to be forwarded.

Fall Protection for Aerial Lifts or Buckets

The use of fall protection shall be required when the user / operator enters the bucket truck and begins to elevate, regardless of height. The minimum level of fall protection for the bucket truck is a full body harness and lanyard. The fall protection device must be properly fastened and comfortably snug. Safety Belts are not permitted.

Additional fall protection and safety requirements include...

Personnel shall not place any item into the bucket for the purpose of increasing work height (the use of ladders, step stools and similar items is improper)

When using the articulating aerial boom on a permitted incline, the bucket shall be located on the upgrade side, in a stable position.

If the user / operator is working with their hands above their head, or there is a potential for something to fall from above, the use of head protection (hard hats) is required. In other situations hardhats may still be required as determined by company policy and/ or the RSO.

If the user / operator is working in an area where persons shall pass beneath or in close proximity to the truck, then the user / operator shall adequately guard or restrict the area to prevent personal injury in the following ways...

Caution tape, barricades or rope shall serve the purpose outlined above - traffic cones alone are not permissible

Employees working below the articulating boom must be aware of the overhead hazards and shall wear the appropriate head protection, as required.

Additional Safety Equipment

Portable Radio: If the user / operator is operating alone, he/she shall carry a portable radio for emergency situations.

If working off hours, the user / operator must be in direct contact with the RSO.

Safety Glasses, Goggles or Face Shields may be required.

The Personal Protective Equipment section of the Safety Manual identifies when these devices are necessary.

Equipment and tools used on the work site must be compatible with the environment

Vehicle Placement and Operation

Prior to starting the vehicle...

Walk around to verify safe operation

Remove cone from the front or rear of the vehicle depending on whether you are backing or heading in a forward direction.

Whenever possible (in accordance with vehicle safety policy) a "spotter" shall be used when the vehicle is being set into reverse.

Work Site Safety

Identify the most level grade from which to operate

the slope should not exceed 5 degrees unless the equipment is rated for steeper grades

Set Emergency Brake

Position both wheel chocks place on both sides of the tire

Engage Power Source

Set barricades and cones around the vehicle

If the operator will be working in a pedestrian area, then barricades, "Caution" tape or fencing shall be utilized. Cones are not permitted.

Verify proper portable radio operation

Discuss work with personnel on the ground. They should be made aware of the potential hazards and the risk of injury caused by falling objects such as tree limbs.

Put on the required Fall Protection Equipment – remember additional Personal Protection may be necessary

Maintain proper distance from electrical power lines

Do not operate the equipment if...

wind gusts exceed 30 mph, or if there is or could be an electrical storm.

Verify that the area under and around the work site is free of passers-by.

Check out overhead clearances, building design, fixtures and set-up.

Traffic Safety and Cone Placement

Planning for traffic control is necessary on a case by case basis. Work that takes place either on or near the roadway creates a potentially hazardous situation, which shall require the use of traffic controls. It is the responsibility of the person in charge or their designee to establish and maintain safe and efficient controls.

All necessary traffic control devices shall be installed before work begins and must be maintained during the entire work period.

Traffic control devices (i.e. barricades, cones etc.) provide drivers with sufficient advanced warning, and provide proper protection for the motorists and our employees

In addition, they advise motorists of proper travel path.

When parked, a cone shall be placed at the rear of the vehicle when the truck will be backed up or out of spot, at the front of the vehicle when the truck will be driven forward.

Special Hazards

DANGER – No equipment, insulated or not, provides any electrical protection to the occupant of the platform if there is “phase to phase” or “phase to ground” contact. Such contact will cause serious injury or death.

DANGER – User / Operators are not permitted to use the lift to gain access to another level. Once in the bucket, you are required to remain until the platform is placed firmly back on the ground.

WARNING - Under no circumstances can modifications be made to the equipment without the expressed written consent of the manufacturer.

Chapter 24

Rigging and Cranes

Rigging

Planning for safe rigging and lifting must begin at the design stage, and lifting procedures must be developed for assembly and installation. The lifting procedure should be developed and discussed with the rigging crew supervisor.

Riggers are responsible for final rigging and for carrying out whatever moves have been designated. 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. The supervisor must enforce the use of safe lifting techniques and maintain lifting equipment in good mechanical condition.

Employees are required to observe all established safety regulations relating to safe lifting techniques. All employees shall be kept clear of loads about to be lifted and of suspended loads.

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.

The Operator/Rigger Training Program is administered by the RSO, Replace with safety Person's Name, or designated person. The training staff consists of a qualified crane consultant, professional riggers, and the Responsible Safety Officer. There are two levels of required training and performance:

Professional Operator/Rigger: Person whose principal assignment includes crane operation and rigging functions. The chief operator/rigger must ensure that those professional operator/riggers under his/her supervision maintain the necessary qualifications.

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.

Rigging Equipment

Rigging equipment shall be inspected to ensure it is safe. Rigging equipment for material handling shall be inspected prior to use on each shift and as necessary during its use to ensure that it is safe.

Defective equipment shall not be used and removed from service immediately.

Rigging equipment shall not be loaded beyond its recommended safe working load and load identification shall be attached to the rigging.

Rigging equipment not in use shall be removed from the immediate work area so as not to present a hazard to employees.

Tag lines shall be used unless their use creates an unsafe condition. In any case, tag lines shall be kept as short as possible.

Slings, Guy Lines, Load lines

1. Do not overload slings.
2. Do not drag slings along the ground or floor.
3. Inspect cables and slings frequently. Before inspecting, clean surface dirt from the sling to reveal any hidden nicks, gouges, or other damage. If, during inspection, or at any other time you notice that a sling is defective, remove it from service and label it as "Defective Sling, Do Not Use" and give it to your superintendent for repair or destruction.
4. Never jerk the load, jerking can overload the equipment.
5. When wrapping around sharp corners or picking heavy loads with corners, \ use softeners or other pads.
6. When slings are not in use, pick them up and store them.
7. Check slings to make sure that the length marked on them corresponds to

the actual length. If the sling is longer than marked, it may have been overloaded.

8. Do not use a sling in good condition beyond it's rated capacity. Allow for an extra safety factor for a sling in only fair condition. Do not use a sling in poor condition. Nylon web slings should be removed from service if they are burned by heat, acids, or caustics, if the stitches are broken or worn, if fittings are distorted, if the webbing is snagged, punctured, or torn, or cut, or if any other defect that might affect the strength of the sling is observed. Wire rope slings should be removed from service if any of the following is observed.
 - a. Six randomly distributed broken wires in one rope lay, or three broken wires in one strand of rope lay.
 - b. Wear or scraping of one-third of the original diameter of outside, individual wires.
 - c. Kinking, crushing, bird caging, or any other damage resulting in the distortion of the wire rope structure.
 - d. Evidence of heating or electric arc damage.
 - e. End attachments that are cracked, deformed, or worn to the point where the rated capacity is reduced.
 - f. Corrosion that is of such severity or extent as to reduce the rated load capacity or the rope end attachment.
9. Do not make temporary repairs on a sling, turn it over to your superintendent for repair or destruction.
10. When guy lines or load lines are unrigged or taken down, they should be inspected. Defective or damaged rope or cable should be destroyed to prevent further use.
11. Lines for hoists or cranes should be long enough that at least two full wraps will be left on the drum at any point in their operation.
12. Guy lines should be flagged at all locations where they cross paths used by foot or vehicle traffic.
13. Before you make the first pick with a particular rigging, be sure to have your superintendent inspect all parts of the rigging.

Ropes

1. Turn in old, worn or damaged rope to your superintendent for replacement or removal from service. Damaged rope should be cut into short lengths to keep it from being used again.
2. On wire rope, use the number of clamps specified in the following table:

Rope Diameter in Inches	Number of Clamps per Eye		Rope Diameter in Inches	Number of Clamps per Eye
3/16	2		1 1/8	5
1/4	2		1 1/4	5
5/16	2		1 3/8	6
3/8	2		1 1/2	6
7/16	2		1 5/8	6
1/2	3		1 3/4	7
5/8	3		2	8
3/4	4		2 1/8	8
7/8	4		2 1/4	8
1	4			

Attach a wire rope clamp as follows:

- a. Place the u-bolt on the “dead” or short side of the rope, and the saddle on the “live” or long side. Remember the phrase “Never saddle a dead horse”.
 - b. Attach the clamp farthest from the eye first. Tighten it.
 - c. Place the clamp nearest the eye next. Don’t tighten it.
 - d. Place any other clamps in position loosely.
 - e. Minimum spacing of clamps is six times the rope diameter.
 - f. Place a light load on the rope to stretch it and equalize tension.
 - g. Tighten all clamps. Be careful not to tighten the clamps so much that they unduly distort the rope.
3. Do not use manila rope close to welding operations or other sources of heat. If rope has been exposed to high heat, check its condition carefully before using it again.
 4. Keep manila rope as dry and clean as possible. Protect it from acid, fumes, and chemicals. Inspect the center strands frequently from rotting or other damage.
 5. Avoid overloading and shock loading.

6. Protect the rope from sharp edges and sharp bends with softeners or other padding. Protect rope from chafing and kinks.
7. Coil or uncoil wire rope by rolling and unrolling it as if it were a roll of tape; this helps prevent twisting and kinking of the rope.
8. Any repairs made to ropes or sling assemblies must be tested to at least 2 times their planned rating. Testing shall be made with known weights, and a written record of proof loading shall be maintained by the RSO.

Hooks

Hooks on overhaul ball assemblies, lower load blocks, or other attachment assemblies shall be of a type that can be closed and locked, eliminating the hook throat opening. Alternatively, an alloy anchor type shackle with a bolt, nut and retaining pin may be used

Lifting Devices

Lifting 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.

Inspections

Each mechanical lifting or moving device must be inspected periodically. Each lifting device must also be inspected before lifting a load near its rated capacity. Defective equipment must be repaired before it is used. The rated load capacity of lifting equipment must not be exceeded.

Material moving equipment must be driven forward going up a ramp and driven backward going down a ramp.

Traffic must not be allowed to pass under a raised load.

The floor-loading limit must be checked before mobile lifting equipment enters an area. Passengers must not be carried on lifting equipment unless it is specifically equipped to carry passengers.

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.

For moving loads around powerlines rated 50 kV. or below, minimum clearance between the lines and any part of the crane or load shall be 10 feet. For powerlines higher than 50KV, increase the clearance distance by 0.4" for every 1,000 volts above 50KV, or the recommended clearance of the local utility whichever is greater.

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.

Clean Work Areas

All areas controlled by CBC Pipeline, LLC. must be kept in orderly and clean condition and used only for activities or operations for which they have been approved. The following specific rules must also be followed:

Keep stairs, corridors, and aisles clear. Traffic lanes and loading areas must be kept clear and marked appropriately.

Store materials in work rooms or designated storage areas only. Do not use hallways, fan lofts, or boiler and equipment rooms as storage areas.

Do not allow exits, passageways, or access to equipment to become obstructed by either stored materials or materials and equipment that is being used.

Arrange stored materials safely to prevent tipping, falling, collapsing, rolling, or spreading - that is, any undesired and unsafe motion.

Do not exceed the rated floor capacity of stored material for the area. The load limit and the maximum height to which material may be stacked must be posted.

Place materials such as cartons, boxes, drums, lumber, pipe, and bar stock in racks or in stable piles as appropriate for the type of material.

Store materials that are radioactive, fissile, flammable, explosive, oxidizing, corrosive, or pyrophoric only under conditions approved for the specific use by the Responsible Safety Officer.

Segregate and store incompatible materials in separate locations.

Remove items that will not be required for extended periods from work areas and put them in warehouse storage. Call for assistance.

Temporary equipment required for special projects or support activities must be installed so that it will not constitute a hazard. A minimum clearance of 36 inches must be maintained around electrical power panels. Wiring and cables must be installed in a safe and orderly manner, preferably in cable trays. Machinery and possible contact points with electrical power must have appropriate guarding. The controls for temporary equipment must be located to prevent inadvertent actuation or awkward manipulation. When heat-producing equipment must be installed, avoid accidental ignition of combustible materials or touching of surfaces above 60 degrees C (140 F). Every work location must be provided with illumination that meets OSHA requirements. Evaluation of illumination quality and requirements is made by the Responsible Safety Officer, but the supervisor of an area is responsible for obtaining and maintaining suitable illumination.

Areas without natural lighting and areas where hazardous operations are conducted must be provided with enough automatically activated emergency lighting to permit exit or entry of personnel if the primary lighting fails.

Cranes

There are two types of heavy duty cranes.

Bridge cranes are classified as cab-operated or pendant-operated. Mobile cranes consist of a boom and controls mounted on a truck chassis. Every crane shall have securely affixed to the crane cab in view of the crane operator when seated in the operating position, a clear, legible, substantial, and durable load chart. Rated load capacities, and recommended operating speeds, special hazard warnings, or instruction, shall be conspicuously posted on all equipment. Instructions or warnings

shall be visible to the operator while he/she is at his control station. Additionally, each control cab shall have a minimum of a 10ABC fire extinguisher mounted or placed in a readily accessible position.

Bridge and mobile 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, including fire extinguisher use. Whenever internal combustion engine powered equipment exhausts in enclosed spaces, tests shall be made and recorded to see that employees are not exposed to unsafe concentrations of toxic gases or oxygen deficient atmospheres.

CBC Pipeline, LLC. shall comply with the manufacturer's specifications and limitations applicable to the operation of any and all cranes and derricks. Where manufacturer's specifications are not available, the limitations assigned to the equipment shall be based on the determinations of a qualified engineer competent in this field and such determinations will be appropriately documented and recorded. Attachments used with cranes shall not exceed the capacity, rating, or scope recommended by the manufacturer.

CBC Pipeline, LLC. shall permit only those employees qualified by training or experience to operate equipment and machinery. Before an employee may operate any of these cranes, 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.

Hand signals to crane and derrick operators shall be those prescribed by the applicable ANSI standard for the type of crane in use.

CBC Pipeline, LLC. shall designate a competent person who shall inspect all machinery and equipment prior to each use, and during use, to make sure it is in safe operating condition. Any deficiencies shall be repaired, or defective parts replaced, before continued use.

Electrical Safety

No crane shall be operated within ten feet (10ft.) of any electrical powerline, transformer, or energized source per OSHA regulations unless the electrical parts which

can become energized are disconnected, and grounded for safety.

Crane Maintenance/ Inspections

Preventive maintenance shall be performed on all cranes per each crane's manufacturer's recommendations. Any work performed on cranes shall be done with "Out of Order" or other warning signs placed at the crane control cab. Any crane components that are in a raised position shall be blocked before any work is performed underneath. Cranes, sidebooms, and other such mechanical lifting devices shall be inspected in accordance with the following:

On days used: *Inspections performed by crane operator or competent person
(no written records required)*

All crane functional operating mechanisms for maladjustment interfering with proper operation and for excessive wear of components including, but not limited to: brakes, drums, and capstans.

Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems.

Hooks. Hooks with cracks or having deformation more than 15% in excess of normal throat opening or more than 10 degrees twist from the plane of the unbent hook must be discarded.

Wire-rope slings, including end connections, for excessive wear, broken wires, stretch, kinking, or twisting. After storage or shutdown, the ID of the rope inspected & signature of person performing inspection shall be performed.

Monthly: *Inspections performed by crane operator or competent person
(written inspection records with date & signature required)*

All crane functional operating mechanisms for maladjustment interfering with proper operation and for excessive wear of components including, but not limited to: brakes, drums, and capstans.

Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems.

Hooks. Hooks with cracks or having deformation more than 15% in excess of normal throat opening or more than 10 degrees twist from the plane of the unbent hook must be discarded.

Wire-rope slings, including end connections, for excessive wear, broken wires, stretch, kinking, or twisting.

Annually: *Inspections performed by competent person or outside engineer (written inspection records required) A thorough, annual inspection of the hoisting machinery shall be made by a competent person, or by a government or private agency recognized by the U.S. Department of Labor. CBC Pipeline, LLC. shall maintain a record of the dates and results of inspections for each hoisting machine and piece of equipment.*

All crane functional operating mechanisms for maladjustment interfering with proper operation and for excessive wear of components including, but not limited to: brakes, drums, and capstans.

Deterioration or leakage in lines, tanks, valves, drain pumps, and other parts of air or hydraulic systems.

Hooks. Hooks with cracks or having deformation more than 15% in excess of normal throat opening or more than 10 degrees twist from the plane of the unbent hook must be discarded.

Wire-rope slings, including end connections, for excessive wear, broken wires, stretch, kinking, or twisting.

Modifications or additions which affect the safe operation of the equipment may only be made with the manufacturer's written approval.

Running Ropes Inspections

Running ropes must be thoroughly inspected at least once a year during the structural inspection of the crane, and a full, written, dated, and signed report of rope conditions must be kept on file. CBC Pipeline, LLC. or an outside Engineer must inspect rope reefing for noncompliance with manufacturer's recommendations before first use and annually thereafter.

OSHA Crane Standards

Routine maintenance, adjustments, and repairs must be performed by a qualified mechanic and reported to the Responsible Safety Officer according to each machine's

established schedule and according to OSHA requirements.

Crane Loads

When equipment is designed to be crane lifted at a single point with a single-bolt pickup device, the vertical lifting load through the screw thread of the bolt must be in line with the axis of the bolt so that the load will remain level when it is lifted. With this bolt alignment the lift will be through the center of gravity and will be safer since the load will not tilt or kick out when it is lifted. A single-bolt pickup device, such as a Safety Hoist Ring or equivalent carefully designed and maintained in-house device, must be used.

When a load is to be crane-lifted by slings from a crane hook through 2, 3, or 4 single-load pickup points located at the corners of the load, and without the use of a spreader bar, the forces at the lift points will be nonvertical. In this case a single bolt pickup device, such as a safety hoist ring or equivalent carefully designed and maintained in-house device, must be used at each pickup point.

Chapter 25

Abrasive Blasting Operations

Application

This standard applies to all operations where an abrasive is forcibly applied to a surface by pneumatic or hydraulic pressure or by centrifugal force.

Selection of Abrasives and Equipment

Each type of abrasive and each type of equipment has its particular advantages in producing the quality of work desired, and the selection will depend on the specific requirements of the user. Therefore, no rule or suggestion can be given in this standard for the selection of a particular abrasive or of particular equipment. With properly designed equipment and proper operation and maintenance all types of abrasives and equipment can be used safely. However, abrasives which create the minimum hazard should be used wherever feasible.

Air supply and air compressors. Air for abrasive-blasting respirators must be free of harmful quantities of dusts, mists, or noxious gases, and must meet the requirements for supplied-air quality and use specified in 29 CFR 1910.134(i).

Abrasive blast cleaning nozzles. The blast cleaning nozzles shall be equipped with an operating valve which must be held open manually. A support shall be provided on which the nozzle may be mounted when it is not in use.

Compressed air used for cleaning. Compressed air shall not be used for cleaning purposes except where reduced to less than 30 p.s.i. and then only with effective chip guarding and personal protective equipment.

Abrasive Blasting Operations

Abrasive. A solid substance used in an abrasive blasting operation.

Abrasive blasting. The forcible application of an abrasive to a surface by pneumatic pressure, hydraulic pressure, or centrifugal force.

Abrasive-blasting respirator. A continuous flow airline respirator constructed so that it will cover the wearer's head, neck, and shoulders to protect him from rebounding abrasive.

Air-line respirator. A device consisting of a face-piece, helmet, or hood to which clean air is supplied to the wearer through a small-diameter hose from a source not on the wearer's body.

Blast cleaning barrel. A complete enclosure which rotates on an axis, or which has an internal moving tread to tumble the parts, in order to expose various surfaces of the parts to the action of an automatic blast spray.

Blast cleaning room. A complete enclosure in which blasting operations are performed and where the operator works inside of the room to operate the blasting nozzle and direct the flow of the abrasive material.

Blasting cabinet. An enclosure where the operator stands outside and operates the blasting nozzle through an opening or openings in the enclosure.

Clean air. Air of such purity that it will not cause harm or discomfort to an individual if it is inhaled for extended periods of time.

Dust collector. A device or combination of devices for separating dust from the air handled by an exhaust ventilation system.

Exhaust ventilation system. A system for removing contaminated air from a space, comprising two or more of the elements; enclosure or hood, duct work, dust collecting equipment, exhauster, and discharge stack.

Dust Hazards from Abrasive Blasting

Dust sources. Abrasives and the surface coatings on the materials blasted are shattered and pulverized during blasting operations and the dust formed will contain particles of respirable size. The composition and toxicity of the dust from these sources shall be considered in making an evaluation of the potential health hazards. Whenever hazardous substances such as dusts, fumes, mists, vapors, or gases exist or are produced in the course of construction work, their concentrations shall not exceed the limits specified in 1926.55(a). When ventilation is used as an engineering control method, the system shall be installed and operated according to the requirements of this section.

Dust shall not be permitted to accumulate on the floor or on ledges outside of an abrasive-blasting enclosure, and dust spills shall be cleaned up promptly. Aisles and walkways shall be kept clear of steel shot or similar abrasive which may create a slipping hazard.

Types of abrasives. A large variety of solid materials may be used as abrasives, with qualities varying from hard deep-cutting to soft polishing. These include; mineral grains, either synthetic or natural, metallic shot or grit, generally of steel or chilled cast iron, and organic abrasives, such as ground corncobs or walnut shells.

Silica sand is the most hazardous mineral abrasive commonly used and its use should be limited wherever possible.

The potential hazard from steel or iron dust is considered to be minimal.

Readily combustible organic abrasives may be pulverized fine enough to be capable of forming explosive mixtures with air.

Types of coatings. A surface coating formed during the fabrication of a part, or a protective coating applied after fabrication, will be removed and dispersed as a dust by abrasive blasting. The type of coating should be known to make a proper evaluation of the potential hazard.

Silica sand is frequently embedded in the surface of castings and may be pulverized by blast cleaning.

Coatings containing toxic metals will add to the potential seriousness of the dust exposures. Examples of such coatings are anti-fouling paints containing mercury, lead paints on structural steel, cadmium plating, and lead deposits on pistons of internal combustion engines.

Plastic or resin coatings may be decomposed by the action of the abrasives to form irritating by-products.

Wet abrasive blasting. Wet methods will tend to keep dust exposures minimal, but droplets dispersed and dried residues which become airborne may create potential exposures.

Concentrations of contaminants. The concentration of respirable dust or fumes in the breathing zone of the abrasive-blasting operator or any other worker shall be kept below the recommended levels.

Use of combustible abrasives. Organic abrasives which are combustible shall be used only in automatic systems because the fine dust produced presents a potential fire and explosion hazard.

Where flammable or explosive dust mixtures may be present, the construction of the equipment, including the exhaust system and all electric wiring shall conform to the requirements of American National Standard Installation of Blower and Exhaust Systems for Dust, Stock, and Vapor Removal or Conveying, Z 33.1- 1961 (NFPA 91-1961; NBFU 91-1961), and chapter 296-24 Part L. The blast nozzle shall be bonded and grounded to prevent the buildup of static charges.

Where flammable or explosive dust mixtures may be present, the abrasive blasting enclosure, the ducts, and the dust collector shall be constructed with loose panels or explosion venting areas, located on sides away from any occupied area, to provide for pressure relief in case of explosion, following the principles set forth in the National Fire Protection Association Explosion Venting Guide, NFPA 68-1954.

A respiratory protection program as defined and described in 1926.103, shall be established wherever it is necessary to use respiratory protective equipment.

Equipment for protection of the eyes and face shall be supplied to the operator when the respirator design does not provide such protection and to any other personnel working in the vicinity of abrasive blasting operations. This equipment shall conform to the requirements of 1926.102.

Chapter 26

Hazard Warnings

Introduction

Every reasonable method to warn employees of hazards and dangers and to inform them of the actions required must be utilized. Signs, characteristic lights, and audible alarms as additional safeguards for built-in mechanical and physical protection must be used. To ensure uniform response by personnel, the warning signs and devices must be of the same type for similar hazards. Obtaining and installing the warning systems is the responsibility of the group needing them.

Contents and Configuration

Signs must conform to the colors, symbols, lettering size, and proportions as specified by CBC Pipeline, LLC. , except that radiation signs must conform to the requirements stated in 10 CFR 20. Every warning sign must include the following components:

An approved heading that indicates the relative hazard.

A statement of the type of hazard.

A statement of what to do or not to do in the area.

Chapter 27

Process Safety Management of Highly Hazardous Chemicals

While these regulations primarily apply to plant personnel, as contractors we should be familiar with plant safety rules as it applies to our work in and around plant areas. This program is to prevent or minimize consequences of catastrophic releases of toxic, reactive, flammable or explosive chemicals in various industries such as refineries, etc. CBC Pipeline, LLC. employees shall abide by employers safe work practices during operations such as lockout/tagout, confined space entry, opening process equipment or piping and controls over entrance to facility. CBC Pipeline, LLC. shall advise CBC Pipeline, LLC. of any unique hazards presented by the CBC Pipeline, LLC. 's work, or of any hazards found by CBC Pipeline, LLC. 's work. CBC Pipeline, LLC. 's workers shall not perform hot work until a hot work permit is obtained from employer. The permit shall document that provisions of CFR 1910.252(a) have been met. CBC Pipeline, LLC. employees must immediately report all accidents, injuries and near misses. An incident investigation must be initiated within 48 hours. Resolutions and corrective actions must be documented and maintained 5 years. All CBC Pipeline, LLC. 's employees and subcontractors must respect the confidentiality of trade secret information when the process safety information is released to them.

Definitions

"Atmospheric tank" means a storage tank which has been designed to operate at pressures from atmospheric through 0.5 p.s.i.g. (pounds per square inch gauge, 3.45 Kpa).

"Boiling point" means the boiling point of a liquid at a pressure of 14.7 pounds per square inch absolute (p.s.i.a.) (760 mm.). For the purposes of this section, where an accurate boiling point is unavailable for the material in question, or for mixtures which do not have a constant boiling point, the 10 percent point of a distillation performed in accordance with the Standard Method of Test for Distillation of Petroleum Product. ASTM D-86-62, which is incorporated by reference as specified in Sec. 1910.6, may be used as the boiling point of the liquid.

"Catastrophic release" means a major uncontrolled emission, fire, or explosion, involving one or more highly hazardous chemicals, that presents serious danger to employees in the workplace.

"Facility" means the buildings, containers or equipment which contain a process.

"Highly hazardous chemical" means a substance possessing toxic, reactive, flammable, or explosive properties and specified by paragraph (a)(1) of this section.

"Hot work" means work involving electric or gas welding, cutting, brazing, or similar flame or spark-producing operations.

"Normally unoccupied remote facility" means a facility which is operated, maintained or serviced by employees who visit the facility only periodically to check its operation and to perform necessary operating or maintenance tasks. No employees are permanently stationed at the facility. Facilities meeting this definition are not contiguous with, and must be geographically remote from all other buildings, processes or persons.

"Process" means any activity involving a highly hazardous chemical including any use, storage, manufacturing, handling, or the on-site movement of such chemicals, or combination of these activities. For purposes of this definition, any group of vessels which are interconnected and separate vessels which are located such that a highly hazardous chemical could be involved in a potential release shall be considered a single process.

"Replacement in kind" means a replacement which satisfies the design specification.

"Trade secret" means any confidential formula, pattern, process, device, information or compilation of information that is used in an employer's business, and that gives CBC Pipeline, LLC. an opportunity to obtain an advantage over competitors who do not know or use it.

Employee Participation

Facility employers shall develop a written plan of action regarding the implementation of the employee participation required by this paragraph. Facility employers shall consult with employees and their representatives on the conduct and development of process hazards analyses and on the development of the other elements of process safety management in this standard. Facility employers shall provide to employees and their representatives access to process hazard analyses and to all other information required to be developed under this standard.

Process Safety Information

In accordance with the schedule set forth, the facility employer shall complete a compilation of written process safety information before conducting any process hazard analysis required by the standard. The compilation of written process safety information is to enable CBC Pipeline, LLC. and the employees involved in operating the process to identify and understand the hazards posed by those processes involving highly hazardous chemicals. This process safety information shall include information pertaining to the hazards of the highly hazardous chemicals used or produced by the process, information pertaining to the technology of the process, and information pertaining to the equipment in the process.

Information Pertaining to the Hazards of the Highly Hazardous Chemicals in the

Process

This information shall consist of at least the following:

- (i) Toxicity information;
- (ii) Permissible exposure limits;
- (iii) Physical data;
- (iv) Reactivity data;
- (v) Corrosivity data;
- (vi) Thermal and chemical stability data;
- (vii) Hazardous effects of inadvertent mixing of different materials that could foreseeably occur.

Note: Material Safety Data Sheets meeting the requirements of 29 CFR 1910.1200(g) may be used to comply with this requirement to the extent they contain the information required by this subparagraph.

Information Pertaining to the Technology of the Process

Information concerning the technology of the process shall include at least the following: (A) A block flow diagram or simplified process flow diagram; (B) Process chemistry; (C) Maximum intended inventory; (D) Safe upper and lower limits for such items as temperatures, pressures, flows or compositions; and, (E) An evaluation of the consequences of deviations, including those affecting the safety and health of employees. Where the original technical information no longer exists, such information may be developed in conjunction with the process hazard analysis in sufficient detail to support the analysis.

Information Pertaining to the Equipment in the Process

Information pertaining to the equipment in the process shall include: (A) Materials of construction; (B) Piping and instrument diagrams (P&ID's); (C) Electrical classification; (D) Relief system design and design basis; (E) Ventilation system design; (F) Design codes and standards employed; (G) Material and energy balances for processes built after May 26, 1992; and, (H) Safety systems (e.g. interlocks, detection or suppression systems). Facility employers shall document that equipment complies with recognized and generally accepted good engineering practices. For existing equipment designed and constructed in accordance with codes, standards, or practices that are no longer in general use, the facility employers shall determine and document that the equipment is designed, maintained, inspected, tested, and operating in a safe manner.

Process Hazard Analysis

Facility employers shall perform an initial process hazard analysis (hazard evaluation) on processes covered by this standard. The process hazard analysis shall be appropriate to the complexity of the process and shall identify, evaluate, and control the hazards involved in the process. Facility employers shall determine and document

the priority order for conducting process hazard analyses based on a rationale which includes such considerations as extent of the process hazards, number of potentially affected employees, age of the process, and operating history of the process. The process hazard analysis shall be conducted as soon as possible, but not later than the following schedule:

- (i) No less than 25 percent of the initial process hazards analyses shall be completed by May 26, 1994;
- (ii) No less than 50 percent of the initial process hazards analyses shall be completed by May 26, 1995;
- (iii) No less than 75 percent of the initial process hazards analyses shall be completed by May 26, 1996;
- (iv) All initial process hazards analyses shall be completed by May 26, 1997.
- (v) Process hazards analyses completed after May 26, 1987 which meet the requirements of this paragraph are acceptable as initial process hazards analyses. These process hazard analyses shall be updated and revalidated, based on their completion date.

Facility employers shall use one or more of the following methodologies that are appropriate to determine and evaluate the hazards of the process being analyzed.

What-If; Checklist; What-If/Checklist; Hazard and Operability Study (HAZOP); Failure Mode and Effects Analysis (FMEA); Fault Tree Analysis; or An appropriate equivalent methodology. The process hazard analysis shall address: The hazards of the process; The identification of any previous incident which had a likely potential for catastrophic consequences in the workplace; Engineering and administrative controls applicable to the hazards and their interrelationships such as appropriate application of detection methodologies to provide early warning of releases. (Acceptable detection methods might include process monitoring and control instrumentation with alarms, and detection hardware such as hydrocarbon sensors.); Consequences of failure of engineering and administrative controls; Facility siting; Human factors; and A qualitative evaluation of a range of the possible safety and health effects of failure of controls on employees in the workplace.

The process hazard analysis shall be performed by a team with expertise in engineering and process operations, and the team shall include at least one employee who has experience and knowledge specific to the process being evaluated. Also, one member of the team must be knowledgeable in the specific process hazard analysis methodology being used. Facility employers shall establish a system to promptly address the team's findings and recommendations; assure that the recommendations are resolved in a timely manner and that the resolution is documented; document what actions are to be taken; complete actions as soon as possible; develop a written schedule of when these actions are to be completed; communicate the actions to operating, maintenance and other employees whose work assignments are in the

process and who may be affected by the recommendations or actions.

At least every five (5) years after the completion of the initial process hazard analysis, the process hazard analysis shall be updated and revalidated by a team meeting the requirements, to assure that the process hazard analysis is consistent with the current process. Facility employers shall retain process hazards analyses and updates or revalidations for each process covered by this section, as well as the documented resolution of recommendations described in paragraph of this section for the life of the process. Operating procedures. Facility employers shall develop and implement written operating procedures that provide clear instructions for safely conducting activities involved in each covered process consistent with the process safety information and shall address at least the following elements. Steps for each operating phase: Initial startup; (B) Normal operations; (C) Temporary operations; Emergency shutdown including the conditions under which emergency shutdown is required, and the assignment of shutdown responsibility to qualified operators to ensure that emergency shutdown is executed in a safe and timely manner. (E) Emergency Operations; (F) Normal shutdown; and, (G) Startup following a turnaround, or after an emergency shutdown.

Operating limits: (A) Consequences of deviation; and (B) Steps required to correct or avoid deviation.

Safety and Health Considerations

(A) Properties of, and hazards presented by, the chemicals used in the process; (B) Precautions necessary to prevent exposure, including engineering controls, administrative controls, and personal protective equipment; (C) Control measures to be taken if physical contact or airborne exposure occurs; Quality control for raw materials and control of hazardous chemical inventory levels; and, (E) Any special or unique hazards.

Safety Systems and Their Functions

Operating procedures shall be readily accessible to employees who work in or maintain a process. The operating procedures shall be reviewed as often as necessary to assure that they reflect current operating practice, including changes that result from changes in process chemicals, technology, and equipment, and changes to facilities. CBC Pipeline, LLC. shall certify annually that these operating procedures are current and accurate. CBC Pipeline, LLC. shall develop and implement safe work practices to provide for the control of hazards during operations such as lockout/tagout; confined space entry; opening process equipment or piping; and control over entrance into a facility by maintenance, contractor, laboratory, or other support personnel. These safe work practices shall apply to employees and contractor employees.

Training

CBC Pipeline, LLC. shall assure that each contract employee is trained in the work practices necessary to perform his/her job. CBC Pipeline, LLC. shall assure that each contract employee is instructed in the known potential fire, explosion or toxic release hazards related to his/her job and the process and the applicable provisions of the emergency action plan.

CBC Pipeline, LLC. through the RSO shall document that each employee has received & understood the required training. CBC Pipeline, LLC. through the RSO shall prepare a record which contains the identity of the contract employee, the date of training & the means used to verify that the employee understood the training.

Initial Training

Each employee presently involved in operating a process, and each employee before being involved in operating a newly assigned process, shall be trained in an overview of the process and in the operating procedures. The training shall include emphasis on the specific safety and health hazards, emergency operations including shutdown, and safe work practices applicable to the employee's job tasks. In lieu of initial training for those employees already involved in operating a process on May 26, 1992, an employer may certify in writing that the employee has the required knowledge, skills, and abilities to safely carry out the duties and responsibilities as specified in the operating procedures.

Refresher Training

Refresher training shall be provided at least every three years, and more often if necessary, to each employee involved in operating a process to assure that the employee understands and adheres to the current operating procedures of the process. CBC Pipeline, LLC. , in consultation with the employees involved in operating the process, shall determine the appropriate frequency of refresher training.

Training Documentation

CBC Pipeline, LLC. shall ascertain that each employee involved in operating a process has received and understood the training required by this paragraph. CBC Pipeline, LLC. shall prepare a record which contains the identity of the employee, the date of training, and the means used to verify that the employee understood the training.

Contractors

Application

This paragraph applies to CBC Pipeline, LLC. workers performing maintenance or repair, turnaround, major renovation, or specialty work on or adjacent to a covered process. It does not apply to contractors providing incidental services which do not

influence process safety, such as janitorial work, food and drink services, laundry, delivery or other supply services.

Employer Responsibilities

The facilities employer, may when using CBC Pipeline, LLC. , obtain and evaluate information regarding the contractor's safety performance and programs. The facilities employer shall inform contractors of the known potential fire, explosion, or toxic release hazards related to the contractors' work and the process.

The facilities employer shall explain to contract employers the applicable provisions of the emergency action plan. The facilities employer may develop and implement safe work practices, to control the entrance, presence and exit of CBC Pipeline, LLC. and their employees in covered process areas. The facilities employer may periodically evaluate the performance of CBC Pipeline, LLC. in fulfilling their obligations. The facilities employer shall maintain a contract employee injury and illness log related to any contractor's work in process areas.

CBC Pipeline, LLC. Responsibilities

CBC Pipeline, LLC. shall assure that each employee is trained in the work practices necessary to safely perform his/her job. CBC Pipeline, LLC. shall assure that each contract employee is instructed in the known potential fire, explosion, or toxic release hazards related to his/her job and the process, and the applicable provisions of the emergency action plan. CBC Pipeline, LLC. shall document that each employee has received and understood the training required. CBC Pipeline, LLC. shall prepare a record which contains the identity of the employee, the date of training, and the means used to verify that the employee understood the training. CBC Pipeline, LLC. shall assure that each employee follows the safety rules of the facility including the safe work practices.

CBC Pipeline, LLC. shall advise CBC Pipeline, LLC. of any unique hazards presented by our work, or of any hazards found by our work. Pre-startup safety review. The facilities employer shall perform a pre-startup safety review for new facilities and for modified facilities when the modification is significant enough to require a change in the process safety information. The pre-startup safety review shall confirm that prior to the introduction of highly hazardous chemicals to a process:

- Construction and equipment is in accordance with design specifications;
- Safety, operating, maintenance, & emerg. procedures are adequate & in place
- For new facilities, a process hazard analysis has been performed and
- Recommendations have been resolved or implemented before startup;
- Modified facilities meet the requirements contained in management of change
- Training of each employee involved in operating a process has been completed

Mechanical Integrity

Application. Pressure vessels and storage tanks; Piping systems (including piping

components such as valves); Relief and vent systems and devices; Emergency shutdown systems; Controls (including monitoring devices and sensors, alarms, and interlocks) and, Pumps.

Written Procedures

The facilities employer shall establish and implement written procedures to maintain the on-going integrity of process equipment. Training for process maintenance activities. CBC Pipeline, LLC. shall train each employee involved in maintaining the on-going integrity of process equipment in an overview of that process and its hazards and in the procedures applicable to the employee's job tasks to assure that the employee can perform the job tasks in a safe manner. Inspection and testing. Inspections and tests shall be performed on process equipment. Inspection and testing procedures shall follow recognized and generally accepted good engineering practices.

The frequency of inspections and tests of process equipment shall be consistent with applicable manufacturers' recommendations and good engineering practices, and more frequently if determined to be necessary by prior operating experience. CBC Pipeline, LLC. shall document each inspection and test that has been performed on process equipment. The documentation shall identify the date of the inspection or test, the name of the person who performed the inspection or test, the serial number or other identifier of the equipment on which the inspection or test was performed, a description of the inspection or test performed, and the results of the inspection or test.

Equipment Deficiencies

The facilities employer shall correct deficiencies in equipment that are outside acceptable limits (defined by the process safety information in paragraph (d) of this section) before further use or in a safe and timely manner when necessary means are taken to assure safe operation.

Quality Assurance

In the construction of new plants and equipment, the facilities employer shall assure that equipment as it is fabricated is suitable for the process application for which they will be used. Appropriate checks and inspections shall be performed to assure that equipment is installed properly and consistent with design specifications and the manufacturer's instructions. The facilities employer shall assure that maintenance materials, spare parts and equipment are suitable for the process application for which they will be used.

Hot Work Permit

The facilities employer may issue a hot work permit for hot work operations conducted on or near a covered process. The permit shall document that the fire prevention and protection requirements in 29 CFR1910.252(a) have been implemented prior to beginning the hot work operations; it shall indicate the date(s) authorized for hot

work; and identify the object on which hot work is to be performed. The permit shall be kept on file until completion of the hot work operations.

Management of Change

The facilities employer shall establish and implement written procedures to manage changes (except for "replacements in kind") to process chemicals, technology, equipment, and procedures; and, changes to facilities that affect a covered process. The procedures shall assure that the following considerations are addressed prior to any change: The technical basis for the proposed change; Impact of change on safety and health; Modifications to operating procedures; Necessary time period for the change; and, Authorization requirements for the proposed change. Employees involved in operating a process and maintenance and CBC Pipeline, LLC. employees whose job tasks will be affected by a change in the process shall be informed of, and trained in, the change prior to start-up of the process or affected part of the process. If a change covered by this paragraph results in a change in the process safety information, such information shall be updated accordingly. If a change covered by this paragraph results in a change in the operating procedures or practices required, such procedures or practices shall be updated accordingly.

Incident Investigation

The facilities employer may investigate incidents which resulted in, or could reasonably have resulted in a catastrophic release of highly hazardous chemical in the workplace. An incident investigation shall be initiated as promptly as possible, but not later than 48 hours following the incident. An incident investigation team shall be established and consist of at least one person knowledgeable in the process involved, including a CBC Pipeline, LLC. employee if the incident involved our work, and other persons with appropriate knowledge and experience to thoroughly investigate and analyze the incident.

A report shall be prepared at the conclusion of the investigation which includes at a minimum:

- Date of incident;
- Date investigation began;
- A description of the incident;
- The factors that contributed to the incident;
- Any recommendations resulting from the investigation.

The facilities employer shall establish a system to promptly address and resolve the incident report findings and recommendations. Resolutions and corrective actions shall be documented. The report shall be reviewed with all affected personnel whose job tasks are relevant to the incident findings including CBC Pipeline, LLC. employees where applicable. Incident investigation reports shall be retained for five years.

Emergency Planning and Response

The facilities employer shall establish and implement an emergency action plan for the entire plant in accordance with the provisions of 29 CFR 1910.38(a). In addition, the emergency action plan shall include procedures for handling small releases. Facilities employers covered under this standard may also be subject to the hazardous waste and emergency response provisions contained in 29 CFR 1910.120(a), (p) and (q). (o)

Compliance Audits

Facilities employers shall certify that they have evaluated compliance with the provisions of this section at least every three years to verify that the procedures and practices developed under the standard are adequate and are being followed. The compliance audit shall be conducted by at least one person knowledgeable in the process. A report of the findings of the audit shall be developed. The facilities employer shall promptly determine and document an appropriate response to each of the findings of the compliance audit, and document that deficiencies have been corrected. Facilities employers shall retain the two (2) most recent compliance audit reports.

Trade Secrets

Facilities employers shall make all information necessary to comply with the section available to those persons responsible for compiling the process safety information, those assisting in the development of the process hazard analysis, those responsible for developing the operating procedures, and those involved in incident investigations, emergency planning and response and compliance audits without regard to possible trade secret status of such information. Nothing in this paragraph shall preclude CBC Pipeline, LLC. from requiring the persons to whom the information is made available to enter into confidentiality agreements not to disclose the information as set forth in 29 CFR 1910.1200. Subject to the rules and procedures set forth in 29 CFR 1910.1200(i)(1) through 1910.1200(i)(12), employees and their designated representatives shall have access to trade secret information contained within the process hazard analysis and other documents required to be developed by this standard.

Chapter 28

Hazardous Waste Operations and Emergency Response

The type and character of our construction activities are such that our employees may be exposed to leaks or spills of hazardous materials, typically petroleum-based liquids. Any applicable cleanup activities shall be in accordance with the following section. Any questions regarding cleanup procedures shall be directed to the Responsible Safety Officer, Replace with safety Person's Name.

Definitions

"Buddy system" means a system of organizing employees into work groups in such a manner that each employee of the work group is designated to be observed by at least one other employee in the work group. The purpose of the buddy system is to provide rapid assistance to employees in the event of an emergency.

"Clean-up operation" means an operation where hazardous substances are removed, contained, incinerated, neutralized stabilized, cleared-up, or in any other manner processed or handled with the ultimate goal of making the site safer for people or the environment.

"Decontamination" means the removal of hazardous substances from employees and their equipment to the extent necessary to preclude the occurrence of foreseeable adverse health effects.

"Emergency response" or "responding to emergencies" means a response effort by employees from outside the immediate release area or by other designated responders (i.e., mutual aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result, in an uncontrolled release of a hazardous substance. Responses to incidental releases of hazardous substances where the substance can be absorbed, neutralized, or otherwise controlled at the time of release by employees in the immediate release area, or by maintenance personnel are not considered to be emergency responses. Responses to releases of hazardous substances where there is no potential safety or health hazard (i.e., fire, explosion, or chemical exposure) are not considered to be emergency responses.

"Facility" means (A) any building, structure, installation, equipment, pipe or pipeline (including any pipe into a sewer or publicly owned treatment works), well, pit, pond, lagoon, impoundment, ditch, storage container, motor vehicle, rolling stock, or aircraft, or (B) any site or area where a hazardous substance has been deposited, stored, disposed of, or placed, or otherwise come to be located; but does not include any consumer product in consumer use or any water-borne vessel.

"Hazardous materials response (HAZMAT) team" means an organized group of

employees, designated by CBC Pipeline, LLC. , who are expected to perform work to handle and control actual or potential leaks or spills of hazardous substances requiring possible close approach to the substance. The team members perform responses to releases or potential releases of hazardous substances for the purpose of control or stabilization of the incident. A HAZMAT team is not a fire brigade nor is a typical fire brigade a HAZMAT team. A HAZMAT team, however, may be a separate component of a fire brigade or fire department.

"Hazardous substance" means any substance designated or listed under (A) through (D) of this definition, exposure to which results or may result in adverse effects on the health or safety of employees:

[A] Any substance defined under section 101(14) of CERCLA;

[B] Any biologic agent and other disease causing agent which after release into the environment and upon exposure, ingestion, inhalation, or assimilation into any person, either directly from the environment or indirectly by ingestion through food chains, will or may reasonably be anticipated to cause death, disease, behavioral abnormalities, cancer, genetic mutation, physiological malfunctions (including malfunctions in reproduction) or physical deformations in such persons or their offspring.

[C] Any substance listed by the U.S. Department of Transportation as hazardous materials under 49 CFR 172.101 ; and

[D] Hazardous waste as herein defined.

"Hazardous waste" means -

[A] A waste or combination of wastes as defined in 40 CFR 261.3, or

[B] Those substances defined as hazardous wastes in 49 CFR 171.8.

"Hazardous waste operation" means any operation conducted within the scope of this standard.

"Hazardous waste site" or "Site" means any facility or location within the scope of this standard at which hazardous waste operations take place.

"Health hazard" means a chemical, mixture of chemicals or a pathogen for which there is statistically significant evidence based on at least one study conducted in accordance with established scientific principles that acute or chronic health effects may occur in exposed employees. The term "health hazard" includes chemicals which are carcinogens, toxic or highly toxic agents, reproductive toxins, irritants, corrosives, sensitizers, hepatotoxins, nephrotoxins, neurotoxins, agents which act on the hematopoietic system, and agents which damage the lungs, skin, eyes, or mucous membranes. It also includes stress due to temperature extremes. Further definition of the terms used above can be found in Appendix A to 29 CFR 1910.1200.

"IDLH" or "Immediately dangerous to life or health" means an atmospheric concentration of any toxic, corrosive or asphyxiant substance that poses an immediate threat to life or would interfere with an individual's ability to escape from a dangerous atmosphere.

"Oxygen deficiency" means that concentration of oxygen by volume below which atmosphere supplying respiratory protection must be provided. It exists in atmospheres where the percentage of oxygen by volume is less than 19.5 percent oxygen.

"Permissible exposure limit" means the exposure, inhalation or dermal permissible exposure limit specified in 29 CFR Part 1910, Subparts G and Z.

"Published exposure level" means the exposure limits published in "NIOSH Recommendations for Occupational Health Standards" dated 1986, which is incorporated by reference as specified in Sec. 1910.6, or if none is specified, the exposure limits published in the standards specified by the American Conference of Governmental Industrial Hygienists in their publication "Threshold Limit Values and Biological Exposure Indices for 1987 - 88" dated 1987, which is incorporated by reference as specified in Sec. 1910.6.

"Post emergency response" means that portion of an emergency response performed after the immediate threat of a release has been stabilized or eliminated and clean-up of the site has begun. If post emergency response is performed by an employer's own employees who were part of the initial emergency response, it is considered to be part of the initial response and not post emergency response. However, if a group of an employer's own employees, separate from the group providing initial response, performs the clean-up operation, then the separate group of employees would be considered to be performing post-emergency response and subject to paragraph (q)(11) of this section.

"Qualified person" means a person with specific training, knowledge and experience in the area for which the person has the responsibility and the authority to control. "Site safety and health supervisor (or official)" means the individual located on a hazardous waste site who is responsible to CBC Pipeline, LLC. and has the authority and knowledge necessary to implement the site safety and health plan and verify compliance with applicable safety and health requirements.

"Small quantity generator" means a generator of hazardous wastes who in any calendar month generates no more than 1,000 kilograms (2,205) pounds of hazardous waste in that month.

"Uncontrolled hazardous waste site" means an area identified as an uncontrolled hazardous waste site by a governmental body, whether Federal, state, local or other where an accumulation of hazardous substances creates a threat to the health and safety of individuals or the environment or both. Some sites are found on public lands such as those created by former municipal, county or state landfills where illegal or poorly managed waste disposal has taken place. Other sites are found on private property, often belonging to generators or former generators of hazardous substance wastes. Examples of such sites include, but are not limited to, surface impoundments, landfills, dumps, and tank or drum farms. Normal operations at TSD sites are not covered by this definition.

Employers shall develop and implement a written safety and health program for their employees involved in hazardous waste operations. The program shall be designed to identify, evaluate, and control safety and health hazards, and provide for emergency response for hazardous waste operations. The written safety and health program shall incorporate the following: An organizational structure; A comprehensive workplan; A site-specific safety and health plan which need not repeat the employer's standard operating procedures required. The safety and health training program; The medical surveillance program; CBC Pipeline, LLC. 's standard operating procedures for safety and health; and Any necessary interface between general program and site specific activities.

Site Excavation

Site excavations created during initial site preparation or during hazardous waste operations shall be shored or sloped as appropriate to prevent accidental collapse in accordance with Subpart P of 29 CFR Part 1926.

Contractors and Subcontractors.

An employer who retains contractor or sub-contractor services for work in hazardous waste operations shall inform those contractors, sub-contractors, or their representatives of the site emergency response procedures and any potential fire, explosion, health, safety or other hazards of the hazardous waste operation that have been identified by CBC Pipeline, LLC. 's information program.

Program Availability

The written safety and health program shall be made available to any contractor or subcontractor or their representative who will be involved with the hazardous waste operation; to employees; to employee designated representatives; to OSHA personnel, and to personnel of other Federal, state, or local agencies with regulatory authority over the site.

Organizational Structure Part of the Site Program.

An emergency response plan shall be developed & implemented to handle anticipated emergencies prior to the commencement of emergency response operations. The plan shall be in writing & available for inspection by employees, their representatives & OSHA.

The organizational structure part of the program shall establish the specific chain of command and specify the overall responsibilities of supervisors and employees. It shall include, at a minimum, the following elements: (A) A general supervisor who has the responsibility and authority to direct all hazardous waste operations. (B) A site safety and health supervisor who has the responsibility and authority to develop and implement the site safety and health plan and verify compliance. (C) All other personnel

needed for hazardous waste site operations and emergency response and their general functions and responsibilities.

The lines of Authority, Responsibility, and Communication

The organizational structure shall be reviewed and updated as necessary to reflect the current status of waste site operations. The comprehensive workplan part of the program shall address the tasks and objectives of the site operations and the logistics and resources required to reach those tasks and objectives. The comprehensive workplan shall define anticipated clean-up activities as well as normal operating procedures which need not repeat CBC Pipeline, LLC. 's procedures available elsewhere. The comprehensive workplan shall define work tasks and objectives and identify the methods for accomplishing those tasks and objectives. The comprehensive workplan shall establish personnel requirements for implementing the plan. The comprehensive workplan for management of the response effort including the senior official at an emergency response is the most senior official on the site who has the responsibility for controlling operations at the site. The comprehensive workplan shall provide for the implementation of the training required. The comprehensive workplan shall provide for the implementation of the required informational programs required. The comprehensive workplan shall provide for the implementation of the medical surveillance program.

Site-specific Safety and Health Plan Part of the Program

General. The site safety and health plan, which must be kept on site, shall address the safety and health hazards of each phase of site operation and include the requirements and procedures for employee protection. Elements of the emergency response plan within program to include: 1) Pre-emergency planning & coordination with outside parties. 2) Personnel roles, lines of authority, training & communications. 3) Emergency recognition & prevention. 4) Safe distances & places of refuge.

Elements

The site safety and health plan, as a minimum, shall address the following: (A) A safety and health risk or hazard analysis for each site task and operation found in the workplan. (B) Employee training assignments to assure compliance with this section. (C) Personal protective equipment to be used by employees for each of the site tasks and operations being conducted as required by the personal protective equipment program of this section. (D) Medical surveillance requirements in accordance with the program. (E) Frequency and types of air monitoring, personnel monitoring, and environmental sampling techniques and instrumentation to be used, including methods of maintenance and calibration of monitoring and sampling equipment to be used. (F) Site control measures in accordance with the site control program required.

Decontamination Procedures

An emergency response plan meeting the requirements for safe and effective responses to emergencies, including the necessary PPE and other equipment.

Confined Space Entry Procedures

A spill containment program meeting the requirements.

Pre-entry Briefing.

The site specific safety and health plan shall provide for pre-entry briefings to be held prior to initiating any site activity, and at such other times as necessary to ensure that employees are apprised of the site safety and health plan and that this plan is being followed. The information and data obtained from site characterization and analysis work required in paragraph (c) of this section shall be used to prepare and update the site safety and health plan. (iv) Effectiveness of site safety and health plan. Inspections shall be conducted by the site safety and health supervisor or, in the absence of that individual, another individual who is knowledgeable in occupational safety and health, acting on behalf of CBC Pipeline, LLC. as necessary to determine the effectiveness of the site safety and health plan. Any deficiencies in the effectiveness of the site safety and health plan shall be corrected by CBC Pipeline, LLC. .

Site Characterization and Analysis

General. Hazardous waste sites shall be evaluated in accordance with this paragraph to identify specific site hazards and to determine the appropriate safety and health control procedures needed to protect employees from the identified hazards.

Preliminary Evaluation

A preliminary evaluation of a site's characteristics shall be performed prior to site entry by a qualified person in order to aid in the selection of appropriate employee protection methods prior to site entry. Immediately after initial site entry, a more detailed evaluation of the site's specific characteristics shall be performed by a qualified person in order to further identify existing site hazards and to further aid in the selection of the appropriate engineering controls and personal protective equipment for the tasks to be performed.

Hazard Identification

All suspected conditions that may pose inhalation or skin absorption hazards that are immediately dangerous to life or health (IDLH) or other conditions that may cause death or serious harm shall be identified during the preliminary survey and evaluated during the detailed survey. Examples of such hazards include, but are not limited to, confined space entry, potentially explosive or flammable situations, visible vapor clouds, or areas where biological indicators such as dead animals or vegetation are located.

Required Information

The following information to the extent available shall be obtained by CBC Pipeline, LLC. prior to allowing employees to enter a site:

- (i) Location and approximate size of the site.
- (ii) Description of the response activity and/or the job task to be performed.
- (iii) Duration of the planned employee activity.
- (iv) Site topography and accessibility by air and roads.
- (v) Safety and health hazards expected at the site.
- (vi) Pathways for hazardous substance dispersion.
- (vii) Present status and capabilities of emergency response teams that would provide assistance to on-site employees at the time of an emergency.
- (viii) Hazardous substances and health hazards involved or expected at the site and their chemical and physical properties.

Engineering Controls

The first step in minimizing work hazards is to determine if engineering controls can eliminate or lessen the hazard of the job. Feasible engineering controls include the use of pressurized cabs or control booths on equipment, and/or the use of remotely operated material handling equipment.

Personal Protective Equipment (PPE)

PPE shall be provided and used during initial site entry in accordance with the following requirements: Based upon the results of the preliminary site evaluation, an ensemble of PPE shall be selected including appropriate chemical protective clothing and used during initial site entry which will provide protection to a level of exposure below permissible exposure limits and published exposure levels for known or suspected hazardous substances and health hazards and which will provide protection against the known and suspected hazards identified during the preliminary site evaluation. If there is no permissible exposure limit or published exposure level, CBC Pipeline, LLC. may use other published studies and information as a guide to appropriate personal protective equipment. If positive-pressure self-contained breathing apparatus is not used as part of the entry ensemble, and if respiratory protection is warranted by the potential hazards identified during the preliminary site evaluation, an escape self-contained breathing apparatus of at least five minute's duration shall be carried by employees during initial site entry. If the preliminary site evaluation does not produce sufficient information to identify the hazards or suspected hazards of the site an ensemble providing equivalent to Level B PPE shall be provided as minimum protection, and direct reading instruments shall be used as appropriate for identifying IDLH conditions. Once the hazards of the site have been identified, the appropriate PPE shall be selected and used.

Medical surveillance

The program must be provided at no cost to the employees. All employees who are or may be exposed to hazardous substances or health hazards at or above the established permissible exposure limit, above the published exposure levels for these substances, without regard to the use of respirators, for 30 days or more a year.

Medical surveillance is available for emergency response employees who exhibit signs or symptoms which may have resulted from exposure to hazardous substances during the course of an emergency. Emergency response employees who exhibit signs or symptoms which may have resulted from exposure to hazardous substances during the course of an emergency shall be provided with medical consultation.

Monitoring

The following monitoring shall be conducted during initial site entry when the site evaluation produces information which shows the potential for ionizing radiation or IDLH conditions, or when the site information is not sufficient reasonably to eliminate these possible conditions:

- (i) Monitoring with direct reading instruments for hazardous levels of ionizing radiation.
- (ii) Monitoring the air with appropriate direct reading test equipment for (i.e., combustible gas meters, detector tubes) for IDLH and other conditions that may cause death or serious harm (combustible or explosive atmospheres, oxygen deficiency, toxic substances.) Air monitoring should be used to identify & qualify airborne levels of hazardous substances. The monitoring should address initial entry, periodic monitoring, possible IDLH & wherever exposure may be a possibility.
- (iii) Visually observing for signs of actual or potential IDLH or other dangerous conditions.
- (iv) An ongoing air monitoring program in accordance with paragraph (h) of this section shall be implemented after site characterization has determined the site is safe for the start-up of operations.

Risk Identification

Once the presence and concentrations of specific hazardous substances and health hazards have been established, the risks associated with these substances shall be identified. Employees who will be working on the site shall be informed of any risks that have been identified. In situations covered by the Hazard Communication Standard, 29 CFR 1910.1200, training required by that standard need not be duplicated. Risks to consider include, but are not limited to:

- [a] Exposures exceeding the permissible exposure limits and published exposure levels.

- [b] IDLH Concentrations.
- [c] Potential Skin Absorption and Irritation Sources.
- [d] Potential Eye Irritation Sources.
- [e] Explosion Sensitivity and Flammability Ranges.
- [f] Oxygen deficiency

Employee Notification

Any information concerning the chemical, physical, and toxicologic properties of each substance known or expected to be present on site that is available to CBC Pipeline, LLC. and relevant to the duties an employee is expected to perform shall be made available to the affected employees prior to the commencement of their work activities. CBC Pipeline, LLC. may utilize information developed for the hazard communication standard for this purpose.

Site Control

General. Appropriate site control procedures shall be implemented to control employee exposure to hazardous substances before clean-up work begins.

Site control program.

A site control program for protecting employees which is part of CBC Pipeline, LLC. 's site safety and health program required shall be developed during the planning stages of a hazardous waste clean-up operation and modified as necessary as new information becomes available. The program shall be designed to identify, evaluate, control safety & health hazards & provide for emergency response. The program shall detail a specific chain of command, address task & objectives of the operations and address site specific procedures. Elements of the site control program. The site control program shall, as a minimum, include: A site map; site work zones; the use of a "buddy system"; site communications including alerting means for emergencies; the standard operating procedures or safe work practices; and, identification of the nearest medical assistance; post-emergency response operations to remove hazardous substances, health hazards and materials contaminated with them (such as contaminated soil or other elements of the natural environment) from the site. Where these requirements are covered elsewhere they need not be repeated.

Decontamination Procedures

A decontamination procedure shall be developed, communicated to employees & implemented before any employees or equipment may enter areas on site where potential for exposure to hazardous substances exists. Employees leaving a contaminated area shall be appropriately decontaminated; all contaminated clothing & equipment leaving a contaminated area shall be appropriately disposed of or decontaminated. The RSO shall designate that a site safety & health supervisor monitor the decontaminated procedures. Decontamination procedures shall be

monitored by the site safety & health supervisor to determine their effectiveness. When such procedures are found to be ineffective, appropriate steps shall be taken to correct any deficiencies.

Decontamination shall be performed in geographical areas that will minimize the exposure of uncontaminated employees or equipment to contaminated employees or equipment. PPE & equipment shall be decontaminated, cleaned, laundered, maintained or replaced as needed to maintain their effectiveness. Employees whose non-impermeable clothing becomes wetted with hazardous substances shall immediately remove the clothing.

Unauthorized employees shall not remove protective clothing or equipment from change rooms. Where the decontamination procedure indicates a need for regular showers & change rooms outside of a contaminated area, they shall be provided & meet the requirements of 29 CFR 1910.141.

Training

General. All employees working on site including equipment operators, general laborers, supervisors and management, etc., must be trained prior to being allowed to participate in or supervise field activities. The training should cover the use of personal protective equipment. The training should also cover work practices which minimize hazardous risks and safe use of engineering controls & equipment. written safety & health program for their employees involved in hazardous waste operations. Employees shall not be permitted to participate in or supervise field activities until they have been trained to a level required by their job function and responsibility.

Elements to be covered. The training shall thoroughly cover the following:

- (i) Names of personnel and alternates responsible for site safety and health;
- (ii) Safety, health and other hazards present on the site;
- (iii) Use of PPE;
- (iv) Work practices by which the employee can minimize risks from hazards;
- (v) Safe use of engineering controls and equipment on the site;
- (vi) Medical surveillance requirements including recognition of symptoms and signs which might indicate over exposure to hazards;

Initial Training

General site workers (such as equipment operators, general laborers and supervisory personnel) engaged in hazardous substance removal or other activities which expose or potentially expose workers to hazardous substances and health hazards shall receive a minimum of 40 hours of instruction off the site, and a minimum of three days actual field experience under the direct supervision of a trained experienced supervisor. (ii) Workers on site only occasionally for a specific limited task

(such as, but not limited to, ground water monitoring, land surveying, or geophysical surveying) and who are unlikely to be exposed over permissible exposure limits and published exposure limits shall receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor. Workers regularly on site who work in areas which have been monitored and fully characterized indicating that exposures are under permissible exposure limits and published exposure limits where respirators are not necessary, and the characterization indicates that there are no health hazards or the possibility of an emergency developing, shall receive a minimum of 24 hours of instruction off the site, and the minimum of one day actual field experience under the direct supervision of a trained, experienced supervisor. Workers with 24 hours of training who are covered, and who become general site workers or who are required to wear respirators, shall have the additional 16 hours and two days of training necessary to total the training specified. Employees who are trained in accordance with the plan shall receive annual refresher training. The RSO shall maintain a record of methods used.

Management and Supervisor Training

On-site management and supervisors directly responsible for or who supervise employees engaged in hazardous waste operations, and on scene incident commanders (This person knows how to implement the program & system, PPE, hazard risks, state & Federal regulations & decontamination. Certification is required) shall receive 40 hours initial and three days of supervised field experience and at least eight additional hours of specialized training at the time of job assignment on such topics as, but no limited to, CBC Pipeline, LLC. 's safety and health program, personal protective equipment program, spill containment program, and health hazard monitoring procedure and techniques.

Qualifications for Trainers

Trainers shall be qualified to instruct employees about the subject matter that is being presented in training. Such trainers shall have satisfactorily completed a training program for teaching the subjects they are expected to teach, or they shall have the academic credentials and instructional experience necessary for teaching the subjects. Instructors shall demonstrate competent instructional skills and knowledge of the applicable subject matter.

Training Certification

Employees and supervisors that have received and successfully completed the training and field experience shall be certified by their instructor or the head instructor and trained supervisor as having completed the necessary training. A written certificate shall be given to each person so certified. Any person who has not been so certified or

who does not meet the requirements shall be prohibited from engaging in hazardous waste operations.

Chapter 29

Resource Conservation and Recovery Act (RCRA)

The Resource Conservation and Recovery Act (RCRA) establishes a ³cradle-to-grave² system for the handling of wastes deemed by the RCRA to be hazardous. Under RCRA, the EPA separately regulates hazardous waste generators, transporters, and owners and operators of hazardous waste treatment, storage, or disposal facilities. If CBC Pipeline, LLC. generates between 100 kg and 1,000 kg per month of non-acute hazardous waste and less than 1 kg per month of acute hazardous waste, it is subject to the RCRA generator rules which are found in the Code of Federal Regulations (CFR) at 40 CFR Part 262 and shall meet the following general requirements:

- It shall review each of its solid wastes to determine whether the waste is hazardous.
- It shall obtain an EPA identification number.
- It shall comply with certain requirements regarding preparation of wastes for off-site shipment, including packaging, labeling, marking, and placarding standards.
- It shall comply a manifest form for wastes shipped off-site, retain a copy for its own records, and provide copies to the waste transporter.
- It shall certify on the manifest that it has made a good faith effort to minimize waste generation and to select the best waste management method that is available and that it can afford.
- If it does not receive a copy of the manifest signed by the facility to which the waste was being sent within 60 days after the waste was taken off-site, it shall file an Exception Report with the EPA, or a delegated state authority, with a copy of the manifest and a note advising that the generator has not received confirmation of delivery.
- It shall retain for at least three (3) years copies of manifests and test results, waste analyses, or other information used in determining whether its wastes are hazardous.
- It shall only accumulate hazardous wastes on-site for up to 180 days, or up to 270 days if the wastes must be transported 200 miles or more for off-site treatment, storage or disposal.
- It shall not accumulate more than 6,000 kg of hazardous waste on site at any one time.
- It shall see that waste containers are clearly marked with the date that accumulation begins and with the words Hazardous Waste.
- It shall follow EPA-specified emergency preparedness and prevention

procedures.

- It shall see that accumulation tanks, containers, and hazardous waste storage areas meet appropriate design and operational criteria.

If CBC Pipeline, LLC. generates more than 1,000 kg of non-acute hazardous waste or more than 1 kg of acute hazardous waste, it shall also meet the following requirements, also set forth in 40 CFR Part 262:

- It shall provide accumulation tanks and containers in accordance with more stringent EPA requirements than the requirements above, including containment and release detection requirements for tanks and standards for closure of accumulation areas.
- It shall implement a formal program to train personnel in proper hazardous waste management procedures.
- It shall develop a formal contingency plan to minimize health or environmental risks from fires, explosions or sudden releases of harmful elements into the environment.
- It shall submit a Biennial Report to EPA, or a delegated state authority, on March 1 of each even-numbered year concerning wastes shipments and waste minimization efforts during the preceding year, and such report shall be retained for at least three (3) years.
- It shall accumulate wastes for no more than 90 days (an emergency extension of up to 30 days may be granted on a case-by-case basis), rather than the 180/260- day time period for smaller generators discussed above.
- The exception to the manifest requirement for wastes that are shipped off-site for reclamation shall not apply.
- It shall certify that it has a waste minimization program in place and that it has selected the available method of storage, treatment or disposal that minimizes environmental risks.
- It shall implement the following, more stringent, Exception Report requirements rather than those discussed above:
- If it has not received a signed copy of the manifest from the storage, treatment, or disposal facility within 35 days after the waste was taken off-site, it shall contact the transporter and/or the waste facility to determine the status of the waste.
- If the signed copy of the manifest is not received within 45 days of date of shipment, it shall file with the state an Exception Report consisting of a copy of the manifest and a cover letter explaining the efforts taken to locate the waste and the results of those efforts.
- Such reports shall be retained for at least three (3) years.

If CBC Pipeline, LLC. exceeds the waste accumulation limits, it then becomes a RCRA

storage facility. In such cases, it shall apply for a storage permit under 40 CFR Part 270, and it shall meet additional related requirements contained in the RCRA.

The RSO shall develop requirements for transport, treatment, and disposal of hazardous wastes. As a generator, CBC Pipeline, LLC. shares responsibility with the vendor for the safe management and ultimate disposal of its hazardous wastes.

The OSHA Bloodborne Pathogens Standard contains procedures established to reduce on-the- job risks for all employees exposed to blood. CBC Pipeline, LLC. shall implement a program to comply with this standard.

The RSO shall develop requirements for the designation, segregation, packaging, storage transport, treatment, and disposal of infectious waste.

Chapter 30

H2S Awareness and Training

Sulfur may be present in crude oil as hydrogen sulfide (H₂S), as compounds (e.g., mercaptans, sulfides, disulfides, thiophenes, etc.), or as elemental sulfur. Each crude oil has different amounts and types of sulfur compounds, but as a rule the proportion, stability, and complexity of the compounds are greater in heavier crude-oil fractions. As part of the work of CBC Pipeline, LLC. , our employees may be exposed to H₂S- especially when working on corroded pipe repairs. Hydrogen sulfide is a primary contributor to corrosion in refinery processing units and piping. Other corrosive substances are elemental sulfur and mercaptans. Possible locations where employees may be exposed to H₂S during their job functions may be, but not limited to: Drilling Operations, Recycled Drilling Mud, Water from sour crude wells, Blowouts, Tank Gauging (tanks at producing, pipeline & refining operations), Field Maintenance, Tank batteries and wells.

Hydrogen Sulfide is a colorless gas at normal temperature and pressure with an odor similar to that of rotten eggs, moreover, the corrosive sulfur compounds have an obnoxious odor. However, presence of this gas may deaden the sense of smell so odor alone cannot be used for detection. In cases of extreme low temperature and/ or high pressure H₂S may be a liquid.

SOUR GAS

Natural gas that contains corrosive, sulfur-bearing compounds such as hydrogen sulfide and mercaptans.

SWEETENING

Processes that either remove obnoxious sulfur compounds (primarily hydrogen sulfide, mercaptans, and thiophens) from petroleum fractions or streams, or convert them, as in the case of mercaptans, to odorless disulfides to improve odor, color, and oxidation stability.

Health

Atmospheric and vacuum distillation are closed processes and exposures are expected to be minimal. When sour (high-sulfur) crudes are processed, there is potential for exposure to hydrogen sulfide in the preheat exchanger and furnace, tower flash zone and overhead system, vacuum furnace and tower, and bottoms exchanger.

There is little potential for exposure to crude oil unless a leak or release occurs. Where elevated operating temperatures are used when desalting sour crudes, hydrogen sulfide will be present. There is the possibility of exposure to ammonia, dry chemical demulsifiers, caustics, and/or acids during this operation. Hydrogen chloride may be present in the preheat exchanger, tower top zones, and overheads. Wastewater may contain water-soluble sulfides in high concentrations and other water-soluble compounds such as ammonia, chlorides, phenol, mercaptans, etc., depending upon the crude feedstock and the treatment chemicals. Safe work practices and/or the use of appropriate personal protective equipment may be needed for exposures to chemicals and other hazards such as heat and noise, and during sampling, inspection, maintenance, and turnaround activities.

Crude oils that contain appreciable quantities of hydrogen sulfide or other reactive sulfur compounds are called "sour." Those with less sulfur are called "sweet." Some exceptions to this rule are West Texas crudes, which are always considered "sour" regardless of their H₂S content, and Arabian high-sulfur crudes, which are not considered "sour" because their sulfur compounds are not highly reactive.

Inhalation, ingestion, and contact with are all methods by which H₂S can affect the body. The effects may range from irritation of the eyes, nose, and throat; to temporary loss of smell. Headaches, dizziness, and upset stomach are more intense symptoms caused by higher concentrations. However, inhalation of high concentrations of H₂S may cause instant paralysis of the respiratory system causing loss of consciousness and death. In concentrations of H₂S at 1000 to 2000 ppm even a single breath may cause coma and may be fatal. Because of its extremely serious and/or fatal potential, any employee believed to have been exposed to H₂S shall contact a physician.

CBC Pipeline, LLC. , through the RSO, will prepare a site-specific emergency plan for dealing with an H₂S release where there is a possibility of exposure, and be aware of any site owner's contingency plan provisions. Where working around areas known to have H₂S CBC Pipeline, LLC. shall employ gas detection by the use of fixed or portable monitors and will alarm when PEL exceeds the preset level of 20 PPM. The emergency plan will include state approved self-contained breathing apparatus or airline respirator with escape SCBA to allow vacating the area when monitor alarm sounds

Medical Surveillance

Any employee who are exposed to hazardous concentrations of H₂S shall have the following medical surveillance performed annually.

- (i) Complete Physical: Initially to detect any pre-existing conditions which could place the employee at a greater risk.
- (ii) Eye Disease: H₂S is a severe eye irritant and may cause tissue damage. Some pre-existing eye problems may be at increased risk.
- (iii) Chest Roentgenogram (14"x17"): H₂S may cause lung damage. Initial chest

X rays should be performed with subsequent X rays chest roentgenograms performed only when indicated.

- (iv) FVC and FEV (1 sec): H₂S is a respiratory irritant. Employees with impaired pulmonary function may be at increased risk.

Permissible Exposure Levels (PEL)

While not definitive, H₂S levels below 10 ppm appears to cause little short term effects. When H₂S level are unknown, respirators shall be used.

Current OSHA standards are:

20 ppm	Ceiling Level
50 ppm	Maximum allowable peak for 10 minutes with no other exposure

Current NIOSH standards are:

10 ppm	PEL averaged over 10 minute period
50 ppm	Area shall be evacuated

29 CFR 1910.1000(b)(2) which requires that an employee's exposure to any substance listed in Table Z-2 shall not exceed at any time the acceptable ceiling concentration limit, except for a time period and up to a concentration not exceeding the maximum duration and concentration allowed in the acceptable maximum peak column. The example given in 1910.1000(b)(3) states that "...an employee may be exposed to a concentration of Substance A (with a 10 ppm TWA, 25 ppm ceiling and 50 ppm peak) above 25 ppm (but never above 50 ppm) only for a maximum period of 10 minutes."

Hydrogen sulfide can be a severe acute hazard, and in reviewing the USA Standard Z 37.2-1966 it was noted that hydrogen sulfide is an extremely toxic and irritating gas and a significant property of the gas is its temporary paralytic effect on the olfactory nerve. High concentrations can result in severe consequences before the odor is detected. Sampling methods are currently available and should be used for measuring both the 10 minute and instantaneous levels of hydrogen sulfide in the workplace.

Concentration Levels

Short Term Effects

0.13 ppm	Threshold of odor detection
0.77 ppm	Faint, but readily perceptible odor
4.6 ppm	Easily noticeable odor
10 ppm **	Eye irritation, soreness, redness, burning
27 ppm	Strong, unpleasant, but not intolerable odor
50 ppm	Irritation & dryness of nose, throat, and airways cough, shortness of breath, pneumonia

100 ppm	Immediate irritation of eyes and respiratory tract
150 ppm	Sense of smell may be paralyzed
200 ppm	Headaches, dizziness, nausea
500 ppm	Unconsciousness and death within a few minutes may be no warning odor
1000 ppm	Immediate loss of consciousness and respiratory paralysis leading to death

*** NOTE: Concentration levels from 10-50 ppm may be tolerable without immediate symptoms. However, the onset of eye and perhaps respiratory irritation may occur several hours or even days after initial exposure. Most eye and respiratory diseases occur at these exposure levels because of the delayed effects.*

The potential for release of life threatening concentrations of hydrogen sulfide gas into the atmosphere where "sour" oil and gas operations are conducted is well known in the petroleum drilling, transporting and refining industries. Employers involved in transporting "sour" crude oils from production well sites to pipelines are required to manually gauge storage tanks before and after each transfer in accordance with industry established (i.e. American Petroleum Institute) procedures. As these storage tanks are located outside at remote locations, a single employee is dispatched to perform the necessary gauging on a regular basis (gauging schedules vary depending on when transfers are made from individual storage tanks). Tank gauging requires an employee to climb to the top of the storage tank, open a thief hatch, and determine the tank level by means of a plumb bob. Crude oil temperature and specific gravity readings may also be taken at this time, which would involve taking a sample from the tank and/or reading a gauge. Normally, the entire procedure takes approximately five to ten minutes.

Controls, PPE

Normal construction activities may cause our employees to be exposed to H₂S. In most cases natural or forced ventilation will eliminate or keep concentrations below the PEL. In cases where the PEL may be exceeded, or is unknown Self-contained breathing apparatus with full faceplate with positive pressure shall be used for workers. For persons escaping or providing emergency help, a gas mask with proper acidic gas or H₂S canister filters may be used. It is unlikely, however if liquid H₂S is encountered, immediately evacuate the area and notify the RSO.

First Aid

Eye Exposure: If liquid H₂S contacts eyes wash eyes immediately with water, lifting both lids. Contact lenses should not be worn when working with

this chemical. If irritation persists seek medical attention.

Skin Exposure: If liquid H₂S contacts skin wash skin immediately with water. If clothing is penetrated, remove and flush skin with water. If irritation persists seek medical attention.

Breathing: If a person breathes in a large amount of H₂S, move the person to fresh air at once. If breathing has stopped, perform artificial respiration. Keep the affected person warm and at rest. Get medical attention as soon as possible.

Rescue: Move the affected person from the hazardous exposure. If the exposed person has been overcome, notify someone else and put into effect the established emergency rescue procedures. Do not become a casualty. Understand the facility's emergency rescue procedures and know the location of rescue equipment before the need arises.

Vessels, Tanks:

Typically our workers do not work in tanks, however note that high concentrations of H₂S may be present in tanks and vessels around refinery and tank farm areas. For instance, hydrogen sulfide exposure during the gauging operation occurs when the thief hatch is opened. The vapor space in these storage tanks can have vapor phase hydrogen sulfide concentrations up to hundreds of parts per million. A recent technical article on this subject states: "Liquid phase hydrogen sulfide concentrations above 8 ppm by weight can produce atmospheres immediately dangerous to life or health (IDLH) in residual fuel oil storage tanks and ship and barge holds." Thus employees opening these thief hatches, without appropriate personal protective equipment, can be exposed to life threatening concentrations of hydrogen sulfide gas which is released through the hatch into the employees' breathing zone. The concentration of hydrogen sulfide gas released through the hatch depends on many factors: the concentration of "sour" components in the crude oil; the level of liquid crude oil in the tank; the temperature of the crude oil in the tank, any pressure differential between the vapor space in the tank and the outside atmosphere; the size of the hatch opening; and local environmental conditions (i.e. ambient temperature, wind speed, wind direction, etc.) at the time the gauging is being performed. Therefore, any similar inspection or other work in or around tanks and vessels require air sampling and/ or SCBA use for affected workers.

Chapter 31

Lead Management

Most lead over-exposures in the construction industry are found in the trades such as plumbing, welding and painting. In building construction, lead is frequently used for roofs, cornices, tank linings and electrical conduits. In plumbing, an alloy of lead/tin had been used extensively for soldering tin-plate and pipe joints. Use of lead solders in plumbing systems is now prohibited by law. Lead-based paint had also been used extensively for residential and commercial applications but has been banned for residential use by the Consumer Product Safety Commission. Lead-based paint may still be used on metal structures (bridges, railways, beams, etc.) to prevent corrosion, although substitute coatings are now available.

Significant lead exposures can arise during stripping or demolition of structures containing lead-based paint. The types of work with the greatest potential for lead exposure include iron work, demolition, painting, plumbing, electrical, lead-based paint abatement, heating/air conditioning and carpentry/renovation activities.

This chapter covers CBC Pipeline, LLC. 's policy regarding procedures and operations involving the use, maintenance, and disturbance of lead-containing materials. This document was developed to assure that lead and lead-containing materials are properly maintained and handled. The procedures outlined in this policy will promote the safe management of lead and lead-containing materials. They will also help assure compliance with regulations applicable to lead.

Scope

Occupationally, these exposures may include:

- Demolition or salvage of structures where lead-containing materials may be present.
- Removal or encapsulation of materials containing lead (e.g. lead paint abatement).
- New construction, alteration, repair or renovation of items containing lead.
- Installation of materials containing lead.
- Lead contamination or emergency cleanup.
- Maintenance operations involving the disturbance of lead or lead-containing materials.
- Firing range operations.

Unless working in a relatively new building (built since 1980), all paint should be treated as lead containing unless sampling shows otherwise.

Disturbance is defined as scraping, washing, limited wet sanding, grinding, welding, drilling, small surface cutting for installation of equipment, repainting activities, cleaning activities, and minor surface modifications.

Summary

The following actions will be taken in order to comply with the OSHA Lead Standards (29 CFR 1910.1025 and 1926.62) and DHEC/EPA regulations:

Contractors performing lead abatement must be licensed by the appropriate State Department of Health and Environmental Control (DHEC).

- Prior to the performance of any demolition or renovation activities, materials must be assessed for the presence of lead. Warning signs should be posted in the work area where the PEL is exceeded.

- Representative and periodic air monitoring will be conducted for all employees with airborne (fume, dust) lead exposure. If the initial determination or subsequent air monitoring reveals employee exposure to be at or above the action level but below the permissible exposure limit CBC Pipeline, LLC. shall repeat air monitoring in accordance with this paragraph at least every 6 months. CBC Pipeline, LLC. shall continue air monitoring at the required frequency until at least two consecutive measurements, taken at least 7 days apart, are below the action level at which time the RSO may discontinue monitoring for that employee. CBC Pipeline, LLC. must, within 15 working days after the receipt of the results of any monitoring performed under this section, notify each affected employee of these results either individually in writing or by posting the results in an appropriate location that is accessible to affected employees. Whenever the results indicate that the representative employee exposure, without regard to respirators, exceeds the permissible exposure limit, the RSO shall include in the written notice a statement that the permissible exposure limit was exceeded and a description of the corrective action taken or to be taken to reduce exposure to or below the permissible exposure limit.

- Employees with 8-hour time-weighted average (TWA) exposures over 30 µg/m³ (Action Limit) for thirty days per year will be enrolled in a lead medical surveillance program.

- All employees with potential exposure to lead must receive training. CBC Pipeline, LLC. 's employees shall be informed of Appendices A & B of the regulation. All affected employees are required to attend initial and annual training programs. The employees should be informed of the specific nature of the operations which could result in exposure to lead above the action level, the purpose, proper selection, fitting, use, and

limitation of respirators, engineering controls, purpose & a description of the medical surveillance program & the medical removal program.

- No employee should be exposed to lead at concentrations greater than fifty micrograms per cubic meter of air averaged over an 8-hour period. Employees with lead exposure in excess of the Permissible Exposure Limit (PEL) of 50 µg/m³ as an 8-hour TWA will be provided appropriate protective clothing and respiratory protection. The respirator shall be used during the time period necessary to install or implement engineering or work practice controls, where engineering and work practice controls are insufficient and in emergencies. Gloves, hats, vented goggles, shoes or disposable shoe covers shall be provided. Protective clothing shall be in clean & dry condition at least weekly. Protective clothing shall be cleaned, laundered, properly disposed and repaired or replaced as necessary.
- Engineering controls will be implemented, if feasible, to reduce lead exposures below the PEL.
- A written compliance plan will be implemented if airborne concentrations of lead exceed 50 µg/m³ as an 8-hour TWA. The site specific compliance program should address means of engineering & work practice controls, air monitoring, a description of each operation in which lead is emitted, The written program must be revised & updated annually.
- Surfaces will be maintained as free as possible from accumulation of lead dust.
- Signs will be posted outside areas where employees' lead exposures exceed the PEL.
- Certain work practices such as open flame burning, dry sanding and dry scraping of lead-containing substances are not permitted.
- Specific containment procedures are stipulated to control emissions from interior and exterior lead abatement sites.
- Surfaces in lead abatement sites must be cleaned.
- Lead-containing wastes may be handled by CBC Pipeline, LLC. employees, and will be transported and disposed per DOT and EPA/DHEC regulations.
- Specific surface lead dust testing will be performed in residential properties following lead abatement to verify adequate cleanup.

Health Hazards

Health effects from lead exposure continue to be a concern both at the workplace and in the home. Since the ban on lead in gasoline, lead levels detected in areas near roadways have decreased dramatically; however, lead based paint used in buildings

and housing prior to 1980 continue to serve as significant sources of exposure.

Lead poisoning can result from a single high level (acute) exposure or through a number of smaller repetitive (chronic) exposures. Most adults are exposed to lead through occupational sources, while children and infants are exposed primarily through surface dust and soil. Floors, chewable surfaces and soil contaminated with lead serve as primary exposure sources for children.

Lead has no beneficial effect on humans. Once it has been ingested into the body, lead is distributed in the bloodstream to red blood cells, soft tissues and bone. Lead in the body is eliminated very slowly, mainly by the kidneys and digestive tract. Irreversible kidney damage may have already developed by the time high blood lead levels are identified and treated, making avoidance to exposure and medical surveillance extremely important.

Acute lead poisoning symptoms usually include abdominal pain as in a gall bladder attack or appendicitis. Other non-specific complaints include irritability, fatigue, weakness and muscle pain. In rare instances, damage to the brain and central nervous system also may occur. Chronic lead poisoning may result after lead has accumulated over time in the body and has been deposited mostly in the bone.

Stored lead in the bone may be released to the blood stream to produce health effects such as defective hemoglobin synthesis, nervous system abnormalities, hypertension, effects in the reproductive system (including impotency) and damage to a developing fetus.

The measurement of blood lead level is the most reliable method of evaluating lead exposure. It indicates the amount of lead in the bloodstream, which is often a measure of recent exposure to lead. The present "level of concern" in children is ten micrograms of lead per deciliter of blood (10 µg/dl). The level of concern for adult workers, as established by OSHA, is 40 µg/dl.

Training

All CBC Pipeline, LLC. employees involved in the disturbance of lead-containing materials or lead based paint as part of regular work activities must have at least a lead awareness training class. CBC Pipeline, LLC. may provide an introductory level lead awareness class for employees involved in non-abatement activities. CBC Pipeline, LLC. may also choose to cover lead hazards during their Worker Right to Know training. Typical job classifications needing awareness training would include painters, carpenters, welders, electricians, plumbers and general maintenance personnel. Employees involved in lead abatement activities must receive more extensive EPA approved lead abatement worker and/or supervisor level training.

Medical Surveillance

All CBC Pipeline, LLC. employees involved in the disturbance of lead-containing materials, working with lead compounds (glazes, solders, etc.), or lead based paint as part of regular work activities must be involved in CBC Pipeline, LLC. 's Occupational Medicine Program. Employees will have blood lead levels checked initially, then at least annually thereafter. Blood lead levels should also be checked at the termination of employment. The ultimate frequency of blood screening will be dictated by the amount of lead related work each affected employee performs and on advice from the Occupational Medicine physician. Full shift personal samples shall be representative of the employees' regular, daily exposure to lead. Medical examinations & procedures shall be performed by or under the supervision of a licensed physician. The medical surveillance is provided without cost to the employees. The blood sampling & monitoring should be conducted every 6 months until two consecutive blood samples & analysis are acceptable. The sampling & monitoring should be performed at least monthly during the removal period. Any employee with elevated blood levels should be temporarily removed. Employees should be notified in writing within five days when lead levels are not acceptable. The standard requires temporary medical removal with Medical Removal Protection benefits.

CBC Pipeline, LLC. will fit test employees with proper respirators, provide respirator training and assist with the required paperwork. Occupational Medicine will perform all necessary medical tests and evaluations. The Occupational Medicine physician should include a written respirator approval as part of the medical surveillance.

Lead-Based Paint Defined

The definition of lead based paint as follows:

- 0.5% by weight as analyzed by a chemical laboratory, or
- 1.0 milligrams per square centimeter (mg/cm²) as measured by an X-ray fluorescence analyzer (XRF).

Sampling Any painted surfaces (including stained and varnished) in buildings constructed prior to 1980 must be sampled before any significant disturbance takes place. Any other materials (i.e. window glazing, putties, plumbing) that are suspected to contain lead must also be sampled before significant disturbance takes place.

To conduct a thorough investigation, each different surface should be sampled separately (examples include doors, windows, moldings, walls, ceilings, etc.). The primary lead paint sampling methods include:

Spot chemical testing: Spot chemical testing involves a process where a small amount of solution is placed on a sampling surface, and if lead is present, a colorimetric

change will take place. This method involves a certain amount of paint destruction in order to test a complete cross section of paints and has proven to be the least reliable of the three listed methods.

X-Ray Fluorescence (XRF) XRF analysis is a direct field reading instrument that will provide immediate results - for example a Niton XRF spectrum analyzer. The Niton uses a non-destructive analysis method which automatically adjusts for the substrate. As with the other analyses, different surfaces should be sampled separately.

Because XRF instruments use a radioactive source to measure lead content, special precautions need to be taken. Equipment operators must receive special training. At the present time, there is no correlation between results from laboratory analysis and XRF measurement.

Laboratory Testing Laboratory analysis provides the most reliable information but it can take as long as three weeks to receive results. The steps listed below should be followed when collecting bulk samples:

All paint samples should be collected in a new plastic sample bag. Samples should be labeled with a sample number, the surface sampled, and the sample location.

For proper laboratory analysis, approximately 5 grams of paint chips must be collected. (For reference, a nickel weighs approximately 5 grams.)

Samples must represent a cross section of materials down to the substrate. Care should be taken to collect as little substrate as possible. (For example, a paint sample on a wood door should contain paint down to the bare wood surface, but should not contain a significant amount of the wood itself.)

Personal Protective Equipment (PPE) Personal protective equipment (PPE) is required when disturbing lead-containing materials. This equipment would include but not be limited to:

- Disposable or cleanable work gloves
- Coveralls (Tyvek or similar) with foot covering
- Goggles or face shields
- Properly fitted half-face respirators with HEPA cartridges

Once removed, any disposable materials must be gathered and disposed of as lead waste. Specific requirements are outlined in the waste disposal section.

Work procedures not previously monitored will require personal air sampling to determine airborne lead levels and the adequacy of respiratory protection. Air samples

will be collected, then forwarded to an accredited laboratory for analysis. Employees should be trained in the use, fitting and limitations of their PPE as per OSHA's Personal Protective Equipment Standard (29CFR 1910.132-138).

Hygiene Facilities

Personal hygiene is critical in the control of lead exposure for employees working with lead containing materials. Hygiene facilities with soap, water and disposable towels must be provided for employees. If jobs are extensive or large in scope, or if the paint being disturbed has a high lead content, the waste water should be gathered and placed in drums for further analysis. Collection could take place until a correlation between the lead content of waste water, lead levels in paint and the activities performed could be established. Smoking, chewing tobacco, gum or food will not be allowed in the work area.

Employees must wash hands and face thoroughly before all breaks and at the end of the work shift. CBC Pipeline, LLC. will provide lunch room, hygiene, shower, and changing facilities.

Operations and Maintenance Activities

In many instances, routine painting and repair jobs will disturb materials that contain lead. Lead-containing paint and window glazing are just two types of materials that may be encountered. NIOSH has concluded that significant exposures can occur during work to repaint lead-containing materials or to repair windows that have leaded glazing.

A small amount of care can significantly decrease the potential for exposure to lead during maintenance activities that involve the disturbance of lead-containing materials.

The guidelines in this section should be used when the primary purpose of the work is not to remove lead-containing materials, but to conduct a repair or maintenance activity. As an example, these guidelines would be used when scraping loose paint in preparation for a repainting job, but would not be appropriate in an instance where all paint from a surface (loose and intact) would be removed.

The following procedures should be employed for operations and maintenance activities where prior sampling has confirmed the presence of lead. Employees conducting these types of activities must have attended a lead awareness training session concerning the potential hazards of working with lead and proper use of personal protective equipment.

Interior Work

- a. Notify all occupants where work involving lead will take place.

- b. Conduct work involving lead-containing materials at times when the area is unoccupied.
- c. Place 6-mil polyethylene sheeting a minimum of 6 feet horizontally out in all directions from the work area to cover any immovable objects.
- d. Personal protective equipment (PPE) must be used, and at a minimum should include a half- face respirator with HEPA cartridges, disposable clothing and gloves. Shoe covers may be necessary to avoid tracking lead dust and waste outside the immediate work area.
- e. HEPA vacuums, disposable towels and wash-up facilities must be available to employees at the work site. Clean-up materials should be kept away from the immediate work area, but must be close enough to allow quick clean-up of employees and equipment. All reusable equipment (HEPA vacuums, scrapers, screw drivers, etc.) must be properly cleaned, using wet methods, at the end of each day's work and before leaving the job site.
- f. The work area itself must be demarcated and barricaded using disposable danger tape and "Lead Danger" warning signs bearing the following legend: "Warning: Lead Work Area - Poison - No Smoking or Eating".
- g. Using a HEPA vacuum, vacuum any accumulated dust from the work area prior to beginning the maintenance activity. Do not sweep or brush potential lead containing dust.
- h. Use care to minimize the production of dust from scraping or sanding. Use either wet sanding/scraping or HEPA filtration fitted equipment.
- i. At break periods or when finished, workers must immediately proceed to assigned clean-up areas to decontaminate. The decontamination areas must be within the barricaded areas and must have polyethylene drop cloths or plastic tarpaulins as a floor. Upon completion of clean-up, discarded PPE will be gathered into 4-6 mil plastic bags or into drums for proper disposal. Waste PPE should be kept separate from paint chips, dusts and debris to allow appropriate disposal. Specific waste characterization and disposal information is outlined in the waste disposal section.
- j. When activities are complete, clean up any debris using HEPA vacuums. Working surfaces and the immediate work area should then be wet wiped using disposable towels and a detergent solution. Gather and containerize paint chips, dust, and debris as lead-containing waste. Remove surface polyethylene and final clean the area again using wet methods and HEPA vacuuming. All used towels must be gathered and disposed of as contaminated waste. Surface polyethylene can then be HEPA vacuumed, rolled inwards and disposed of as general (non-hazardous) waste.

k. Waste generated in preparation activities (paint chips, glazing, etc.) should be collected and deposited in an appropriate container.

l. Monitoring (both area and personal) by CBC Pipeline, LLC. may be necessary until exposure potentials can be determined.

Exterior Work

a. Notify the building supervisor and occupants where work involving lead will take place.

b. Building occupants should be notified to close windows and doors within 25 feet of the work area.

c. Pre-clean paint chips, dust and debris from existing surfaces (using HEPA vacuums and wet cleaning methods) before the job begins. Place plastic catch sheeting or tarpaulins to collect debris on the ground, floor or platform directly below the work area and at least 6 feet out in all directions from the working surfaces. When working on elevated surfaces, an additional 6 feet of catch sheeting is required per floor above the first to a maximum of 25 feet. Individual catch sheets or tarpaulins should be overlapped a minimum of 18 inches and secured to each other. Prepping should not take place on windy days. Catch sheets or tarps should be weighted or secured to the ground.

d. All windows, doors and other openings in the work area shall be sealed using polyethylene on the inside. Care should be taken not to disturb interior surfaces which may also contain lead. Barrier tape will be used to isolate the work area in such a way that no member of the public can get within 10 ft. of the work area. (This requirement may need to be adjusted for work on elevated surfaces.) The work area itself must be demarcated and barricaded using disposable danger tape and "Lead Danger" warning signs bearing the following legend: Warning: Lead Work Area - Poison - No Smoking or Eating".

e. Personal protective equipment (PPE) must be used, and at a minimum should include a 1/2 face respirator with HEPA cartridges, disposable clothing and gloves.

f. HEPA vacuums, disposable towels and wash-up facilities must be available to employees at the work site. Clean-up materials should be kept away from the immediate work area, but must be close enough to allow quick clean-up of employees and equipment. All reusable equipment (HEPA vacuums, scrapers, screw drivers, etc.) must be properly cleaned at the end of each day's work and before leaving the job site.

g. When preparation activities are completed, working surfaces and the immediate work area should be wet wiped using disposable towels and a detergent solution. All used towels must be gathered and disposed of as contaminated waste. Surface polyethylene will then be HEPA vacuumed, wet wiped, and then rolled inwards and disposed of as

general waste.

h. At break periods or when finished, workers must immediately proceed to assigned clean-up areas to decontaminate. The decontamination areas must be within the barricaded areas and must have polyethylene drop cloths or plastic tarpaulins as a floor. Upon completion of clean-up, discarded PPE will be gathered into 4-6 mil plastic bags or into drums for proper disposal. Waste PPE should be kept separate from paint chips, dust and debris to allow appropriate disposal (see the waste disposal section).

i. Waste generated in preparation activities (paint chips, glazing, etc.) should be collected and deposited in an appropriate container. Specific waste characterization and disposal information is outlined in the waste disposal section.

j. Monitoring (both area and personal) by CBC Pipeline, LLC. may be necessary until exposure potentials can be determined.

Lead Removal Methods

Acceptable Methods

The removal methods listed below are acceptable for operations and maintenance or abatement activities by personnel that have had the proper training, medical surveillance, and have completed the appropriate work area set-up outlined earlier.

Operations and Maintenance Removal Methods:

- Manual scrapers and wire brushes
- Limited manual sanding (preferably wet sanding) with accompanied ventilation (e.g. HEPA vacuum)

Abatement Removal Methods:

- Chemical formulations (preferably methylene chloride-free solutions)
- Heat guns not exceeding 700 degrees Fahrenheit
- Manual scraping with the aid of chemical solvents (preferably not containing methylene chloride)
- Paste formulations containing potassium or sodium hydroxide
- Mechanized sanding equipment with dedicated HEPA filtered exhaust systems

Prohibited methods: The following list of removal methods for either operations and

maintenance or abatement activities are prohibited and will not be allowed.

- Use of a heat gun generating temperatures exceeding 700 degrees Fahrenheit
- Open flame torching
- Dry abrasive blasting using sand, grit or any other particulate
- Mechanized sanding without HEPA filtered collection systems

Routine Cleaning of Lead-Painted Surfaces

The following items apply to personnel involved in sweeping or wall cleaning in areas where paint chips or dusts are present. This would primarily apply to custodial personnel and any other University employees cleaning areas potentially contaminated with lead paint or dust.

- a. Employees should attend a lead awareness training class or be trained on the hazards of lead as part of their Worker Right to Know training.
- b. Report peeling paint or paint in poor condition to area coordinators or building contacts. Coordinators or contacts should then contact the appropriate personnel (Zone Maintenance, University Facilities, Housing Maintenance, etc.).
- c. Assume paint is lead-containing unless testing shows otherwise.
- d. Cleaning of lead painted surfaces should be performed using HEPA vacuums dedicated for lead, followed by wet methods (i.e. use wet towels, sponges or cloths). To specifically clean lead dusts from surfaces, a detergent such as Spic and Span is recommended.
- e. Disposable gloves must be worn during cleaning. Respirators are not considered necessary for small cleaning jobs. Larger cleaning jobs may require respirators; contact CBC Pipeline, LLC. 's RSO for assistance with respirators. HEPA vacuums should be used whenever possible to minimize exposure.

Gloves, sponges, disposable towels and other non-cleanable materials used in the cleaning of lead painted or contaminated surfaces must be placed in plastic bags, labeled as "HAZARDOUS WASTE PAINT MATERIALS" and dated.

Welding and cutting of metal surfaces

All painted metal surfaces (I-beams, pipes, etc.) shall be assumed to be lead-containing unless sampling or a manufacturer's specifications show otherwise. Industrial coatings often contain other hazardous ingredients in addition to or in place of lead. These might include, but are not be limited to, chromium, cadmium and mercury.

When welding and/or cutting lead painted surfaces, powered air purifying respirators (PAPR's) with HEPA filters are required. PAPR's are recommended for all welding and cutting operations unless ventilation is in place to control contaminants. If welding or cutting is done in an occupied building, proper exhaust ventilation must be supplied. Similar guidelines apply to soldering of sheet metal, tubing, piping, or sewer piping involving lead solder or other lead containing materials.

Training

Individuals performing certain lead-related functions may receive accredited initial and annual training. These functions include:

- Lead Paint Abatement Worker
- Lead Paint Abatement Contractor
- Lead Paint Abatement Supervisor
- Lead Abatement (Residential) Project Designer
- Lead Paint Inspector
- Lead Paint Risk Assessor

Disposal of Waste Materials

Unless otherwise determined, CBC Pipeline, LLC. is responsible for the proper disposal of hazardous waste at sites. Lead paint chips, dust and debris will generally be classified as hazardous waste. Because of hazardous waste costs, efforts should be made to minimize the generation of lead contaminated waste.

Paint chips, dusts and contents from HEPA vacuums (including HEPA filters) should be collected and containerized to allow for testing and handling as a possible hazardous waste. Demolition materials painted with lead based paint will be disposed of as regular demolition waste.

Some items contaminated as part of the abatement process may be cleaned and classified as non-hazardous waste.

Polyethylene used to protect items may be cleaned using HEPA vacuuming and wet wiping, then disposed of as non-hazardous waste. All non-hazardous waste can be put in unlabeled bags and/or placed in dumpsters. .

Summary

The Guidelines for Working with Lead-Containing Materials applies to any work

where CBC Pipeline, LLC. personnel may be exposed to lead or lead-containing materials. Activities covered by this guideline include (but are not limited to) demolition, renovation, encapsulation, maintenance operations, paint-prepping and firing range clean-up.

All CBC Pipeline, LLC. employees involved in the disturbance of lead-containing materials and lead based paint as part of regular work activities must have at least a lead awareness training class. CBC Pipeline, LLC. employees exposed to lead above the action level (A.L.) of 30 µg/m³ must have medical surveillance.

CBC Pipeline, LLC. will conduct necessary sampling, monitoring and inspections to ensure compliance with regulations as well as to protect employee health and safety. Any questions concerning lead or items specified in the guideline should be directed to the RSO.

Substance Identification

- Substance: Pure lead (Pb) is a heavy metal at room temperature and pressure and is a basic chemical element. It can combine with various other substances to form numerous lead compounds.
- Compounds Covered by the Standard: The word "lead" when used in this standard means elemental lead, all inorganic lead compounds and a class of organic lead compounds called lead soaps. This standard does not apply to other organic lead compounds.
- Uses: Exposure to lead occurs in at least 120 different occupations, including primary and secondary lead smelting, lead storage battery manufacturing, lead pigment manufacturing and use, solder manufacturing and use, shipbuilding and ship repairing, auto manufacturing, and printing.
- Permissible Exposure: The Permissible Exposure Limit (PEL) set by the standard is 50 micrograms of lead per cubic meter of air (50 µg/m³), averaged over an 8-hour workday.
- Action Level: The standard establishes an action level of 30 micrograms per cubic meter of air (30 µg/m³), time weighted average, based on an 8-hour work-day. The action level initiates several requirements of the standard, such as exposure monitoring, medical surveillance, and training and education.

Health Hazard Data

A. Ways in which lead enters your body.

When absorbed into your body in certain doses lead is a toxic substance. The object

of the lead standard is to prevent absorption of harmful quantities of lead. The standard is intended to protect you not only from the immediate toxic effects of lead, but also from the serious toxic effects that may not become apparent until years of exposure have passed.

Lead can be absorbed into your body by inhalation (breathing) and ingestion (eating). Lead (except for certain organic lead compounds not covered by the standard, such as tetraethyl lead) is not absorbed through your skin. When lead is scattered in the air as a dust, fume or mist it can be inhaled and absorbed through your lungs and upper respiratory tract. Inhalation of airborne lead is generally the most important source of occupational lead absorption. You can also absorb lead through your digestive system if lead gets into your mouth and is swallowed. If you handle food, cigarettes, chewing tobacco, or make-up which have lead on them or handle them with hands contaminated with lead, this will contribute to ingestion.

A significant portion of the lead that you inhale or ingest gets into your blood stream. Once in your blood stream, lead is circulated throughout your body and stored in various organs and body tissues. Some of this lead is quickly filtered out of your body and excreted, but some remains in the blood and other tissues. As exposure to lead continues, the amount stored in your body will increase if you are absorbing more lead than your body is excreting. Even though you may not be aware of any immediate symptoms of disease, this lead stored in your tissues can be slowly causing irreversible damage, first to individual cells, then to your organs and whole body systems.

B. Effects of overexposure to lead

(1) Short term (acute) overexposure.

Lead is a potent, systemic poison that serves no known useful function once absorbed by your body. Taken in large enough doses, lead can kill you in a matter of days. A condition affecting the brain called acute encephalopathy may arise which develops quickly to seizures, coma, and death from cardiorespiratory arrest. A short term dose of lead can lead to acute encephalopathy. Short term occupational exposures of this magnitude are highly unusual, but not impossible. Similar forms of encephalopathy may, however, arise from extended, chronic exposure to lower doses of lead. There is no sharp dividing line between rapidly developing acute effects of lead, and chronic effects which take longer to acquire. Lead adversely affects numerous body systems, and causes forms of health impairment and disease which arise after periods of exposure as short as days or as long as several years.

(2) Long-term (chronic) overexposure.

Chronic overexposure to lead may result in severe damage to your blood-forming, nervous, urinary and reproductive systems. Some common symptoms of chronic

overexposure include loss of appetite, metallic taste in the mouth, anxiety, constipation, nausea, pallor, excessive tiredness, weakness, insomnia, headache, nervous irritability, muscle and joint pain or soreness, fine tremors, numbness, dizziness, hyperactivity and colic. In lead colic there may be severe abdominal pain.

Damage to the central nervous system in general and the brain (encephalopathy) in particular is one of the most severe forms of lead poisoning. The most severe, often fatal, form of encephalopathy may be preceded by vomiting, a feeling of dullness progressing to drowsiness and stupor, poor memory, restlessness, irritability, tremor, and convulsions. It may arise suddenly with the onset of seizures, followed by coma, and death. There is a tendency for muscular weakness to develop at the same time. This weakness may progress to paralysis often observed as a characteristic "wrist drop" or "foot drop" and is a manifestation of a disease to the nervous system called peripheral neuropathy.

Chronic overexposure to lead also results in kidney disease with few, if any, symptoms appearing until extensive and most likely permanent kidney damage has occurred. Routine laboratory tests reveal the presence of this kidney disease only after about two-thirds of kidney function is lost. When overt symptoms of urinary dysfunction arise, it is often too late to correct or prevent worsening conditions, and progression to kidney dialysis or death is possible.

Chronic overexposure to lead impairs the reproductive systems of both men and women. Overexposure to lead may result in decreased sex drive, impotence and sterility in men. Lead can alter the structure of sperm cells raising the risk of birth defects. There is evidence of miscarriage and stillbirth in women whose husbands were exposed to lead or who were exposed to lead themselves. Lead exposure also may result in decreased fertility, and abnormal menstrual cycles in women. The course of pregnancy may be adversely affected by exposure to lead since lead crosses the placental barrier and poses risks to developing fetuses. Children born of parents either one of whom were exposed to excess lead levels are more likely to have birth defects, mental retardation, behavioral disorders or die during the first year of childhood.

Overexposure to lead also disrupts the blood-forming system resulting in decreased hemoglobin (the substance in the blood that carries oxygen to the cells) and ultimately anemia. Anemia is characterized by weakness, pallor and fatigability as a result of decreased oxygen carrying capacity in the blood.

(3) Health protection goals of the standard.

Prevention of adverse health effects for most workers from exposure to lead throughout a working lifetime requires that worker blood lead (PbB) levels be maintained at or below forty micrograms per one hundred grams of whole blood (40 µg/100g). The blood lead levels of workers (both male and female workers) who intend to have

children should be maintained below 30 µg/100g to minimize adverse reproductive health effects to the parents and to the developing fetus.

The measurement of your blood lead level is the most useful indicator of the amount of lead being absorbed by your body. Blood lead levels (PbB) are most often reported in units of milligrams (mg) or micrograms (ug) of lead (1 mg=1000 ug) per 100 grams (100g), 100 milliliters (100 ml) or deciliter (dl) of blood. These three units are essentially the same. Sometime PbB's are expressed in the form of mg% or ug%. This is a shorthand notation for 100g, 100 ml, or dl. PbB measurements show the amount of lead circulating in your blood stream, but do not give any information about the amount of lead stored in your various tissues.

PbB measurements merely show current absorption of lead, not the effect that lead is having on your body or the effects that past lead exposure may have already caused. Past research into lead-related diseases, however, has focused heavily on associations between PbBs and various diseases. As a result, your PbB is an important indicator of the likelihood that you will gradually acquire a lead-related health impairment or disease.

Once your blood lead level climbs above 40 µg/100g, your risk of disease increases. There is a wide variability of individual response to lead, thus it is difficult to say that a particular PbB in a given person will cause a particular effect. Studies have associated fatal encephalopathy with PbBs as low as 150 µg/100g. Other studies have shown other forms of diseases in some workers with PbBs well below 80 µg/100g. Your PbB is a crucial indicator of the risks to your health, but one other factor is also extremely important. This factor is the length of time you have had elevated PbBs. The longer you have an elevated PbB, the greater the risk that large quantities of lead are being gradually stored in your organs and tissues (body burden). The greater your overall body burden, the greater the chances of substantial permanent damage.

The best way to prevent all forms of lead-related impairments and diseases-both short term and long term- is to maintain your PbB below 40 µg/100g. The provisions of the standard are designed with this end in mind. Your employer has prime responsibility to assure that the provisions of the standard are complied with both by the company and by individual workers. You as a worker, however, also have a responsibility to assist your employer in complying with the standard. You can play a key role in protecting your own health by learning about the lead hazards and their control, learning what the standard requires, following the standard where it governs your own actions, and seeing that your employer complies with provisions governing his actions.

(4) Reporting signs and symptoms of health problems.

You should immediately notify your employer if you develop signs or symptoms associated with lead poisoning or if you desire medical advice concerning the effects of current or past exposure to lead on your ability to have a healthy child. You should also

notify your employer if you have difficulty breathing during a respirator fit test or while wearing a respirator. In each of these cases your employer must make available to you appropriate medical examinations or consultations. These must be provided at no cost to you and at a reasonable time and place.

The standard contains a procedure whereby you can obtain a second opinion by a physician of your choice if CBC Pipeline, LLC. selected the initial physician. [56 FR 24686, May 31, 1991]

Chapter 32

Sanitation

Potable Water

Potable water shall be provided in all places of employment, for drinking, and in some cases cooking, washing of foods, washing of cooking or eating utensils, washing of food preparation or processing premises, and personal service rooms.

Portable drinking water dispensers shall be designed, constructed, and serviced so that sanitary conditions are maintained, shall be capable of being closed, and shall be equipped with a tap and labeled as such.

When single service cups are supplied, both a sanitary container for unused cups and a receptacle for used cups shall be provided.

Open containers such as barrels, pails, or tanks for drinking water from which the water must be dipped or poured, whether or not they are fitted with a cover, are prohibited.

A common drinking cup and other common utensils are prohibited.

Toilet Facilities

Except as otherwise indicated in this section, toilet facilities are provided in all places of employment. The number of facilities to be provided shall be based on the number of employees. Where toilet rooms will be occupied by no more than one person at a time, that can be locked from the inside, and contain at least one water closet, then separate toilet rooms for each sex in this case need not be provided.

Where toilet facilities will not be used by women, urinals may be provided instead of water closets.

This requirement does not apply to mobile crews or to normally unattended work locations so long as employees working at these locations have transportation immediately available to nearby toilet facilities which meet the other requirements of this section.

The sewage disposal method shall not endanger the health of employees.

Toilet paper with holder shall be provided for every water closet.

The requirements of this subsection do not apply to mobile crews or to normally unattended work locations.

Food and Beverages on Premises

This section shall apply only where employees are permitted to consume food or beverages, or both, on the premises.

Eating and drinking areas. No employee shall be allowed to consume food or beverages neither in a toilet room nor in any area exposed to a toxic material.

Waste disposal containers. Receptacles, constructed of smooth, corrosion resistant, easily cleanable, or disposable materials, shall be provided and used for the disposal of waste food. The number, size, and location of such receptacles shall encourage their use and not result in overfilling. They shall be emptied not less frequently than once each working day, unless unused, and shall be maintained in a clean and sanitary condition. Receptacles shall be provided with a solid tight-fitting cover unless sanitary conditions can be maintained without use of a cover.

Sanitary storage. No food or beverages shall be stored in toilet rooms or in an area exposed to a toxic material.

Food handling. All employee food service facilities and operations shall be carried out in accordance with sound hygienic principles. In all places of employment where all or part of the food service is provided, the food dispensed shall be wholesome, free from spoilage, and shall be processed, prepared, handled, and stored in such a manner as to be protected against contamination.

Chapter 33

Bloodborne Pathogen Program

Purpose

This program is for all employees of CBC Pipeline, LLC. who may possibly be exposed to blood or body fluids in the conduct of their job. This infection control plan complies with OSHA requirement, 29 CFR 1910.1030, Blood Borne Pathogens. The plan includes requirements for personal protective equipment, housekeeping, training, and a procedure for reporting exposures. CBC Pipeline, LLC. shall ensure that all employees with occupational exposure participate in a training program. If CBC Pipeline, LLC. determines that it has employees with occupational exposure as defined in 1910.1030(b), then the RSO shall prepare an exposure determination. The exposure determination shall be made without regards to the use of personal protective equipment.

Responsibilities

If a need for an Exposure Control Plan is determined, the RSO, Replace with safety Person's Name will handle the Bloodborne Pathogen Program and maintain records of any training and/ or inspections required. The RSO shall ensure that a copy of the Exposure Control Plan is accessible to employees in accordance with 29 CFR 1910.1020(e). This plan has detailed steps to take in the event of an exposure incident. PPE requirements are listed in the plan. For instance, employees of CBC Pipeline, LLC. who have been trained in First Aid and are expected to provide emergency care would be expected to have exposure.

Definitions

Biological Hazard. The term biological hazard or biohazard is taken to mean any viable infectious agent that presents a risk, or a potential risk, to the well being of humans.

Medical Wastes/Infectious Wastes. All waste emanating from human or animal tissues, blood or blood products or fluids. This includes used first aid bandages, syringes, needles, sharps, material used in spill cleanup and contaminated PPE or clothing..

Universal Precautions. Refers to a system of infectious disease control that assumes that every direct contact with body fluids is infectious and requires every employee exposed to be protected as though such body fluids were infected with blood-borne pathogens. All infectious/medical material must be handled according to Universal Precautions.

Hazards

Unprotected exposure to body fluids presents the possible risk of infection from a number of bloodborne pathogens notably Hepatitis and HIV.

Hazard Control

Engineering Controls - prevention of exposure to bloodborne pathogens engineering controls include proper storage facilities and containers and disinfectant equipment. Work practice controls shall be used to eliminate or minimize worker exposure.

Administrative Controls - prevention of exposure to bloodborne pathogen administrative controls include universal precautions, assignment of PPE, employee training, use of spill kits specifically designed for blood and body fluids and waste disposal procedures. Under circumstances in which differential between body fluids is difficult or impossible, all body fluids will be considered potentially infectious.

Reporting and Record Keeping

Any reports required by OSHA will be maintained by the RSO or designee. All reports (Training Certificates, Notice of HBV Vaccinations, exposure reports) will be maintained for 30 years. Occupationally contracted HBV or HIV will be recorded on the OSHA 300 Log of Occupational Injuries and Illnesses as an illness. Exposures to blood-borne pathogens from contact with sharps will be recorded on the OSHA 300 Log of Occupational Injuries and Illnesses if treatment such as gamma globulin, hepatitis B immune globulin or hepatitis B vaccine is prescribed by a Physician.

Training

All personnel assigned duties as first responders, or custodial Employees (if deemed at risk of exposure in the cleaning of rest rooms, etc.) will receive initial and annual training by a qualified medical practitioner on the Bloodborne Pathogen Program. Additionally, personnel trained in First Aid shall be offered this annual training. All new and current affected Employees will be trained initially and annually thereafter. The content of the training program will include:

Site Policy

Types and transmission of Blood-Borne Pathogens

General Safety Rules

Universal Precautions

Use of Personal Protective Equipment

Medical or iv drug use Waste Disposal Procedures

Post Exposure Treatment and Procedures

HBV Vaccinations

Documentation of training shall be done by the RSO, or designated representative. CBC Pipeline, LLC. (through the RSO) shall establish and maintain an accurate record for each employee with occupational exposure in accordance with CFR 1910.1020. Training records will include the following: Dates and Contents of Training, Names and Job Titles of persons attending. Training records shall be maintained for 3 years from the date of training and medical records shall be maintained for at least the duration of employment plus 30 years. In addition, CBC Pipeline, LLC. shall ensure that all records required by this section shall be made available upon request of employees, Assistant Secretary (OSHA) & the Director for examination & copying. Medical records must have written consent of employee before released. CBC Pipeline, LLC. shall comply with the requirements involving transfer of records in accordance with 29 CFR 1910.1020(h).

All Employees not affected by this Program will receive an overview of the program requirements during scheduled department Safety Meetings with documentation by Safety Meeting Minutes Form.

Hepatitis-B Virus (HBV) Vaccinations

Those workers required to provide first aid or emergency response duties on a routine basis will be offered Hepatitis-B Virus (HBV) Vaccinations at CBC Pipeline, LLC. 's expense. Employees that transfer to a job or their job is reclassified to include exposure to blood-borne pathogens will be offered HBV Vaccinations within 10 working days of the transfer or reclassification.

The choice for HBV vaccination is not mandatory. If an affected Employee chooses not to have the vaccination at the initial offering, they will have the opportunity to be vaccinated when they are ready. CBC Pipeline, LLC. (through the RSO) will document the offer, acceptance or declination, and vaccination dates.

Post Exposure Treatment and Notification Procedures

Should an affected Employee or an Employee acting as a "Good Samaritan" be occupationally exposed to HIV/HAV/HBV the affected Employee will report the exposure to the RSO. CBC Pipeline, LLC.] will provide for the Employee to be tested for HIV/HAV/HBV at CBC Pipeline, LLC. 's expense. Following the initial blood test at time of exposure, seronegative Employees will be retested at 6 weeks, 12 weeks and 6 months to determine if transmission has occurred. During this period, the Employee will follow the recommendations provided by the Physician or the U. S. Public Health Service.

An "occupational exposure" is defined as blood or body fluid contact from an injured or ill Employee to an open wound, or mucous membrane of the affected Employee, or an injury by a contaminated sharp object. Following the report of exposure, the RSO will contact the exposure source and request that person be tested for HIV/HAV/HBV at CBC Pipeline, LLC. 's expense. The request is not mandatory and if refused will not effect that Employee's future employment. The source individual's blood is tested as soon as possible and after consent is obtained to determine HBV and HIV infectivity. (Hepatitis B surface Antigen, Hepatitis C Antibody and HIV Screen)

The exposed employee's blood shall be collected as soon as feasible and tested for HBV (Hepatitis Bs Antibody, Hepatitis C Antibody) and HIV serological status after consent is obtained (Employee Consent for HIV Antibody Testing).

During all phases of Post Exposure, the confidentiality of the affected Employee and exposure source will be maintained on a "need to know basis". The results of any HIV/HAV/HBV tests conducted will be provided to the exposed and source Employees within 5 business days of receipt.

General Procedures

Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lenses are prohibited in work areas where there is a potential for exposure to any health hazard. Food and drink must not be stored in refrigerators, freezers, or cabinets where blood or other potentially infectious material is stored or in other areas of possible contamination.

Gloves must be made of appropriate disposable material, usually intact latex or vinyl. They must be used in the following circumstances:

When the employee has cuts, abraded skin, chapped hands, dermatitis, or similar conditions.

When examining abraded or non-intact skin of a patient with active bleeding.

While handling blood or blood products or other body secretions.

Employees must wash their hands immediately, or as soon as possible, after removal of gloves or other personal protective equipment and after hand contact with blood or other potentially infectious materials. If handwashing facilities are not feasible, CBC Pipeline, LLC. shall provide either an appropriate antiseptic hand cleanser in conjunction with cloth/paper towels or antiseptic towelettes.

All personal protective equipment must be removed immediately upon leaving the work area, and if this equipment is overtly contaminated, it must be placed in an appropriate area or container for storage, washing, decontamination, or disposal.

Contaminated clothing must not be worn in clean areas or outside the building.

All procedures involving blood or other potentially infectious agents must be performed in a manner that will minimize splashing, spraying, and aerosolization.

Medical Wastes

Medical/infectious waste must be segregated from other waste at the point of origin.

Medical/infectious waste, except for sharps (i.e., razor blades, broken glass, needles, etc.) capable of puncturing or cutting, must be contained in double disposable red bags conspicuously labeled with the words "INFECTIOUS WASTE" and "BIOHAZARD."

Used needles or other sharps (razor blades, broken glass, scalpels, etc.) must not be sheared, bent, broken, recapped, or resheathed.

Infectious sharps must be contained for disposal in leak-proof, rigid puncture-resistant containers. Infectious waste contained as described above must be placed in reusable or disposable leak-proof bins or barrels that are conspicuously labeled with the words "INFECTIOUS WASTE" and "BIOHAZARD." These waste barrels are picked up

regularly by an outside company licensed to handle infectious wastes.

All infectious agents, equipment, or apparatus must be disinfected in an autoclave or otherwise disinfected before being washed or disposed of. Each individual working with infectious bio-hazardous agents is responsible for dis-infection and disposal of these agents.

Biological wastes that do not contain radioactive or hazardous substances may be disinfected by steam sterilization (autoclave) then disposed of in the regular trash.

Liquid bio-hazardous waste may be disposed of in the sewage system following chemical decontamination.

Reusable glassware must be decontaminated in sodium hypo chlorite (household bleach) solution (1:9) prior to rinsing and acid washing. The glassware must then be sterilized in an autoclave.

Cuts

If an employee has a needle stick, cut, or mucous membrane exposure to another persons body fluids he/she must report the incident immediately.

Blood Exposure

All employees exposed to human blood and blood products must report to the [Program Coordinator] for information and possible inclusion in the Hepatitis B Immunization Program.

Infection Control Plan

The purpose of the Infection Control Plan is to protect the health and safety of the persons directly involved in handling the materials, workers and the general public by ensuring the safe handling, storage, use, processing, and disposal of infectious medical waste. This plan complies with OSHA requirement proposed for 29 CFR 1910.1030, Bloodborne Pathogens.

Universal precautions: Refers to a system of infectious disease control which assumes that every direct contact with body fluids is infectious and requires every employee exposed to be protected as though such body fluids were infected with blood-borne pathogens. All infectious/medical material must be handled according to Universal Precautions (OSHA Instruction CPL 2-2.44A).

The following universal precautions must be taken.

1. Gloves must be made of appropriate disposable material, usually intact latex or vinyl. They must be used:
 - a. when the employee has cuts, abraded skin, chapped hands, dermatitis, or the like.
 - b. when examining abraded or non-intact skin of a victim with active bleeding.
 - c. while handling blood or blood products or other body secretions.
2. Gowns, aprons, or lab coats must be worn when splashes of body fluid on skin or clothing are possible.
3. Mask and eye protection are required when contact of mucosal membranes (eyes, mouth or nose) with body fluids is likely to occur (e.g. splashes or aerosolization).
4. Resuscitation equipment, pocket masks, resuscitation bags, or other ventilation equipment must be provided to eliminate the need for direct mouth to mouth contact.

Waste Disposal Plan

1. Medical/Infectious waste must be segregated from other waste at the point of origin.
2. Medical/Infectious waste, except for sharps (e.g. razor blades, broken glass, needles, etc.) capable of puncturing or cutting must be contained in double disposable red bags conspicuously labeled with the words, "INFECTIOUS WASTE -- BIOHAZARD."
3. Infectious sharps must be contained for disposal in leak-proof, rigid puncture resistant containers.
4. Infectious waste thus contained as described in procedures 2 and 3 above must be placed in reusable or disposable leak-proof bins or barrels which must be conspicuously labeled with the words, "INFECTIOUS WASTE -- BIOHAZARD." These waste barrels are be picked up regularly by an outside company licensed to handle infectious wastes.
5. Spills/Disinfectants: a solution of sodium hypo chlorite (household bleach) diluted 1:9 with water must be used to disinfect, following initial cleanup of a spill with a chemical germicide approved as a hospital disinfectant. Spills must be cleaned up immediately.
6. After removing gloves, and/or after contact with body fluids, hands and other skin surfaces must be washed thoroughly and immediately with soap or other disinfectant in

hot water.

7. Other biological wastes that do not contain radioactive or hazardous substances may be disinfected by steam sterilization (autoclave) and then disposed of in the regular trash.

8. Liquid biohazard waste may be disposed of in the sewage system following chemical decontamination.

9. Reusable glassware must be decontaminated in sodium hyper chlorite (household bleach) solution (1:9) prior to rinsing and acid washing. Then the glassware must be sterilized in an autoclave.

Personal Protective Equipment for Worker Protection

Gowns, aprons, or lab coats must be worn when splashes of body fluid on skin or clothing are possible. Mask and eye protection are required when contact of mucosal membranes (eyes, mouth or nose) with body fluids is likely to occur (e.g. splashes or aerosolization). Resuscitation equipment, pocket masks, resuscitation bags, or other ventilation equipment must be provided to eliminate the need for direct mouth to mouth contact.

Universal precautions are intended to supplement rather than replace recommendation for routine infection control, such as hand washing and using gloves to prevent gross microbial contamination of hands (e.g., contact with urine or feces).

Blood-Borne Pathogen Control Universal Precautions and General Safety Rules

CBC Pipeline, LLC. will not perform invasive medical treatment or provide intravenous medication. Therefore, the exposure to Blood-Borne Pathogens, as defined in item # 3 below, is determined to be from routine and emergency first aid treatment of common workplace injuries. The following Universal Precautions and General Safety Rules have been established to prevent the spread of viral and bacterial organisms (namely HIV/HAV/HBV). In all cases, the Universal Precautions and General Safety Rules should be followed.

1. Before and immediately after providing patient care, wash exposed areas (hands, arms, etc.) with antibacterial soap. If contact with blood or other infectious materials occurs, then all equipment or environmental surfaces shall be cleaned & decontaminated afterwards.

2. Don and use the required personal protective equipment for the medical care given.

3. Treat all human body fluids and items soiled with human body fluids (blood, blood products, semen, vaginal secretions, cerebrospinal fluid, synovial fluid, pleural fluid, peritoneal fluid, pericardial fluid, amniotic fluid, concentrated HIV/HAV/HBV, and saliva (in dental settings) as if contaminated with HIV/HAV/HBV. (Note: Feces, urine, nasal secretions, sputum, sweat, tears, or vomitus need not be treated as contaminated unless they contain visible blood)
4. No smoking, eating, drinking or storage of food products are permitted in treatment areas.
5. To avoid special handling, all clothing contaminated with human body fluid will be presoaked (sprayed on the affected areas) with the antibacterial/viral solution before being sent to the laundry. (Note: Gloves and eye protection should be worn when handling contaminated clothing until presoaked for 10 minutes)
6. Any spills of body fluid will be presoaked (sprayed on the affected area) with antibacterial/viral solution for 10 minutes before being removed. (Note: Gloves and eye protection should be worn when handling spills of body fluids)
7. Medical Wastes (those soiled with covered human body fluids) will be treated following the Medical Wastes Treatment and Disposal Procedures before being discarded as ordinary wastes. Specimens of blood or other potentially infectious materials must be put in leak proof bags for handling, storage and transport.
8. Any suspected exposure to HIV/HAV/HBV by human body fluid contact (via broken skin, human bites, needle sticks, etc.) should be reported to your Supervisor immediately.
9. CBC Pipeline, LLC. shall make available the hepatitis B vaccine to all employees that have occupational exposure at no cost to the employee(s).

Personal Protective Equipment (PPE)

When the possibility of occupational exposure is present, PPE shall be provided at no cost to the employee such as gloves, gowns, etc. PPE shall be used unless CBC Pipeline, LLC. determines that employees temporarily declined to use PPE under rare circumstances. CBC Pipeline, LLC. shall ensure that appropriate PPE in the appropriate sizes is readily accessible. PPE should be cleaned, laundered & properly

disposed. CBC Pipeline, LLC. shall repair & replace PPE as needed to maintain its effectiveness.

Safety Policy Statement

It is the policy of CBC Pipeline, LLC. that accident prevention shall be considered of primary importance in all phases of operation and administration. It is the intention of CBC Pipeline, LLC. '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.

Sincerely,

Site Specific Safety Program

CBC Pipeline, LLC. is a company that is committed to protecting employees, clients and the general public on all our projects. This premise is a Company value of great importance. Our goal is ZERO incidents. The following guiding principals will evidence this philosophy and our future success:

Senior management is responsible to support and monitor the safety, health and risk management process.

Supervision shall possess the skills and commensurate with project responsibilities.

All employees must comply with safety, health, and risk management requirements. We will work towards continuous improvement. We will foster a culture that aligns safety, health and risk management with the other business objectives.

The emphasis will be on the Safety, Health and Risk Management. Planning Process and reduction of incidents will be our measure of our success.

ABOUT THIS PROGRAM

This is a Site Specific Safety Plan (SSSP) that CBC Pipeline, LLC. implements and maintains as part of our everyday procedures.

The SSSP comprises the following elements: Please note that some of the following items are located in the Company Illness and Injury Prevention Plan and may not be specifically included herein.

1. Responsibility/Key Personnel
2. Identification of Competent Persons
3. Description/ Scope of Work To Be Performed
4. Hazard/Risk/Exposure Assessment
5. Fall Protection Hazards/ Control
6. Control Measures
7. Periodic Inspections
8. Compliance
9. Written Progressive Disciplinary Program
10. Hazard Correction
11. Training and Instruction
12. Project Site Orientation
13. Employee Communication System
14. Record Keeping

- 15. Accident/ Exposure Investigation
- 16. Emergency Action Plan
- 17. Site-specific Medical Emergency Plan

1. RESPONSIBILITY / IDENTIFICATION OF KEY LINE PERSONNEL

Responsible Safety Officer (RSO) for this project: is Replace with safety Person's Name

Construction Supervisor: _____

On-site Supervisor: _____

The above noted personnel have the authority for implementing the provisions of this program. All supervisors are responsible for implementing and maintaining the SSSP Program in their work areas and for answering worker questions about the SSSP Program. A copy of this SSSP Program is available from each supervisor.

2. IDENTIFICATION OF COMPETENT PERSON(S)

_____.

3. DESCRIPTION/ SCOPE OF WORK TO BE PERFORMED

4. HAZARD/RISK/EXPOSURE ASSESSMENT

The major safety hazards/risks and exposures have been assessed as follows:

5. FALL PROTECTION HAZARDS/ CONTROL

CBC Pipeline, LLC. site staff will identify and provide countermeasures for any fall hazards. In particular, protection from falls will be provided for any scaffolds erected 10 ft. or higher during erection, alteration, or dismantling in addition to working on the scaffold at any time.

If the Competent Person determines fall protection cannot be provided during erection, or dismantling for feasibility/ constructability reasons, other reasonable efforts shall be made to ensure the least risk for workers such as; using experienced crews, utilizing a Safety Monitor, and/ or fall restraint methods.

Workers on scaffolds shall have guardrails in place as the primary means of fall protection, and shall either work from behind the guardrails, or use personal fall arrest/restraint systems when a guardrail section is removed to receive materials.

CBC Pipeline, LLC. workers required to work below the scaffold shall be protected from falling objects by the use of head protection. All other workers onsite should be kept clear of the working area underneath the scaffold, and the entire Limited Access Zone.

Overhand bricklaying will be allowed only where necessary. Workers along the roof edge will be protected by use of the scaffold as a catch platform, fall arrest or restraint systems, or a safety monitor/ warning line system if other, safer methods are unfeasible.

6. CONTROL MEASURES

CBC Pipeline, LLC. site staff will monitor the hazards/risks and exposures in accordance with this Safety Plan. The plan addresses the various hazards/risks and exposures, and the checklists and will bring any concerns or violations to the attention of the staff for correction. Unsafe or unhealthy work conditions; practices or procedures shall be corrected in a timely manner based on the severity of the hazard.

Protective equipment (PPE) may include (based on the hazard):

- * Eye protection
- * Safety boots
- * Hearing protection
- * Gloves
- * First aid kit

- * Fire extinguishers
- * Fall protection
- * Hard hats

Personnel will be trained in the proper use and application of PPE.

7. PERIODIC INSPECTIONS

Periodic inspections will be performed according to the following schedule:

- * When we initially establish our SSSP Program
- * Daily
- * When required by local regulators
- * When new substances, processes, procedures or equipment, which present potential new hazards, are introduced into our workplace
- * When new previously unidentified hazards are recognized
- * When occupational injuries and illnesses occur
- * When we hire and/or reassign permanent or intermittent workers to process, operations, or tasks for which a hazard evaluation has not been previously conducted; and
- * Whenever workplace conditions warrant an inspection

Periodic inspection consist of identification and evaluation of work place hazards

8. COMPLIANCE REQUIREMENTS

Management is responsible for ensuring that all safety and health polices and procedures are clearly communicated and understood by all employees. Managers and supervisors are expected to enforce the rules fairly and uniformly. All employees are responsible for using safe work practices, for following all directives, policies and procedures, and for assisting in maintaining a safe work environment.

Our system of ensuring that all workers comply with the rules and maintain a safe work environment includes:

- * Informing workers of the provisions of our SSSP Program
- * Evaluating the safety performances of all workers
- * Recognizing employees who perform safe and healthful practices
- * Providing training to workers whose safety performance is deficient
- * Disciplining workers for failure to comply with safe and healthful practices.

9. WRITTEN PROGRESSIVE DISCIPLINARY PROGRAM

Non-compliance with Site Specific Safety Plan will result in disciplinary action provided for in the corporate discipline program.

10. HAZARD CORRECTION

Unsafe or unhealthy work conditions; practices or procedures shall be corrected in a timely manner based on the severity of the hazards. Hazards shall be corrected according to the following procedures:

- * When observed or discovered
- * When an imminent hazard exists which cannot be immediately abated without endangering employee(s) and/or property, we will remove all exposed workers from the area except those necessary to correct the existing condition.
- * Workers necessary to correct the hazardous condition shall be provided with the necessary protection; and

All such actions taken and dates they are completed shall be documented on the appropriate forms.

11. INSTRUCTION

Workplace safety and health practices for all locations include, but are not limited to, the following:

- * Explanation of the SSSP Program, Contractor's/Client's Safety Program, emergency action plan and fire prevention plan, and measures for reporting any unsafe conditions, work Practices, injuries and when additional instruction is needed
- * Ensure proper Use of appropriate clothing, including gloves, footwear, and personal protective equipment
- * Daily Safety Planner System
- * Required information about chemical hazards to which employees could be exposed and other hazard communication program information
- * Availability of toilet, hand washing and drinking water facilities for impacted employees
- * Provisions for medical services and first aid including emergency procedures
- * In addition, we provide specific instructions to all workers regarding hazards unique to their job assignment, to the extent that such information was not

already covered in other training.

12. PROJECT SITE ORIENTATION

We orientate our workers about the following subjects as applicable:

- * CBC Pipeline, LLC. 's Code of Safe Practices
- * Good housekeeping, fire prevention, safe practices for operating any construction equipment
- * Safe working procedures for cleaning, repairing, servicing and adjusting equipment and machinery
- * Safe access to all working areas
- * Proper use of all power tools
- * Guarding use of fixed rotating cutting equipment
- * Materials handling
- * Driver safety
- * Traffic safety
- * Slips, falls, and back injuries
- * Working aloft
- * Ladder safety
- * Ergonomic hazards, including lifting techniques and working on ladders or stooped posture for prolonged periods at one time
- * Personal protective equipment
- * Respiratory equipment
- * Hazards communication
- * Client requirements
- * Job site physical hazards, such as heat stress, noise, and ionizing and non-ionizing radiation
- * Personal hygiene/ Blood borne pathogens and other biological hazards.

13. EMPLOYEE COMMUNICATION SYSTEM

We recognize that open, two-way communication between management and staff on health and safety issues is essential to an injury-free, productive workforce.

The following system of communication is designed to facilitate a continuous flow of safety and health information between management and staff in a form that is readily understandable and consists of the following items:

- * Site Specific Safety Plan (SSSP)

- * Workplace safety and health training programs
- * Regular required weekly safety meetings
- * Effective communication of safety and health concerns between workers and supervisors
- * Posted or distributed safety information
- * New worker orientation, required for all new employees.

14. RECORD KEEPING

We have taken the following steps to implement and maintain the following records to document our SSSP Program:

- * Records of hazard assessment inspections, including the person(s) or persons conducting the inspection, the unsafe conditions and work practices that have been identified and the action taken to correct the identified unsafe conditions and work practices, are recorded on a hazard assessment and correction form; and
- * Documentation of safety and health training for each worker, including the worker's name or other identifier, training dates, type(s) of training, and training providers are recorded in a worker training and instruction form.

Inspection records and training documentation will be maintained as required by contract specifications and/or local regulations.

15. ACCIDENT/EXPOSURE INVESTIGATIONS

Procedures for investigating workplace accidents and hazardous substances exposures include:

- * Responding to the accident scene as soon as possible
- * Reporting to Project Manager
- * Reporting immediately to the appropriate Client point-of-contact
- * Interviewing injured workers and witnesses
- * Examining the workers for factors associated with the accident exposure
- * Determining the cause of the accident/exposure
- * Taking corrective action to prevent the accident/exposure from reoccurring and Recording the findings and corrective actions taken.

16. EMERGENCY ACTION PLAN

In the event an evacuation of the work site is necessary, it will be announced and all staff and visitors are to leave the area immediately and assemble at a the pre-determined emergency meeting location.

The Supervisor (or acting supervisor) shall contact the Project Manager, any time an emergency action plan has been enacted. The on-site Client Representative will also be contacted immediately.

17. SITE SPECIFIC MEDICAL EMERGENCY PLAN

In the event serious injury or illness occurs to a CBC Pipeline, LLC. employee, he/she is to be taken immediately to:

For minor injuries such as simple cuts, sprains, etc. The employee will be taken to the nearest required medical treatment facility. If in doubt, assume the worst and transport the employee to: he nearest Emergency Medical Center. The on-site Client Representative shall be notified as soon as possible. In cases of serious injury or illness, the employee is to be sent immediately to the nearest hospital, by ambulance if necessary.

If the injury is the result of an accident on site then an Accident Report Form is to be filled out and submitted to the on-site Client representative.

CBC Pipeline, LLC. employees MUST report all injuries or illnesses, as soon as possible, to the on-site supervisor.

Chapter 35

Benzene/ Chemical Exposure

In the course of our construction work, our workers may be exposed to benzene. Benzene is extremely hazardous and any materials containing benzene shall be treated with the utmost caution, and in accordance with the following sections. Benzene liquid is highly flammable and vapors may form explosive mixtures in air. Fire extinguishers must be readily available. Smoking is prohibited in areas where Benzene is used or stored. The characteristics of benzene are that it is toxic, colorless, has an aromatic odor, is not soluble in water and is flammable.

It is understood that our employees' exposure to benzene may be minimal or non-existent, however all jobsites shall be considered, especially petroleum refining sites, tank gauging (tanks at producing, pipeline & refining operations, and field maintenance for potential exposure during hazard assessment inspections.

Definitions

"Benzene" (C₆H₆) (CAS Registry No. 71-43-2) means liquefied or gaseous benzene. It includes benzene contained in liquid mixtures and the benzene vapors released by these liquids. It does not include trace amounts of unreacted benzene contained in solid materials.

"Employee exposure" means exposure to airborne benzene which would occur if the employee were not using respiratory protective equipment.

"Regulated area" means any area where airborne concentrations of benzene exceed or can reasonably be expected to exceed, the permissible exposure limits, either the 8-hour time weighted average exposure of 1 ppm or the short-term exposure limit of 5 ppm for 15 minutes.

Permissible Exposure Limits (PEL's)

Time-Weighted Average Limit (TWA).

CBC Pipeline, LLC. shall assure that no employee is exposed to an airborne concentration of benzene in excess of one part of benzene per million parts of air (1 ppm) as an 8-hour time-weighted average.

Short-Term Exposure Limit (STEL). CBC Pipeline, LLC. shall assure that no employee is exposed to an airborne concentration of benzene in excess of five (5) ppm as averaged over any 15 minute period.

Regulated Areas.

CBC Pipeline, LLC. shall establish a regulated area wherever the airborne concentration of benzene exceeds or can reasonably be expected to exceed the permissible exposure limits, either the 8-hour time weighted average exposure of 1 ppm or the short-term exposure limit of 5 ppm for 15 minutes. Access to regulated areas shall be limited to authorized persons. Regulated areas shall be determined from the rest of the workplace in any manner that minimizes the number of employees exposed to benzene within the regulated area.

Exposure Monitoring.

Determinations of employee exposure shall be made from breathing zone air samples that are representative of each employee's average exposure to airborne benzene. Representative 8-hour TWA employee exposures shall be determined on the basis of one sample or samples representing the full shift exposure for each job classification in each work area. Determinations of compliance with the STEL shall be made from 15 minute employee breathing zone samples measured at operations where there is reason to believe exposures are high, such as where tanks are opened, filled, unloaded or gauged; where containers or process equipment are opened and where benzene is used for cleaning or as a solvent in an uncontrolled situation. CBC Pipeline, LLC. may use objective data, such as measurements from brief period measuring devices, to determine where STEL monitoring is needed. Except for initial monitoring as required, where the employer can document that one shift will consistently have higher employee exposures for an operation, CBC Pipeline, LLC. shall only be required to determine representative employee exposure for that operation during the shift on which the highest exposure is expected.

Initial Monitoring.

Each employer who has a place of covered employment shall monitor each of these workplaces and work operations to determine accurately the airborne concentrations of benzene to which employees may be exposed. The initial monitoring required shall be completed by 60 days after the effective date of this standard or within 30 days of the introduction of benzene into the workplace. Where CBC Pipeline, LLC. has monitored, and the monitoring satisfies all other requirements, CBC Pipeline, LLC. may rely on such earlier monitoring results.

Periodic Monitoring and Monitoring Frequency.

If the monitoring reveals employee exposure at or above the action level but at or below the TWA, CBC Pipeline, LLC. shall repeat such monitoring for each such employee at least every year. If the monitoring reveals employee exposure above the TWA, CBC Pipeline, LLC. shall repeat such monitoring for each such employee at least every six (6) months. CBC Pipeline, LLC. may alter the monitoring schedule from every six months to annually for any employee for whom two consecutive measurements taken at least 7 days apart indicate that the employee exposure has decreased to the TWA or below, but is at or above the action level. Monitoring for the STEL shall be repeated as necessary to evaluate exposures of employees subject to short term exposures.

Termination of Monitoring.

If the initial monitoring reveals employee exposure to be below the action level CBC Pipeline, LLC. may discontinue the monitoring for that employee, except as otherwise required. If the periodic monitoring reveals that employee exposures, as indicated by at least two consecutive measurements taken at least 7 days apart, are below the action level CBC Pipeline, LLC. may discontinue the monitoring for that employee, except as otherwise required.

Additional Monitoring.

CBC Pipeline, LLC. shall institute the exposure monitoring when there has been a change in the production, process, control equipment, personnel or work practices which may result in new or additional exposures to benzene, or when CBC Pipeline, LLC. has any reason to suspect a change which may result in new or additional exposures. Whenever spills, leaks, ruptures or other breakdowns occur that may lead to employee exposure, CBC Pipeline, LLC. shall monitor (using area or personal sampling) after the cleanup of the spill or repair of the leak, rupture or other breakdown to ensure that exposures have returned to the level that existed prior to the incident.

Accuracy of Monitoring.

Monitoring shall be accurate, to a confidence level of 95 percent, to within plus or minus 25 percent for airborne concentrations of benzene.

Employee Notification of Monitoring Results.

CBC Pipeline, LLC. shall, within 15 working days after the receipt of the results of any monitoring performed, notify each employee of these results in writing either individually or by posting of results in an appropriate location that is accessible to affected employees. Whenever the PELs are exceeded, the written notification shall contain the corrective action being taken by CBC Pipeline, LLC. to reduce the employee exposure to or below the PEL, or shall refer to a document available to the employee which states the corrective actions to be taken.

Methods of Compliance

Engineering controls and work practices.

CBC Pipeline, LLC. shall institute engineering controls and work practices to reduce and maintain employee exposure to benzene at or below the permissible exposure limits, except to the extent that CBC Pipeline, LLC. can establish that these controls are not feasible. Wherever the feasible engineering controls and work practices which can be instituted are not sufficient to reduce employee exposure to or below the PELs, CBC Pipeline, LLC. shall use them to reduce employee exposure to the lowest levels achievable by these controls and shall supplement them by the use of respiratory protection. Where CBC Pipeline, LLC. can document that benzene is used in a workplace less than a total of 30 days per year, CBC Pipeline, LLC. shall use engineering controls, work practice controls or respiratory protection or any combination of these controls to reduce employee exposure to benzene to or below the PELs, except that employers shall use engineering and work practice controls, if feasible, to reduce exposure to or below 10 ppm as an 8-hour TWA.

Compliance Program.

When any exposures are over the PEL, CBC Pipeline, LLC. shall establish and implement a written program to reduce employee exposure to or below the PEL primarily by means of engineering and work practice controls. The written program shall include a schedule for development and implementation of the engineering and work practice controls. These plans shall be reviewed and revised as appropriate based on the most recent exposure monitoring data, to reflect the current status of the program. Written compliance programs shall be furnished upon request for examination and copying to the Assistant Secretary, the Director, affected employees and designated employee representatives.

CBC Pipeline, LLC. should be aware of Owners contingency plan provisions. Employees must be informed where benzene is used in host facility and aware of additional plant safety rules.

Respiratory Protection.

General.

CBC Pipeline, LLC. shall provide respirators, and assure that they are used, where required. Respirators shall be used in the following circumstances: During the time period necessary to install or implement feasible engineering and work practice controls; In work operations for which CBC Pipeline, LLC. establishes that compliance with either

the TWA or STEL through the use of engineering and work practice controls is not feasible, such as some maintenance and repair activities, vessel cleaning, or other operations where engineering and work practice controls are infeasible because exposures are intermittent in nature and limited in duration; In work situations where feasible engineering and work practice controls are not yet sufficient or are not required to reduce exposure to or below the PELs; and in emergencies.

Respirator Selection.

Where respirators are required or allowed under this section, CBC Pipeline, LLC. shall select and provide, at no cost to the employee, the appropriate respirator as specified in Table 1, and shall assure that the employee uses the respirator provided. CBC Pipeline, LLC. shall select respirators from among those jointly approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health under the provisions of 30 CFR Part 11. Negative pressure respirators shall have filter elements approved by MSHA/NIOSH for organic vapors or benzene. Any employee who cannot wear a negative pressure respirator shall be given the option of wearing a respirator with less breathing resistance such as a powered air-purifying respirator or supplied air respirator. (3) Respirator program. CBC Pipeline, LLC. shall institute a respiratory protection program.

Respirator Use.

Where air-purifying respirators are used, CBC Pipeline, LLC. shall replace the air purifying element at the expiration of service life or at the beginning of each shift in which they will be used, whichever comes first. If an air purifying element becomes available with an end of useful life indicator for benzene approved by MSHA/NIOSH, the element may be used until such time as the indicator shows no further useful life. CBC Pipeline, LLC. shall permit employees who wear respirators to leave the regulated area to wash their faces and respirator facepieces as necessary in order to prevent skin irritation associated with respirator use or to change the filter elements of air-purifying respirators whenever they detect a change in breathing resistance or chemical vapor breakthrough.

Respirator Fit Testing.

CBC Pipeline, LLC. shall perform, and certify the results of, either quantitative or qualitative fit tests at the time of initial fitting and at least annually thereafter for each employee wearing a negative pressure respirator. The test shall be used to select a respirator facepiece which exhibits minimum leakage and provides the required protection as prescribed in Table 1. CBC Pipeline, LLC. shall provide and assure that the employee wears a respirator demonstrated by the fit test to provide the required protection. CBC Pipeline, LLC. shall follow the test protocols for whichever type of fit testing CBC Pipeline, LLC. chooses.

TABLE 1. - RESPIRATORY PROTECTION FOR BENZENE

Airborne concentration of benzene or condition of use	Respirator type
(a) Less than or equal to 10 ppm:	Half-mask air-purifying respirator with organic vapor cartridge
(b) Less than or equal to 50 ppm:	Full facepiece respirator with organic vapor cartridges Full facepiece gas mask with chin style canister
(c) Less than or equal to 100 ppm:	Full facepiece powered air-purifying respirator with organic vapor canister
(d) Less than or equal to 1,000ppm:	Supplied air respirator with full facepiece in positive-pressure mode
(e) Greater than 1,000 ppm or unknown concentration:	Self-contained breathing apparatus with full facepiece in positive pressure mode Full facepiece positive-pressure supplied-air respirator with auxiliary self-contained airsupply
(f) Escape	Any organic vapor gas mask; or Any self-contained breathing apparatus with full facepiece
(g) Firefighting	Full facepiece self-contained breathing apparatus in positive pressure mode

Footnote(1) Canisters must have a minimum service life of four (4) hours when tested at 150 ppm benzene, at a flow rate of 64 LPM, 25 deg. C, and 85% relative humidity for non-powered air purifying respirators. The flow rate shall be 115 LPM and 170 LPM respectively for tight fitting and loose fitting powered air-purifying respirators.

PPE:

Personal protective clothing and equipment shall be worn where appropriate to prevent eye contact and limit epidermal exposure to liquid benzene. Protective clothing and equipment shall be provided by CBC Pipeline, LLC. and we shall assure its use

where appropriate. Eye and face protection shall meet the requirements of 29 CFR 1910.133.

Medical Surveillance & Examinations

Some of the health effects of Benzene, including eye & skin irritations, short term effects can be breathless, irritable, euphoria, etc. CBC Pipeline, LLC. shall make available a medical surveillance program for employees who are or may be exposed to benzene at or above the action level 30 or more days per year; for employees who are or may be exposed to benzene at or above the PELs 10 or more days per year; for employees who have been exposed to more than 10 ppm of benzene for 30 or more days in a year prior to the effective date of the standard when employed by their current employer; and for employees involved in the tire building operations called tire building machine operators, who use solvents containing greater than 0.1 percent benzene.

CBC Pipeline, LLC. shall assure that all medical examinations and procedures are performed by or under the supervision of a licensed physician and that all laboratory tests are conducted by an accredited laboratory. Persons other than licensed physicians who administer the pulmonary function testing required by this section shall complete a training course in spirometry sponsored by an appropriate governmental, academic or professional institution. All examinations and procedures are provided without cost to the employee and at a reasonable time and place. Within 60 days of the effective date of this standard, or before the time of initial assignment, CBC Pipeline, LLC. shall provide each affected employee with a medical examination including the following elements: (A) A detailed occupational history which includes: {1} Past work exposure to benzene or any other hematological toxins, {2} A family history of blood dyscrasias including hematological neoplasms; {3} A history of blood dyscrasias including genetic hemoglobin abnormalities, bleeding abnormalities, abnormal function of formed blood elements; {4} A history of renal or liver dysfunction; {5} A history of medicinal drugs routinely taken; {6} A history of previous exposure to ionizing radiation and {7} Exposure to marrow toxins outside of the current work situation. (B) A complete physical examination. (C) Laboratory tests. A complete blood count including a leukocyte count with differential, a quantitative thrombocyte count, hematocrit, hemoglobin, erythrocyte count and erythrocyte indices (MCV, MCH, MCHC).

The results of these tests shall be reviewed by the examining physician. (D) Additional tests as necessary in the opinion of the examining physician, based on alterations to the components of the blood or other signs which may be related to benzene exposure; and (E) For all workers required to wear respirators for at least 30 days a year, the physical examination shall pay special attention to the cardiopulmonary system and shall include a pulmonary function test.

No initial medical examination is required if adequate records show that the employee has been examined in accordance with the procedures of this section within the twelve months prior to the effective date of this standard. Periodic examinations. CBC Pipeline, LLC. shall provide each affected employee with a medical examination annually following the previous examination. These periodic examinations shall include at least the following elements: (A) A brief history regarding any new exposure to potential marrow toxins, changes in medicinal drug use, and the appearance of physical signs relating to blood disorders; (B) A complete blood count including a leukocyte count with differential, quantitative thrombocyte count, hemoglobin, hematocrit, erythrocyte count and erythrocyte indices (MCV, MCH, MCHC); and (C) Appropriate additional tests as necessary, in the opinion of the examining physician, in consequence of alterations in the components of the blood or other signs which may be related to benzene exposure.

Where the employee develops signs and symptoms commonly associated with toxic exposure to benzene, CBC Pipeline, LLC. shall provide the employee with an additional medical examination which shall include those elements considered appropriate by the examining physician. For persons required to use respirators for at least 30 days a year, a pulmonary function test shall be performed every three (3) years. A specific evaluation of the cardiopulmonary system shall be made at the time of the pulmonary function test.

Emergency examinations. In addition to the surveillance required, if an employee is exposed to benzene in an emergency situation, CBC Pipeline, LLC. shall have the employee provide a urine sample at the end of the employee's shift and have a urinary phenol test performed on the sample within 72 hours. The urine specific gravity shall be corrected to 1.024. If the result of the urinary phenol test is below 75 mg phenol/L of urine, no further testing is required. If the result of the urinary phenol test is equal to or greater than 75 mg phenol/L of urine, CBC Pipeline, LLC. shall provide the employee with a complete blood count including an erythrocyte count, leukocyte count with differential and thrombocyte count at monthly intervals for a duration of three (3) months following the emergency exposure. If any of the conditions specified exists, then the further requirements of this section shall be met and CBC Pipeline, LLC. shall, in addition, provide the employees with periodic examinations if directed by the physician.

Additional examinations and referrals. Where the results of the complete blood count required for the initial and periodic examinations indicate any of the following abnormal conditions exist, then the blood count shall be repeated within 2 weeks. The hemoglobin level or the hematocrit falls below the normal limit [outside the 95% confidence interval (C.I.)] as determined by the laboratory for the particular geographic area and/or these indices show a persistent downward trend from the individual's pre-exposure norms; provided these findings cannot be explained by other medical reasons. (B) The

thrombocyte (platelet) count varies more than 20 percent below the employee's most recent values or falls outside the normal limit (95% C.I.) as determined by the laboratory. (C) The leukocyte count is below 4,000 per mm³ or there is an abnormal differential count. (ii) If the abnormality persists, the examining physician shall refer the employee to a hematologist or an internist for further evaluation unless the physician has good reason to believe such referral is unnecessary.

CBC Pipeline, LLC. shall provide the hematologist or internist with the information required to be provided to the physician and the medical record required to be maintained. The hematologist's or internist's evaluation shall include a determination as to the need for additional tests, and CBC Pipeline, LLC. shall assure that these tests are provided. Information provided to the physician. CBC Pipeline, LLC. shall provide the following information to the examining physician: A copy of this regulation and its appendices; A description of the affected employee's duties as they relate to the employee's exposure; The employee's actual or representative exposure level; (iv) A description of any personal protective equipment used or to be used; and Information from previous employment-related medical examinations of the affected employee which is not otherwise available to the examining physician.

Physician's written opinions. For each examination under this section, CBC Pipeline, LLC. shall obtain and provide the employee with a copy of the examining physician's written opinion within 15 days of the examination. The written opinion shall be limited to the following information: The occupationally pertinent results of the medical examination and tests; The physician's opinion concerning whether the employee has any detected medical conditions which would place the employee's health at greater than normal risk of material impairment from exposure to benzene; The physician's recommended limitations upon the employee's exposure to benzene or upon the employee's use of protective clothing or equipment and respirators. A statement that the employee has been informed by the physician of the results of the medical examination and any medical conditions resulting from benzene exposure which require further explanation or treatment.

The written opinion obtained by CBC Pipeline, LLC. shall not reveal specific records, findings and diagnoses that have no bearing on the employee's ability to work in a benzene-exposed workplace.

Medical Removal Plan

When a physician makes a referral to a hematologist/internist as required, the employee shall be removed from areas where exposures may exceed the action level until such time as the physician makes a determination. Following the examination and evaluation by the hematologist/internist, a decision to remove an employee from areas where benzene exposure is above the action level or to allow the employee to return to areas where benzene exposure is above the action level shall be made by the physician

in consultation with the hematologist/internist. This decision shall be communicated in writing to CBC Pipeline, LLC. and employee.

In the case of removal, the physician shall state the required probable duration of removal from occupational exposure to benzene above the action level and the requirements for future medical examinations to review the decision. For any employee who is removed, CBC Pipeline, LLC. shall provide a follow-up examination. The physician, in consultation with the hematologist/internist, shall make a decision within 6 months of the date the employee was removed as to whether the employee shall be returned to the usual job or whether the employee should be removed permanently. Whenever an employee is temporarily removed from benzene exposure, CBC Pipeline, LLC. shall transfer the employee to a comparable job for which the employee is qualified (or can be trained for in a short period) and where benzene exposures are as low as possible, but in no event higher than the action level. CBC Pipeline, LLC. shall maintain the employee's current wage rate, seniority and other benefits. If there is no such job available, CBC Pipeline, LLC. shall provide medical removal protection benefits until such a job becomes available or for 6 months, whichever comes first.