Safety Manual

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Accident Investigation Plan

Purpose

This is Romer Utility Service's Accident Investigation Plan prescribes methods and practices for investigating accidents. No matter how conscientious the safety effort at a company, accidents happen occasionally due to human or system error. Therefore, this written plan is intended to provide a means to deal with all workplace accidents in a standardized way.

Administrative Duties

Safety Representative, Safety Manager is responsible for developing and maintaining this written Accident Investigation Plan. This person is solely responsible for all facets of the plan and has full authority to make necessary decisions to ensure the success of this plan. Safety Representative is also qualified, by appropriate training and experience that is commensurate with the complexity of the plan, to administer or oversee our Accident Investigation Plan and conduct investigations. This written Accident Investigation Plan is kept in the Safety Manager's office.

Accident Investigation Procedures

Thorough accident investigations will help the company determine why accidents occur, where they happen, and any trends that might be developing. Such identification is critical to preventing and controlling hazards and potential accidents. All incidents are to be investigated by appointed personnel and will take place as soon as possible after incident. A review will follow an investigation and will be communicated to all employees to prevent occurrence from happing again. For all accident investigations, Safety Manager, Safety Team and Employee Supervisor will perform the following duties:

1. Conducts the accident investigation at the scene of the injury as soon after the injury as safely possible.

2. Asks the employee involved in the accident and any witnesses, in separate interviews, to tell him/her in their own words exactly what happened. He/She does not interrupt or ask for more details at that time; he/she just lets the employee describe it in his/her own style.

3. Repeats the employee's version of the event back to the employee or witness and allows him/her to make any corrections or additions.

4. After the employee or witness has given his/her description of the event, asks appropriate questions that focus on causes.

5. Reminds the employee that the investigation was to determine the cause and possible corrective action that can eliminate the cause(s) of the accident.

6. Completes section "A" of the attached Accident Investigation Form with the employee, and reviews the data with the employee for accuracy.

7. Uses the Accident Investigation Form for:

   - Tracking and reporting injuries on a monthly basis;
   - Grouping injuries by type, cause, body part affected, time of day, and process involved;
   - Determining if any trends in injury occurrence exist and graphing those trends if possible;
   - Identifying any equipment, materials, or environmental factors that seem to be commonly involved in injury incidents;
   - Discussing with the safety team and superiors the possible solutions to the problems identified; and
   - Proceeding with improvements to reduce the likelihood of future injuries.
     A sample Accident Investigation Form is provided in the appendices.

8. Report incident to applicable regulatory agencies (i.e. OSHA) within 8 hours of occurrence and 24 hours to client/site operators.

Injury, Illness, and Medical Issues

We also follow these procedures:

1. If a workplace accident results in an injury or illness requiring hospitalization of three or more employees or a fatality of one or more employee, Safety Representative, Safety Manager reports the incident within eight hours by phone or in person to the nearest OSHA office.

2. If an injured person is taken to a doctor, Safety Representative attaches the doctor's statement to the Accident Report Form.

3. If the injury or illness is "recordable" according to OSHA regulation, 29 CFR 1904, then the Safety Manager enters each recordable injury or illness on the OSHA 300 Log, OSHA 301 Incident Report, and a separate, confidential list of privacy-concern cases, if any, within 7 calendar days of receiving information that a recordable injury or illness has occurred.

4. Employees with workplace injuries resulting in time off work shall be put in the company's Return-to-Work Program to facilitate their full recovery and resumption of original work.

5. Weekly compensation for workplace injuries or illnesses requiring time off work, as indicated by law, applies after the third day of wage loss.

6. On the day of the injury, the company will cover the time loss due to doctor and/or emergency room visits or inability to work, up to a maximum of four hours.

7. Any time an associate is away from work because of an accident on-the-job, it should be recorded on the time sheet under Accident on Duty.

Recordkeeping

Safety Representative, Safety Manager is responsible for maintaining the following records and documentation:

- Accident Report Forms.
- Accident Investigation Forms.
- OSHA 300 Form, Log of Work-Related Injuries and Illnesses. Starting January 1, 2002, injuries and illnesses at the company are recorded on this form within seven calendar days of receiving information that a recordable injury or illness has occurred.
- OSHA 301 Form, Injury and Illness Incident Report. Starting January 1, 2001, injuries and illnesses at the company are recorded on this form within seven calendar days of receiving information that a recordable injury or illness has occurred.
- OSHA 300-A Form, Summary of Work-Related Injuries and Illnesses. This form is completed by the end of the year, posted no later than February 1 of the year following the year covered by the form (the first one must be posted in the year 2003), and kept posted in place until April 30.
- Training records.
- Other forms including equivalent injury and illness recording forms.

Employee Involvement and Training

This plan is an internal document guiding the action and behaviors of employees, so they need to know about it. At the time of their hire Safety Representative, Safety Manager thoroughly explains to all employees why the Accident Investigation Plan was prepared and how employees may be affected by it. Employees are informed in how to report an injury or illness.
Our company does not discriminate against employees for:

- Reporting a work-related fatality, injury, or illness;
- Filing a safety and health complaint;
- Asking for access to occupational injury and illness records; or
- Exercising any rights afforded by the Occupational Safety and Health Act.

Program Evaluation

The Accident Investigation Plan is evaluated and updated by Safety Representative, Safety Manager annually to determine whether the plan is being followed and if further training may be necessary.

Appendices

We have attached the following appendices to ensure better understanding of this plan:

- Employee Report of Accident, Injury or Illness
- Supervisor's Report of Accident
- Safety Committee Accident Investigation Report

Employee Report of Accident, Injury or Illness

Instructions: Please Print. Fill in all blanks. If a blank does not pertain to your accident, injury or illness write "N/A" in that blank. When completed, return this form to your supervisor.

Name: _____

Social Security Number: _____ Sex ___Age _____

Address_____ Phone Number _____

Marital Status ❑Single ❑Married ❑Separated ❑Divorced ❑Widowed
#of Dependents_____

Employment Start Date	Time in Present Job
Job Title	Supervisor's Name
Department	Date & Time of Accident
Location of Accident	Task being Performed
Name of Witness	Name of Witness
Describe how the accident happened	
What caused the Accident	
What could have prevented this accident	
Date & Time you first sought medical attention	
Name of Hospital or Doctor	
Were you using required safety equipment?	
Do you have a job at another company?	

The information I have provided either in my own writing or verbally for the purpose of this form is true and correct. I understand that providing false or misleading information or omission of information on this report or any other form relating to this claim of injury/accident may result in termination of my employment.

Signature of Employee: _____ Date: _____

Signature of Witness: _____

Supervisor's Report of Accident

Supervisor's Name: _____

Basic Rules for Accident Investigation

- Find the cause to prevent future accidents - Use an unbiased approach during investigation
- Interview witnesses & injured employees at the scene - conduct a walkthrough of the accident
- Conduct interviews in private - Interview one witness at a time.
- Get signed statements from all involved.
- Take photos or make a sketch of the accident scene.
- What hazards are present - what unsafe acts contributed to accident
- Ensure hazardous conditions are corrected immediately.

Date & Time		**Location**	
Tasks performed		**Witnesses**	
Resulted in	**__ Injury __ Fatality** **__Property Damage**	**Property Damage**	
Injured		**Injured**	
Describe Accident Facts & Events			

Supervisor's Incident Cause Analysis
Check ALL that apply to this accident

Unsafe Acts		Unsafe Conditions	
Improper work technique		Poor Workstation design	
Safety rule violation		Unsafe Operation Method	
Improper PPE or PPE not used		Improper Maintenance	
Operating without authority		Lack of direct supervision	
Failure to warn or secure		Insufficient Training	
Operating at improper speeds		Lack of experience	
By-passing safety devices		Insufficient knowledge of job	
Protective equipment not in use		Slippery conditions	
Improper loading or placement		Excessive noise	
Improper lifting		Inadequate guarding of hazards	
Servicing machinery in motion		Defective tools/equipment	

Horseplay		Poor housekeeping	
Drug or alcohol use		Insufficient lighting	
Unsafe Acts require a written warning and re-training before the Employee resumes work			
	Date		**Date**
Re-Training Assigned		Unsafe Condition Guarded	
Re-Training Completed		Unsafe Condition Corrected	
Supervisor Signature		**Supervisor Signature**	

Incident Report Review

Supervisor _____ Date _____

Safety Manager _____ Date _____

Plant Manager _____ Date _____

Management Comments:

Safety Committee Accident Investigation Report

Name	Age	Time	Date
Department – Shift	**Job**	**How long on this job?**	
What Happened?			
Why Did It Happen?			
What Should Be Done?			
What Has Been Done Thus Far?			
How Will This Improve Operations?			

Investigated By		**Date**	
Safety Manager Signature		**Date**	

NOTE: Number of injuries for this employee in the last 12 months: _____

Abrasive Blasting / Silica Safety Program

Romer Utility Services will review and evaluate this standard practice instruction in accordance with the following:

- On an annual basis.
- When changes occur to governing regulatory sources that require revision.
- When changes occur to related company procedures that require a revision.
- When facility operational changes occur that require a revision.
- When there is an accident or close-call that relates to this area of safety.
- Anytime the procedures fail.

Effective implementation of this program requires support from all levels of management. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of the number of workers employed or the number of work shifts. It is designed to establish clear goals and objectives.

2. Related programs. The following safety programs are used in consonance with this program:

2.1 Ventilation Safety Program.

2.2 Confined Space Entry Program.

2.3 Respiratory Protection Program.

2.4 Hazard Communication Program.

2.5 Air Contaminants Safety Program.

3. Hazard overview. Abrasive blasting involves forcefully projecting a stream of abrasive particles onto a surface, usually with compressed air or steam. Because silica sand is commonly used in this process, workers who perform abrasive blasting are often known as sandblasters.

4. Health effects. When workers inhale the crystalline silica used in abrasive blasting, the lung tissue reacts by developing fibrotic nodules and scarring around the trapped silica particles. This fibrotic condition of the lung is called silicosis. If the nodules grow too large, breathing becomes difficult and death may result. Silicosis victims are also at high risk of developing active tuberculosis. The silica sand used in abrasive blasting typically fractures into fine particles and becomes airborne.

Inhalation of such silica appears to produce a more severe lung reaction than silica that is not freshly fractured. This factor may contribute to the development of acute and accelerated forms of silicosis among sandblasters. Sandblaster working in the dusty atmosphere created by airborne particles of silica sand without proper personal protective equipment and who remain in an atmosphere containing these particles may inhale dangerous or lethal amounts unknowingly.

Abrasives and 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.

4.1 Types of silicosis: A worker may develop any of three types of silicosis, depending on the airborne concentration of crystalline silica:

- **Chronic Silicosis**: Chronic silicosis, which usually occurs after 10 or more years of exposure to crystalline silica at relatively low concentrations
- **Accelerated Silicosis**: Accelerated silicosis, which results from exposure to high concentrations of crystalline silica and develops 5 to 10 years after the initial exposure
- **Acute Silicosis**: Acute silicosis, which occurs where exposure concentrations are the highest and can cause symptoms to develop within a few weeks to 4 or 5 years after the initial exposure.

4.2 Symptoms of Silicosis: Silicosis (especially the acute form) is characterized by shortness of breath, fever, and cyanosis (bluish skin); it may often be misdiagnosed as pulmonary edema (fluid in the lungs), pneumonia, or tuberculosis. Severe mycobacterial or fungal infections often complicate silicosis and may be fatal in many cases. Fungal or mycobacterial infections are believed to result when the lung scavenger cells (macrophages) that fight these diseases are overwhelmed with silica dust and are unable to kill mycobacteria and other organisms.

4.3 Actions to Take: Should you experience any symptoms that you feel may be related to silicosis contact your supervisor immediately so that a medical evaluation can be scheduled.

5. Engineering controls. ROMER UTILITY SERVICES will install and maintain engineering controls where possible to eliminate or reduce the amount of silica in the work area and to reduce build-up of dust on equipment and machinery surfaces. Preventative maintenance will be conducted as a high priority to ensure effectiveness of the Engineering Controls.

Where possible PEL Levels will be controlled by, but limited to:

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 the "Threshold Limit Values of Airborne Contaminants - 1970" of the American Conference of Governmental Industrial Hygienists.

The use of a non-silica-based blasting agent, all employees using the blasting equipment are doing so only after they are protected further by way of an air powered hood supplied with fresh breathing air via an electric non petroleum filled compressor.

Compressed air shall not be used for cleaning purposes except where reduced to less than 30 PSI.

6. Administrative controls. Where Engineering Controls are not feasible Administrative Controls will be attempted where possible to eliminate or reduce the amount of silica or environmental dusts each worker is exposed to. Where possible controls will include, but are not limited to:

6.1 Job-specific training programs

6.2 Job rotation

6.3 Job enlargement

6.4 Job pacing variations

6.5 Checklists for job improvement

6.6 Policies and procedure development

6.7 Regular job inspections and review

6.8 Organic abrasives which are combustible shall be used only in automatic systems. All other situations will require the nozzle shall be bonded and grounded.

8. **Personal protective equipment (PPE).** Where Administrative Controls are not feasible PPE will be selected and used through the Job Hazard Analysis Program. Equipment for protection of the eyes and face shall be supplied to the operator when the respirator design does not provide such protection.

9. Equipment for protection of the eyes and face shall be supplied to any other personnel working in the vicinity of abrasive blasting operations. Supervisors will ensure that equipment selected will meet the following requirements:

8.1 It will be appropriate for the particular hazard.

7.2 It will be maintained in good condition.

7.3 It will be properly stored when not in use, to prevent damage or loss.

7.4 It will be kept clean, fully functional and sanitary.

7.5 Hazards associated with wear of protective clothing, PPE, personal clothing and jewelry. Protective clothing and PPE can present additional safety hazards. Supervisors will ensure workers wear appropriate clothing and PPE. These items will be worn so as not create additional hazards. Air for abrasive-blasting respirators must be free of harmful quantities of dusts, mists, or noxious gases.

7.5.1 Personal clothing and jewelry. Personal clothing and jewelry will be monitored by the immediate supervisor. Clothing or jewelry that could become entangled in tools, equipment or machinery or of an excessively flammable nature will be prohibited.

7.6 Documentation. PPE requirements will be documented on a "Protective Measures Determination" form (Job Hazard Analysis Program) and properly filed.

7.7 Types of PPE. Where required, PPE will include, but are not limited to:

7.7.1 Abrasive Blasting Gloves

7.7.2 Appropriate Respirators

7.7.3 Body Shields

7.7.4 Aprons

7.7.5 Non-slip and steel-toed shoes

7.7.6 Full eye protection

7.7.7 Full-body jump suits for dust protection

7.7.8 Hard hats

7.7.9 Caps

7.7.10 Hair nets

7.7.11 Footguards

8. General requirements. Romer Utility Services will establish Abrasive Blasting operational procedures through the use of this document.

8.1 The blast cleaning nozzles shall be equipped with an operating valve which must be held open manually for the blaster to work. If this is found by the operator to be malfunctioning the machine must be red tagged and taken out of service.

8.2 Facility Evaluation. This employer shall evaluate our facility(s) or host employer facilities to determine if any work area meets the criteria for designation as an Abrasive Blasting Hazard Area. Such areas will be fully evaluated for safety and compliance with respective safety regulations.

8.3 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.

9. Permit-required confined space program. This employer will implement our confined space program when performing work in areas designated as a confined space. The permit-required confined space program will conform to the requirements of 29 CFR 1910.146. This employer shall:

9.1 Implement the measures necessary to prevent unauthorized entry.

9.2 Identify and evaluate the hazards of permit spaces before employees enter them.

9.3 Pre-entry requirements. Develop and implement the means, procedures, and practices necessary for safe permit space entry operations, including, but not limited to, the following:

9.3.1 Specifying acceptable entry conditions.

9.3.2 Isolating the permit space.

9.3.3 Purging, inserting, flushing, or ventilating the permit space as necessary to eliminate or control atmospheric hazards.

9.3.4 Provide pedestrian, vehicle, or other barriers as necessary to protect entrants from external hazards.

9.3.5 Verify that conditions in the permit space are acceptable for entry throughout the duration of an authorized entry.

9.3.6 Develop and utilize checklists based on this standard practice instruction and 29 CFR 1910.146.

10. Procedures for atmospheric testing. Atmospheric testing for Abrasive Blasting Hazard Areas is required for two distinct purposes: Evaluation of the hazards of the work area and verification that acceptable particulate levels exist in that area.

10.1 Evaluation testing. This company will ensure that the atmosphere is analyzed using equipment of sufficient sensitivity and specificity to identify and evaluate any hazardous particulate levels that may exist or arise. Evaluation and interpretation of these data, and development work procedures, will be done by, or reviewed by, a technically qualified professional (e.g., OSHA consultation service, or certified industrial hygienist, registered safety engineer, certified safety professional, etc.) based on evaluation of all serious hazards.

11. Training.

11.1 Types of training. The company will determine whether training required for specific jobs will be conducted in a classroom or on-the-job. The degree of training provided shall be determined by the complexity of the job and the Abrasive Blasting exposure hazards associated with the individual job.

11.1.1 Initial Training. Prior to job assignment, this employer shall provide training to ensure that the hazards associated with Abrasive Blasting are understood by employees and that the knowledge, skills and personal protective equipment required are acquired by employees. The training shall as a minimum include the following:

11.1.1.1 Each authorized employee shall receive training in the recognition of applicable hazards involved with the particular job and job site, as well as the methods and means necessary for safe work.

11.1.1.2 The specific nature of the operation which could result in exposure to Abrasive Blasting materials.

11.1.1.3 The purpose, proper selection, fitting, use and limitation of personal protective equipment (PPE)

11.1.1.4 The adverse health effects associated with excessive exposure to Abrasive Blasting materials.

11.1.1.5 The engineering controls, administrative controls and work practices associated with the employee's job assignment, including training of employees to follow relevant good work practices.

11.1.1.6 The contents of any compliance plan in effect.

11.1.1.7 The employee's right of access to records under 29 CFR 1910.20.

11.1.1.8 Review of any pertinent Safety Data Sheets.

12. Retraining.

12.1 Retraining shall be provided for all affected employees as a minimum under the following conditions:

12.1.1 Whenever there is a change in job assignments.

12.1.2 Whenever there is a change in personal protective equipment.

12.1.3 Whenever there is a change in equipment that presents a new hazard.

12.1.4 Whenever there is a change in processes that presents a new hazard.

12.1.5 Whenever their work takes them into hazardous areas.

12.1.6 Whenever there is a change in Abrasive Blasting safety procedures.

12.1.7 Whenever safety procedure fails resulting in a near-miss, illness, or injury.

12.2 Additional retraining. Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever this employer has reason to believe, that there are deviations from or inadequacies in the employee's knowledge of known hazards, or use of equipment or procedures.

12.3 The retraining shall reestablish employee proficiency and introduce new equipment, or revised control methods and procedures, as necessary.

12.4 Certification. This employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain a synopsis of the training conducted, each employee's name, and dates of training.

13. Work operations.

13.1 A respiratory protection program shall be established wherever it is necessary to use respiratory protective equipment including worksite-specific procedures and elements for required respirator use. Abrasive blasting respirators shall be worn by all abrasive blasting operators under certain conditions.

13.2 The equipment and materials used to accomplish work operations are those normally associated with sandblasting and painting operations.

13.3 Employee crew size will vary and employee job responsibilities will be that of their craft as stated in the company's policy manual. Specific additional responsibilities will be:

13.3.1 Superintendent/General Supervisor

13.3.1.1 Monitors procedure to ensure compliance with this work practice.

13.3.2 Supervisors

13.3.2.1 Ensures that the initial determination for potential Abrasive Blasting or particulate exposure has been accomplished before work begins.

13.3.2.2 Supervises the safe performance of work in accordance with this and other related work practices.

13.3.2.3 Assigns jobs only to qualified employees.

13.3.3 Employees

13.3.3.1 Uses the protective and safety equipment as assigned and directed.

13.3.3.2 Abides by the requirements of this and site-specific work practices.

14. Monitoring and measurement procedures.

14.1 Eight Hour Time Weighted Average (TWA) Evaluations. Where required 8hr TWAs will be taken so that the average eight-hour exposure is based on a single eight-hour sample. Air samples will be taken in the employee's breathing zone. Only qualified personnel will be selected to conduct evaluations.

14.2 Ceiling Evaluations. Where possible, measurements to determine employee ceiling exposure will be taken during periods of maximum expected airborne concentrations of Abrasive Blasting materials or particulates. Each measurement will consist of a fifteen (15) minute sample or series of consecutive samples totaling fifteen (15) minutes. Air samples will be taken in the employee's breathing zone and only by qualified personnel.

14.3 Peak and Above Ceiling Evaluations. Measurements to determine employee peak exposure will be taken during periods of maximum expected airborne concentrations of Abrasive Blasting materials or particulates. Each measurement will consist of a ten (10) minute sample or series of consecutive samples totaling ten (10) minutes. A minimum of three measurements will be taken on one work shift and the highest of all measurements taken will be assumed to be an estimate of the employee's exposure. Air samples will be taken in the employee's breathing zone and only by qualified personnel.

14.4 Sampling Methods. Sampling and analysis will be conducted in accordance with acceptable industrial hygiene practices. Sampling data will be maintained for the duration of employment of the affected employee plus 30 years.

15. Spill and leak procedures. Spill and leak procedures will largely depend on the capability and emergency procedures of this and any host employer. This employer will ensure that adequate clean up procedures are in effect in any facility owned by this company. Any time employees work with a host employer we will ensure adequate procedures are in-place for the protection of all employee's (host and contractor) and the surrounding area.

16. Emergency first aid procedures. In the event of an emergency, institute first aid procedures and send for first aid or medical assistance in accordance with local procedures.

16.1 Eye Exposure: Wash immediately with large amounts of water. Lifting the lower and upper lids occasionally, get medical attention as soon as possible.

16.2 Skin Exposure (imbedded particulates): Immediately flush with copious amounts of water. Remove any clothing blocking exposed skin areas and flush exposed skin areas, get medical attention as soon as possible.

16.3 Respiratory Exposure: Get the victim to open, fresh air immediately. If breathing has stopped perform CPR. Keep the victim warm and at rest. Get medical attention as soon as possible.

16.4 Rescue Considerations. Don't become a second victim. Move the affected person from the hazardous area. If the exposed person has been overcome, initiate local emergency notification procedures. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises.

17. Tool selection, evaluation and condition. The greatest hazards posed by tools usually result from misuse and/or improper maintenance. Tool selection sometimes is not considered a priority when arrangements are made to begin work. All employees will consider the following when selecting tools:

17.1 The blast nozzle shall be bonded and grounded to prevent the buildup of static charges.

17.2 Are guards installed properly and in good condition?

17.3 Are grounding methods sufficient when working in wet conditions?

17.4 Does the tool create sparks or heat? Has this been considered when working around flammable substances?

17.5 Do impact tools such as chisels, wedges, or drift pins have mushroomed heads? The heads can shatter on impact, sending sharp fragments flying!

17.6 Are wooden handled tools loose or splintered? This can result in the heads flying off and striking the user/coworkers!

17.7 Are cutting tools sharp? Dull tools are more hazardous than sharp ones.

17.8 Is the tool used on the proper working surface? Tools used on dirty or wet working surfaces can create a multitude of hazards.

17.9 Are tools stored properly when not being used? Saw blades, knives, scissors and like sharp tools should be stored so that sharp edges are directed away from aisles and coworkers.

17.10 Is there sufficient clearance for tools requiring swinging motions such as hammers, axes, picks, etc.?

17.11 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.

17.12 Have tools been modified beyond the manufacturer's specification? If so, have the modifications been approved by a "competent person"?

18. Medical surveillance. The medical surveillance provisions of this standard practice instruction are intended to provide our employees with a comprehensive approach to prevention of Silicosis.

The primary purpose is to supplement the OSHA standard's primary mechanisms of disease and illness prevention, the elimination or reduction of airborne concentrations of Abrasive Blasting Materials or particulates and sources of ingestion, by facilitating the early detection of medical effects associated with exposure to Abrasive Blasting Materials or particulates. The ultimate goal will be to develop a plan for reducing exposures of employees whose X-rays show changes consistent with silicosis.

18.1 All medical examinations and procedures will be performed by or under the supervision of a licensed physician and are to be provided without cost to employees at a reasonable time and place.

18.2 Two phases of surveillance. The medical surveillance provisions contemplate two phases of medical surveillance; one is initial medical surveillance, the other is a medical surveillance program.

18.2.1 Initial surveillance. Initial medical surveillance consists of X-rays read by a specialist in dust diseases. It will be provided to our employees occupationally exposed to airborne concentrations of Abrasive Blasting Materials or particulates on any one day at or above the action level as well as to employees performing high exposure "trigger tasks" during initial exposure assessment.

18.2.2 Routine and follow-up level medical surveillance. If an employee's airborne Abrasive Blasting Materials or particulates exposure is of concern (based on healthcare provider recommendation) this employer shall provide a medical surveillance program to the employee consisting of routine monitoring as recommended by a healthcare provider. If a routine and follow-up test for Abrasive Blasting Materials or particulates exceed recommended exposure criteria the employee will be removed from exposure. Employees will be notified in writing of any medical monitoring results within five working days after the receipt of monitoring results.

18.3 Surveillance initiation. This employer will provide a full medical surveillance program to any employee, including periodic medical exams (based on healthcare provider recommendation), when it is determined that the employee's exposure to Abrasive Blasting Materials or particulates is detrimental to his or health.

18.4 Examination criteria. The content and frequency will be at the discretion of the attending physician. Each examination as a minimum will include:

- - A work and medical history
- - A physical examination
- - Appropriate X-rays
- - As required by the healthcare provider

18.5 Medical consultations. Medical consultations will be provided upon notification by an employee under the following conditions:

18.5.1 The employee has developed symptoms commonly associated with Silicosis.

18.5.2 The employee has demonstrated difficulty in breathing during fit testing or use of a respirator.

18.6 Cost. This employer will bear the expense of the medical surveillance program.

18.7 Medical Removal Protection. This employer will remove an employee from work having an exposure to Abrasive Blasting Materials or particulates under the following conditions:

18.7.1 Exposure limit exceedance. When it is determined from workplace monitoring that airborne particulates exceed OSHA or NIOSH recommended exposure limits.

18.7.2 Evidence of silicosis. When it is suspected from any source that an employee has any evidence of silicosis.

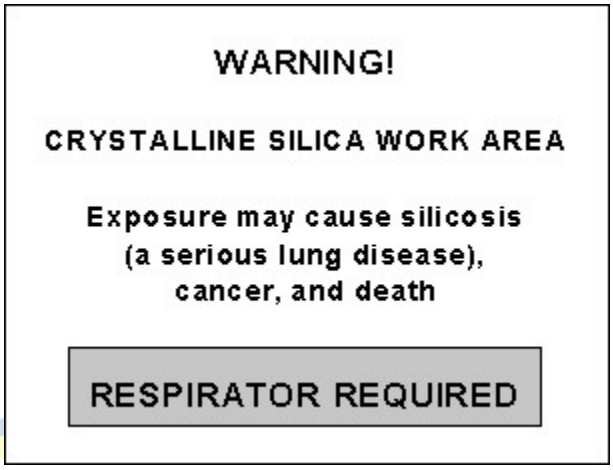
18.7.3 Medical determination. On each occasion that a final medical determination results in a medical finding, determination, or opinion that the employee has a detected medical condition which places the employee at increased risk of impairment to health from exposure to Abrasive Blasting Materials or particulates.

18.8 Return to work.

18.8.1 Abrasive Blasting Materials or particulates level exceedance. Any employee removed from exposure to Abrasive Blasting Materials or particulates may return to former job status when approved by their healthcare provider. A Written recommendation that the employee no longer has a detected medical condition which places the employee at increased risk of impairment of health will be required by this company before return to work is authorized.

19. Entry control. Those work areas meeting the criteria for delineation as an “Abrasive Hazards Work Area” will be restricted only to trained and authorized employees. Physical barriers, ropes, fencing or any other equally effective means of entry control may use to control entry.

20. Hazard marking. Abrasive Hazards Work Areas will be identified by signage and color coding as needed. A sign reading "WARNING CRYSTALLINE SILICA WORK AREA" or similar language will be used to satisfy the requirement for a sign.



21. Hazard notification. This employer shall inform employees working near Abrasive Hazards Work Areas, by posting danger signs, conducting awareness training, or by any other equally effective means, of the existence and location of and the danger posed by abrasive blasting.

22. Personal hygiene. The following personal hygiene practices are to be followed at all times by all employees performing abrasive blasting work.

22.1 All sandblasters should wash their hands and faces before eating, drinking, or smoking.

22.2 Sandblasters should not eat, drink, or use tobacco products in the blasting area.

22.3 Workers should change into disposable or washable work clothes at the worksite.

22.4 Workers should shower before leaving the worksite.

22.5 Workers should change into clean clothes before leaving the worksite.

22.6 Workers should park their cars where they will not be contaminated with silica and other substances such as lead.

23. Definitions.

Abrasive. A solid substance used in an abrasive blasting operation.

Abrasive-blasting respirator. A continuous flow air-line respirator constructed so that it will cover the wearer's head, neck, and shoulders to protect him from rebounding abrasive.

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 following elements (a) enclosure or hood, (b) duct work, (c) dust collecting equipment, (d) exhauster, and (e) discharge stack.

Particulate-filter respirator. An air purifying respirator, commonly referred to as a dust or a fume respirator, which removes most of the dust or fume from the air passing through the device.

Respirable dust. Airborne dust in sizes capable of passing through the upper respiratory system to reach the lower lung passages.

Rotary blast cleaning table. An enclosure where the pieces to be cleaned are positioned on a rotating table and are passed automatically through a series of blast sprays.

Abrasive blasting. The forcible application of an abrasive to a surface by pneumatic pressure, hydraulic pressure, or centrifugal force.

Aerial Lift Truck Program

1. **Written Program.** Romer Utility Services Construction will review and evaluate this standard practice instruction when any of the following occurs:

* On an annual basis.
* When changes occur to governing regulatory sources that require revision.
* When changes occur to related company procedures that require a revision.
* When facility operational changes occur that require a revision.
* When there is an accident or close-call that relates to this area of safety.
* Anytime the procedures fail.

Effective implementation of this program requires support from all levels of management. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of the number of workers employed or the number of work shifts. It is designed to establish clear goals and objectives.

2. **Training program.** Operator training. Only trained and authorized operators shall be permitted to operate an aerial lift truck. All operator training and evaluation shall be conducted by persons who have the knowledge, training, and experience to train aerial lift truck operators and evaluate their competence. Employees will be trained in accordance with the following guidelines.

2.1 The company Safety Administrator, individual supervisor, or select trainers, (once trained) will have the authority to provide training on the operation of aerial lift trucks.

2.2 Employees of Romer Utility Services Construction will not operate an aerial lift truck unless they have received training in accordance with this standard practice instruction and 29 CFR 1910.67.

2.3 Personnel rotated within the company will have their training verified prior to being allowed to operate an aerial lift truck.

2.4 Employee personnel records will be annotated with the date, title, and specifics of said training.

2.5 Any employee who refuses such training will not be permitted to operate an aerial lift truck.

2.6 Trainees may operate an aerial lift truck only:

2.6.1 Under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence; and

2.6.2 Where such operation does not endanger the trainee or other employees.

2.7 Retraining shall be provided for all operators:

2.7.1 Refresher training in relevant topics shall be provided to the operator when:

2.7.2 The operator has been observed to operate the vehicle in an unsafe manner;

2.7.3 The operator has been involved in an accident or near-miss incident;

2.7.4 The operator has received an evaluation that reveals that the operator is not operating the truck safely;

2.7.5 The operator is assigned to drive a different type of truck; or

2.7.6 A condition in the workplace changes in a manner that could affect safe operation of the truck.

2.8 Retraining shall reestablish employee proficiency and introduce new or revised control methods and procedures, as necessary.

2.9 Certification. This employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training and any other information as required.

3. Operations Program. The following safety guidelines will be followed by all truck operators.

3.1 Trucks shall not be driven up to anyone standing in front of a fixed object.

3.2 No person shall be allowed to stand or pass under the elevated portion of any truck, whether loaded or empty.

3.3 Unauthorized personnel shall not be permitted to ride on aerial lift trucks. A safe place (in accordance with the vehicle manufacturers safety specifications) shall be provided where riders are authorized.

3.4 When an aerial lift truck is left unattended, the basket shall be fully lowered, controls will be neutralized, power shut off, and brakes set. Wheels will be blocked if the truck is parked on an incline.

3.5 Lift controls shall be tested each day prior to use to determine that such controls are in safe working condition.

3.6 Belting off to an adjacent pole, structure, or equipment while working from an aerial lift shall not be permitted.

3.7 Employees shall always stand firmly on the floor of the basket, and shall not sit or climb on the edge of the basket or use planks, ladders, or other devices for a work position.

3.8 A 4-point Harness shall be worn and a lanyard attached to the boom or basket when working from an aerial lift.

3.9 Boom and basket load limits specified by the manufacturer shall not be exceeded.

3.10 The brakes shall be set and outriggers, when used, shall be positioned on pads or a solid surface. Wheel chocks shall be installed before using an aerial lift on an incline.

3.11 An aerial lift truck may not be moved when the boom is elevated in a working position with an individual in the basket, except for equipment which is specifically designed for this type of operation.

3.12 Articulating boom and extensible boom platforms, primarily designed as personnel carriers, shall have both platform (upper) and lower controls. Upper controls shall be in or beside the platform within easy reach of the operator. Lower controls shall provide for overriding the upper controls. Controls shall be plainly marked as to their function. Lower level controls shall not be operated unless permission has been obtained from the employee in the lift, except in case of emergency.

3.13 Climbers shall not be worn while performing work from an aerial lift.

3.14 The insulated portion of an aerial lift shall not be altered in any manner that might reduce its electrical insulating value.

3.15 Before moving an aerial lift for travel, the boom(s) shall be inspected to see that it is properly cradled and outriggers are in stowed position.

3.16 The operator will ensure sufficient headroom under overhead installations, lights, pipes, sprinkler system, etc. before operating the vehicle in these areas.

3.17 Only approved aerial lift trucks will be used in hazardous locations.

3.18 Fire aisles, access to stairways, and fire equipment will be not be obstructed at any time.

3.19 General requirements. Operators:

3.19.1 Will obey Plant/Site speeds and other traffic regulations at all times.

3.19.2 Will not raise or lower baskets while moving.

3.19.3 Will use all plant/Site observation mirrors.

3.19.4 Will ensure vehicle sound/illuminated warning devices are operational.

3.19.5 Will yield right of way to pedestrians, emergency vehicles, and avoid pedestrian lanes.

3.19.6 Will drive cautiously on uneven or slippery surfaces.

3.19.7 Will ensure fire protection equipment is carried with the vehicle and is in proper working order.

3.20 Prestart requirements. Operators:

3.20.1 Will verify that all brakes, controls, gauges, lights, seat belts, and routine operational features are in proper working order. They shall be examined before and after each shift. Defects when found shall be immediately reported and corrected.

3.20.2 Will remove the truck from service any time it is found to be in need of repair, defective, or in any way unsafe, the truck will be taken out of service until it has been restored to safe operating condition.

3.20.3 Will check for leaks and perform necessary operator maintenance before starting vehicle.

3.20.4 Will report deficiencies to maintenance.

3.20.5 Will ensure they know the load capacity and stay within it.

3.20.6 Will be cognizant of the planned route and aware of areas with inadequate headroom, lighting, obstructions, and floor surface problems.

3.20.7 Will wear the same level of personal protective equipment as the personnel they are directly working with.

3.20.8 Will not engage in stunt driving or horseplay.

3.20.9 Will slow down for wet and slippery floors.

3.20.10 Running over loose objects on the roadway surface shall be avoided.

3.20.11 While negotiating turns, speed shall be reduced to a safe level by means of turning the hand steering wheel in a smooth, sweeping motion. Except when maneuvering at a very low speed, the hand steering wheel shall be turned at a moderate, even rate.

3.21 Loading/Unloading requirements. Operators:

3.21.1 Will ensure basket worker load is within the trucks rated capacity.

3.21.2 Will lower baskets to a safe ground height for access.

3.21.3 Will never allow basket worker loading from an elevated height such as a second story platform or other than ground level.

3.21.4 Will secure the vehicle when not in use to prevent unauthorized personnel from operating the vehicle.

3.22 Parking requirements. Operators:

3.22.1 Must select flat parking surfaces, away from traffic where the vehicle does not block, doors, pedestrian routes, aisles, exits, etc.

3.22.2 Must not leave a truck unattended without:

3.22.2.1 Fully lowering load-engaging means, neutralizing controls, shutting off power, setting the brakes, and removing the keys.

3.22.2.2 Blocking the wheels if parked on an incline.

3.23 Refueling requirements. Operators:

3.23.1 Refuel only in assigned, ventilated areas containing no ignition sources.

3.23.2 Turn off engine.

3.23.3 Have fire suppression and cleanup equipment available.

3.23.4 Extinguish smoking materials.

3.23.5 Follow the vehicle manufacturer's instructions for gas or propane fueling.

3.23.6 Never use open flame to check fuel level.

3.23.7 Try to prevent spills, clean any spills promptly, replace fuel cap before starting or moving vehicle.

3.23.8 Take empty propane tanks to an authorized compressed gas container disposal/storage area and follow company policy for disposal/storage.

3.24 Spilled electrolyte. Facilities shall be provided for flushing and neutralizing spilled electrolyte, for fire protection, for protecting charging apparatus from damage by trucks, and for adequate ventilation for dispersal of fumes from gassing batteries.

4. Configuration program.

4.1 No modifications or additions which affect capacity and safe operation shall be performed without the manufacturer's prior written approval. Capacity, operation, maintenance instruction plates, tags, or decals shall be changed accordingly.

4.2 All nameplates and markings will be verified as being in place and maintained in a legible condition.

5. Electrical hazards.

Electrical safety-related 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 overhead lines. The specific safety-related work practices shall be consistent with the nature and extent of the associated electrical hazards. If work is to be performed near overhead lines, the lines shall be deenergized and grounded, or other protective measures shall be provided before work is started. If the lines are to be deenergized, arrangements shall be made with the person or organization that operates or controls the electric circuits involved to deenergize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions shall prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment. The following guidelines from 29CFR1910.333 will be followed.

5.1 Basket distance requirements. Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines shall be operated so that a clearance of 10 ft. (305 cm) is maintained. If the voltage is higher than 50kV, the clearance shall be increased 4 in. (10 cm) for every 10kV over that voltage. However, under any of the following conditions, the clearance may be reduced:

5.2 In transit requirements. If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. (122 cm). If the voltage is higher than 50kV, the clearance shall be increased 4 in. (10 cm) for every 10 kV over that voltage.

5.3 Grounding. If the aerial truck is intentionally grounded, employees working on the ground near the point of grounding may not stand at the grounding location whenever there is a possibility of overhead line contact. Additional precautions, such as the use of barricades or insulation, shall be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point.

5.4 Insulating barriers. If insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.

5.5 Insulated equipment. If the equipment is an aerial lift insulated for the voltage involved, and if the work is performed by a qualified person, the clearance (between the uninsulated portion of the aerial lift and the power line) may be reduced to the distance given in Table S-5 from 29CFR1910.333.

TABLE S-5 (29CFR1910.333)
APPROACH DISTANCES FOR QUALIFIED EMPLOYEES
ALTERNATING CURRENT

Voltage Range (phase to phase) | Minimum Approach Distance

300V and less | Avoid Contact.
Over 300V, not over 750V | 1 ft. 0 in. (30.5 cm).
Over 750V, not over 2kV | 1 ft. 6 in. (46 cm).
Over 2kV, not over 15kV | 2 ft. 0 in. (61 cm).
Over 15kV, not over 37kV | 3 ft. 0 in. (91 cm).
Over 37kV, not over 87.5kV | 3 ft. 6 in. (107 cm).
Over 87.5kV, not over 121kV | 4 ft. 0 in. (122 cm).
Over 121kV, not over 140kV | 4 ft. 6 in. (137 cm).

6. Definitions.

"Aerial device." Any vehicle-mounted device, telescoping or articulating, or both, which is used to position personnel.

"Aerial ladder." An aerial device consisting of a single- or multiple-section extensible ladder.

"Articulating boom platform." An aerial device with two or more hinged boom sections.

"Extensible boom platform." An aerial device (except ladders) with a telescopic or extensible boom. Telescopic derricks with personnel platform attachments shall be considered to be extensible boom platforms when used with a personnel platform.

"Insulated aerial device." An aerial device designed for work on energized lines and apparatus.

"Mobile unit." A combination of an aerial device, its vehicle, and related equipment.
"Platform." Any personnel-carrying device (basket or bucket) which is a component of an aerial device.

"Vehicle." Any carrier that is not manually propelled.

"Vertical tower." An aerial device designed to elevate a platform in a substantially vertical axis.

Appendix – A: Bucket Lift Safety Requirements

A.1 Operator Training.

You are not permitted operate a Bucket Lift unless you have been trained by this company and the training has been documented and is on file with the safety office.

A.1.1 Training must be done by a qualified person experienced with the particular lift model.

A.1.2 Training must include:

- A.1.2.1 Nature of electrical, fall, and other operational hazards.
- A.1.2.2 Precautions for dealing with hazards.
- A.1.2.3 Rated load capacity (workers, tools, materials, bucket liner, etc.).
- A.1.2.4 Manufacturer requirements, as outlined in operator manual.
- A.1.2.5 Demonstration of skill and knowledge in operation of the lift.

A.2 Maintenance Training Requirements.

A.2.1 Training of mechanics will be done by a qualified person experienced with the particular lift model. Maintenance training will include:

- A.2.1.1 Knowledge of manufacturer's maintenance requirements.
- A.2.1.2 Inspection requirements of aerial lift by a qualified mechanic.
- A.2.1.3 Periodic detailed inspections by a qualified mechanic.
- A.2.1.4 Insulated aerial lift special electrical test requirements.

A.3 Operating or Moving Aerial Lifts

A.3.1 Do not modify aerial lift without written permission.
A.3.2 Check safety devices, operating controls before each use.
A.3.3 Check area in which aerial lift will be used for:

- A.3.3.1 Level surface (Do not exceed slope recommendations).
- A.3.3.2 Avoid Holes, drop-offs, bumps, debris, etc.
- A.3.3.3 Check for overhead obstructions and overhead power lines.
- A.3.3.4 Ensure vehicle is on a stable surface.
- A.3.3.5 Set outriggers, brakes, wheel chocks as required.

A.3.4 Exiting Bucket. Never allow worker to exit bucket from elevated height.
A.3.5 Speed. Never exceed recommended safe speed of vehicle.
A.3.6 Momentum. Speed builds momentum, momentum is hard to overcome.
A.3.7 Passengers. Never accept passengers unless vehicle is so equipped.
A.3.8 By-Standers. Ensure by-standers are warned to keep clear of operation.
A.3.9 Manholes/Drain Covers. Check for stability before driving over them.
A.3.10 Note: Lift worker should never be left alone.

A.4.1 Non-electrical workers must stay at least 10 feet away from overhead power lines.
A.4.2 Electrical workers must de-energize/insulate power lines or use proper PPE/equipment.
A.4.3 Use insulated buckets near overhead power lines.
A.4.4 Regularly check insulation on buckets.
A.4.5 Denergize electrical sources as required by the Lockout Tagout program.

A.5 Preventing Tip-Overs

A.5.1 Do not exceed manufacturer rated load capacity limits.
A.5.2 Do not exceed recommended speed of vehicle.
A.5.3 Do not travel to job location with lift in elevated position.
A.5.4 Set up proper work zone protection when working near traffic.
A.5.5 Do not drive near drop-offs or holes.
A.5.6 Do not raise bucket on uneven or soft surfaces.
A.5.7 Do not drive onto uneven or soft surfaces when elevated.
A.5.8 Do not raise bucket on slope or drive onto slope when elevated.
A.5.9 Do not raise bucket in windy or gusty conditions.
A.5.10 Avoid excessive horizontal forces during movement.
A.5.11 Sudden stops can tip over some lifts due to stopping force momentum.

A.6 Fall Protection

A.6.1 Fall protection is required (full body harness with self-retracting lanyard).
A.6.2 Always close entrance chains or doors.
A.6.3 Always stand on floor of the bucket.
A.6.4 Always keep both feet flat on the floor of bucket.
A.6.5 Never climb on or lean over guardrails.
A.6.6 Ensure body harness plus lanyard is designed for size of lift platform.

Appendix – B: Scissor Lift Safety Requirements

B.1 Operator Training. You are not permitted operate a Scissor Lift unless you have been trained by this company and the training has been documented and is on file with the safety office.

B.1.1 Training must be done by a qualified person experienced with the particular lift model.
B.1.2 Training must include:

- B.1.2.1 Nature of lifting, fall, electrical and other operational hazards.
- B.1.2.2 Precautions for dealing with hazards.
- B.1.2.3 Rated load capacity (workers, tools, materials, platform, etc.).
- B.1.2.4 Manufacturer requirements, as outlined in operator manual.
- B.1.2.5 Demonstration of skill and knowledge in operation of the lift.

B.2 Maintenance Training Requirements.

B.2.1 Training of mechanics will be done by a qualified person experienced with the particular lift model. Maintenance training will include:

- B.2.1.1 Knowledge of manufacturer's maintenance requirements.
- B.2.1.2 Inspection requirements of the lift by a qualified mechanic.
- B.2.1.3 Periodic detailed inspections by a qualified mechanic.

B.3 Operating or Moving Scissor Lifts

- B.3.1 Never move the lift while it is elevated.
- B.3.2 Never use the lift in outside areas.
- B.3.3 Never use the lift as a scaffold.
- B.3.4 Do not modify aerial lift without written permission.
- B.3.5 Check safety devices, operating controls before each use.
- B.3.6 Check area in which lift will be used for:
  - B.3.6.1 Level surface (Do not exceed slope recommendations).
  - B.3.6.2 Avoid Holes, drop-offs, bumps, debris, etc.
  - B.3.6.3 Check for overhead obstructions and overhead power lines.
  - B.3.6.4 Check for overhead ammonia or process lines.
  - B.3.6.5 Ensure vehicle is on a stable surface.
  - B.3.6.6 Set brakes, wheel chocks as required.

B.3.7 Exiting Lift. Never allow worker to exit lift from elevated height.
B.3.8 Speed. Never exceed recommended safe speed of vehicle.
B.3.9 Momentum. Speed builds momentum, momentum is hard to overcome.
B.3.10 Passengers. Never accept passengers unless vehicle is so equipped.
B.3.11 By-Standers. Ensure by-standers are warned to keep clear of operation.
B.3.12 Manholes/Drain Covers. Check for stability before driving over them.

B.3.13 Note: Lift worker should never be left alone.

B.4 Preventing Electrocutions

B.4.1 Ensure platform or others parts do not touch electrical sources.
B.4.2 Denergize electrical sources as required by the Lockout Tagout program.

B.5 Preventing Tip-Overs

B.5.1 Do not exceed manufacturer rated load capacity limits.
B.5.2 Do not travel to job location with lift in elevated position.
B.5.3 Set up proper work zone protection (cones, signs etc.).
B.5.4 Do not drive near drop-offs or holes.
B.5.5 Do not raise platform on uneven or soft surfaces.
B.5.6 Do not drive onto uneven or soft surfaces when elevated.
B.5.7 Do not raise platform on slope or drive onto slope when elevated.
B.5.8 Do not raise platform in windy or gusty conditions.
B.5.9 Avoid excessive horizontal forces.
B.5.10 Sudden stops can tip over some lifts due to stopping force momentum.

B.6 Fall Prevention

B.6.1 Always keep both feet flat on the platform floor when working.
B.6.2 Close and secure guard railings if they are equipped to open.
B.6.3 Do not climb on or lean over guardrails.
B.6.4 Always close entrance chains or doors.
B.6.5 Never extend reach over guard rails (move the vehicle closer).

Appendix – C: Forklift Personnel Cage Safety Requirements

C.1 Attaching the Cage to The Forklift

C.1.1 Ensure people are clear when approaching safety cage with forklift.
C.1.2 Slide forks into base of safety cage.
C.1.3 Attach safety chains on cage base to forklift frame.
C.1.4 Ensure safety chains are securely fastened.

C.2 Traveling to The Job Site

C.2.1 Recruit spotters as needed to help in safely moving vehicle.
C.2.2 Ensure safety cage is at safe height for traveling.
C.2.3 Continually check for overhead wires, power lines, obstructions.
C.2.4 Never travel with people inside of cage.

C.3 Allowing Worker to Enter Cage

C.3.1 Ensure forklift is safely parked on flat even surface.
C.3.2 Set parking brakes.
C.3.3 Ensure forklift transmission is in neutral or parking gear.
C.3.4 Ensure cage floor is clean, stable and free of debris.
C.3.5 Allow worker to safety enter cage.
C.3.6 Secure cage door per cage safety requirements.
C.3.7 Double check to ensure worker has needed tools and PPE.
C.3.8 Ensure worker has secure handhold and foot stability.
C.3.9 Ask worker if he/she is prepared to allow cage to be elevated.
C.3.10 Remember; Cage worker is in charge of lift operation.

C.4 Raising the Cage to Work Height

C.4.1 Remember; Cage worker is in charge of lift operation.
C.4.2 Remember; Ensure vehicle is properly positioned for work access.
C.4.3 Recruit spotters as needed to help in safely raising cage.
C.4.4 Spotters; Position spotters at appropriate sites around lift location.
C.4.5 Follow lift instructions from the cage worker.
C.4.6 Lift cage slowly to appropriate height for the job.
C.4.7 Cage should always be raised and lowered slowly.
C.4.8 Ensure smooth operation of forklift when raising or lowering cage.
C.4.9 Ensure there are no sudden or jerking movements.
C.4.10 Note: Cage worker should never be left alone.

C.5 Ending the Operation

C.5.1 Remember; Cage worker is in charge of lowering operation.
C.5.2 Communicate with cage worker to ensure he/she is ready to descend.
C.5.3 Spotters; Position spotters at appropriate sites around lift location.
C.5.4 Upon direction from cage worker, begin to slowly lower cage.
C.5.5 Lower cage until it is on stable floor or ground level surface.
C.5.6 Never allow cage worker to exit cage from elevated height.
C.5.7 Allow cage worker to exit cage.
C.5.8 Secure cage door in preparation for travel.
C.5.9 Lift cage to appropriate height for travel.
C.5.10 Spotters; Position spotters as appropriate for travel to next location.

Asbestos Awareness Program

Purpose

During the course of Romer Utility Services s pipeline and station construction, maintenance and rehab work, it is possible that employees on welding crews, tie-in crews and other support crews may be exposed to some light levels of asbestos fibers contained in older pipe coating material. It is the purpose of this policy therefore to provide information to the affected employees so that they may understand the dangers of asbestos in the workplace, be trained in the appropriate OSHA standards and know how to protect themselves with appropriate PPE and engineering methods.

Objectives

To explain the health hazards of inhaling asbestos; the OSHA regulation that governs asbestos handling and exposure; and the required measures that keep dangerous levels of asbestos fibers out of the air in the work area and out of human lungs. The result should be greater understanding of the risks of inhaling asbestos and greater attention to the practices and procedures that prevent exposure.

Definitions

Asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.

Asbestos-containing material (ACM) means any material containing more than 1 % asbestos.

Authorized person means any person authorized by the employer and required by work duties to be present in regulated area.

Employee exposure means that exposure to airborne asbestos that would occur if the employee were not using respiratory protective equipment.

Fiber means a particulate form of asbestos 5 micrometers or longer, with a length-to-diameter ratio of at least 3 to 1.

High-efficiency particulate air (HEPA) filter means a filter capable of trapping and retaining at least 99.97% of 0.3 micrometer diameter mono-disperse particles.

PACM means presumed asbestos containing material.

Permissible exposure limit (PEL):

1. *Time Weighted Average TWA.* The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 0.1 fiber per cubic centimeter of air as an eight (8)-hour time-weighted average (TWA).

2. *Excursion limit.* The employer shall ensure that no employee is exposed to an airborne concentration of asbestos in excess of 1.0 fiber per cubic centimeter of air (1/cc) as averaged over a sampling period of thirty (30) minutes.

Presumed asbestos containing material means thermal system insulation and surfacing material found in buildings constructed no later than 1980.

Regulated area means an area established by the employer to demarcate areas where airborne concentrations of asbestos exceed, or there is a reasonable possibility they may exceed, the permissible exposure limits.

Suggested Materials to Have on Hand

1. Personnel protective clothing and equipment, including respirators
2. HEPA filter vacuums
3. Asbestos warning labels
4. Asbestos warning signs
5. Safety Data Sheets
6. Disposable glove bags
7. List of local stop-smoking programs and organizations

Introduction/Overview

The mineral fibers that we know as asbestos have been mined for many years. For almost as long, people have been bonding these fibers together to make products that are tough, flexible, fire-resistant, and effective insulation and soundproofing.

Because of those qualities, asbestos has been used in floor and ceiling tiles, roofing, drywall, insulation, and pipe. It was often sprayed on to beams and in crawl spaces and between walls. In addition, asbestos has been used to manufacture automotive brake and clutch linings as well as heat-resistant clothes.

While asbestos is incredibly useful, it is now known that it can also be very hazardous to human health. When the fibers stay bonded together, asbestos is safe. But if tiny, almost invisible particles break loose, they float around in the air and can penetrate into the lungs without even being noticed. Over a period of time, that can cause serious and even fatal illness.

Because of the risks, asbestos is used much less today than in previous years. But it's still in place in buildings all over this country. OSHA wants to be sure that *anyone* exposed to asbestos on the job understands its hazards and takes protective measures. That includes employees whom:

1. Make asbestos-containing products
2. Repair and replace automotive brakes and clutches
3. Handle housekeeping tasks in industrial facilities that make products or in buildings with asbestos-containing materials

4. Work in construction or renovation or in an asbestos containing area that's undergoing construction and renovation.

OSHA has a detailed regulation to make sure we-and you-understand these hazards and play it very safe with asbestos. The following is a review of the asbestos hazards and employee protection measures.

General Hazards

Asbestos is hazardous because of health problems that develop from the inhalation of its fibers. It's the fibers that are dangerous, so asbestos is hazardous when it's dry, loose, and can be crumbled in the hand. That condition is known as "friable".

Asbestos may become friable if it's disturbed during construction or renovation or simply because it deteriorates over time. This is a risk with sprayed-on fireproofing, insulation, and soundproofing. Floor tiles are generally okay unless they're sanded. Asbestos-cement pipe or sheets are generally safe if they are not cut, sawed, or broken or otherwise disturbed.

It takes a long time to become ill from asbestos exposure-sometimes as much as 20 to 40 years. No symptoms appear when you inhale asbestos fibers. But eventually, asbestos exposure will often cause disabling respiratory disease of lung, stomach or colon cancer.

Asbestosis is an illness that is only caused by asbestos inhalation. It's the result of asbestos fibers irritating and scarring tiny air sacks in the lungs called alveoli. When that happens, oxygen can't get into the blood and severe breathing and heart problems develop.

The most obvious symptom of asbestosis is shortness of breath. Eventually, victims can't catch their breath even when they're resting. Other symptoms include noisy breathing, coughing, fatigue, weakness, and weight loss. There is no treatment for asbestosis, which may lead to death from cardiac or respiratory failure.

Another asbestos-related lung disease is called *mesothelioma*. That's a cancer of the chest lining that's *always fatal.* It may take as long as 40 years to develop. But once it does, there's no treatment or cure. Symptoms of mesothelioma include shortness of breath, pain in the walls of the chest, and stomach pain.

Since asbestos affects the lungs, it's especially dangerous to smokers. The risk of lung cancer multiplies if you work with asbestos and you smoke. It's a deadly combination to avoid at all costs.

OSHA Regulations

OSHA has regulated asbestos exposure for a long time. In 1994, the agency revised the regulation (29 CFR 1910.1001) to make it even more strict. It covers work-related exposure to any form of asbestos, including materials that contain 1% or more of asbestos. The only exceptions are construction and shipbuilding, breaking and repairing, which are covered by their own similar asbestos regulations.

Because asbestos was used so often in the past, OSHA regulations provide that employers and building owners must assume its presence in pre-1980 asphalt and vinyl flooring as well as thermal system insulation and surfacing material that was sprayed or troweled on. Unless owners can prove asbestos is *not present,* they must identify and maintain records on asbestos-containing materials in a pre-1980 building. They also have to provide information on hazards and protective measures to people who work there, including housekeeping employees.

Employers whose facilities contain asbestos, or employers who use asbestos must:

1. Measure asbestos in the air around employees to determine risk.
2. Notify employees of monitoring results and what's being done to reduce asbestos exposure.
3. Provide free medical exams-and their results-to employees whose work could expose them to asbestos at high-risk levels.
4. Post warning signs in areas where asbestos exposure exceeds safe levels, and limit access to employees wearing respirators.
5. Use engineering controls and work practices to keep asbestos exposure below levels defined as dangerous.
6. Provide employees in asbestos areas with respirators that fit properly-and make sure they're used.
7. Provide employees with clothing and equipment to protect against exposure.
8. Provide asbestos-exposed employees with change rooms, separate lockers, showers, ventilated lunchrooms, and containers for contaminated clothing.
9. Tell employees where there are asbestos risks, the possible health hazards of exposure (including the added risks of smoking and programs that can help you stop), and how to prevent exposure.
10. Place warning labels on anything, including waste, that contains asbestos fibers.

In addition to the responsibilities of Romer Utility Services ., the employee should:

1. Cooperate with workplace monitoring and medical exams.
2. Stop smoking if you work around asbestos
3. Pay attention to asbestos safety training sessions
4. Use respirators and other protective clothing and equipment
5. Take warning signs and labels seriously
6. Use controls and work procedures to prevent release of fibers
7. Keep contaminated clothing out of clean areas and dispose of it properly

Identifying Hazards

Asbestos is dangerous when it's dry and crumbly, or friable. Studies have determined how much asbestos in the air is dangerous. That's known as the *Permissible Exposure Limit or PEL*. The PEL for asbestos 0.1 fiber per cubic centimeter of air, measured over an eight-hour time-weighted-average. The SHA *excursion limit* is 1.0 fiber of asbestos per cubic centimeter of air, averaged over 30 minutes. Employees can't be exposed to asbestos above those levels unless they're wearing respirator protection.

Air Monitoring

If there's a risk that asbestos is present at or above those levels, the Field Safety Coordinator shall sample the air for asbestos. This monitoring, shall constitute the starting point for this asbestos safety program.

Initial monitoring sets a baseline. Then the air is monitored again at least every six months whenever employee exposures "may reasonably be foreseen" to exceed the PEL or excursion limit. If tests find asbestos below OSHA's limits, then tests are repeated only if a change in procedures, workers, etc. could lead to new or additional high-risk exposures.

The employee has a right to know about asbestos in the air in the work area. The Field Safety Coordinator must report monitoring results to the affected employees in writing or by posting them within 15 working days after receipt Companies must also to report what is being done to reduce dangerous levels.

Medical Surveillance

The purpose of medical surveillance is to protect employee health. When workers are exposed to hazardous levels of asbestos, Romer Utility Services shall provide medical surveillance including medical exams, testing and reports to the affected employees at no cost.

Before the employee is assigned to a job in an asbestos area, he or she is required to take physical exam and a medical professional is given the employee's medical and work history. The exam includes chest and lung tests and emphasizes asbestos-sensitive areas such as the respiratory and cardiovascular systems and the digestive tract.

Romer Utility Services shall provide follow-up exams annually. If the employee leaves the Company and has been exposed to asbestos above the risk levels, then the employee is required to have another exam.

Employers and tested employees get the results of exams, which are designed to identify the following:

1. Any medical conditions that could place the employee at increased risk of serious health problems from asbestos exposure.
2. Limits on the ability of the employee to do asbestos-related jobs or wear a respirator.
3. Medical conditions resulting from asbestos exposure that require further explanation or treatment.

The doctor must also inform the employee of the increased risk of lung cancer from the combination of smoking and asbestos exposure.

Protection Against Hazards

Once the hazards are identified, Romer Utility Services must work to keep them in check. Employee training and information-*conducted in a manner that the employee is able to understand*.

The employee that is assigned to a work area with asbestos risk, shall receive annual training in the following areas:

1. The OSHA asbestos standard
2. Asbestos exposure health risks
3. The extra risk of lung cancer when you combine smoking and asbestos exposure-and where to get help to stop smoking
4. The amount, location, use, release, and storage of asbestos in the workplace and specific operations that could cause exposure-and get to help to stop smoking
5. The amount, location, use, release and storage of asbestos in the workplace and specific operations that could cause exposure
6. Exposure-reducing engineering controls, work practices, and procedures related to your job
7. The purpose, proper use, and limitations of respirators and protective clothing
8. The medical surveillance program purpose and procedures
9. Information on asbestos warning signs and labels

Regulated Areas

One important protection is to set off and regulate areas where airborne asbestos exceeds OSHA limits. Only authorized workers equipped with respirators can enter those areas. Eating, drinking, smoking, chewing tobacco or gum, or applying cosmetics shall be prohibited in the regulated areas. Regulated areas have warning signs that use words, pictures, or if necessary, foreign languages, to deliver a message like this:

DANGER ASBESTOS
CANCER AND LUNG DISEASE HAZARD
AUTHORIZED PERSONNEL ONLY
RESPIRATORS AND PROTECTIVE CLOTHING
ARE REQUIRED IN THIS AREA

Engineering Controls and Work Practices

Where airborne asbestos tops OSHA's PEL or excursion limit, employers must have a written program that describes procedures to bring exposure to or below those limits. Employee rotation cannot be used for that purpose.

As with most hazardous substances, engineering controls are the first choice to reduce exposure. Local exhaust ventilation and dust collection systems are very important-especially, according to OSHA, when you use tools like saws, drills, scrapers, and abrasive wheels that could produce or release asbestos fibers.

Wetting asbestos is another effective way to keep fibers out of the air. OSHA regulations provide for the handling, mixing, removal, cutting, and etc. of asbestos in a wet state. The removal of certain asbestos products from their shipping bags or containers is prohibited unless they're either wet, enclosed, or ventilated. This applies to asbestos cement, mortar, coating, grout, plaster, or similar materials.

Warning labels shall comply with 29 CFR 1910.1200(f) of OSHA's Hazard Communication standard and shall include the following information:

DANGER CONTAINS ASBESTOS FIBERS
AVOID CREATING DUST
CANCER AND LUNG DISEASE HAZARD

Most asbestos products will also have safety Data Sheets.

To further prevent release of asbestos fibers, the following are prohibited:

1. Sand flooring materials that contain asbestos
2. Burnish or dry-buff floors containing asbestos unless there's enough finish to prevent the pad from contacting the asbestos-containing material
3. Use compressed air to remove asbestos or asbestos-containing materials without a ventilation system to capture the dust

Special Precautions Needed

Working with asbestos products may create added risk of fiber release. OSHA singles out these tasks for special precautions:

1. Coupling cutoff in primary asbestos cement pipe manufacture
2. Sanding in primary and secondary asbestos sheet manufacture
3. Grinding in primary and secondary friction product manufacture
4. Carding and spinning in dry textile processes
5. Grinding and sanding in primary plastics manufacturing

Sometimes engineering controls and work practices can't keep exposures in these tasks at or below OSHA's PEL or excursion limit. The employees must use such controls to keep asbestos per cubic centimeter of air at or below:

1. 0.5 fibers as an 8-hour weighted average
2. 2. 5 fibers for 30-minute exposure

Employees must use respirators to bring their exposure to or below the PEL or excursion limit.

OSHA suggests several ways to protect people who work with automotive brakes and clutches. For example, one option is to cover the materials so they're in a tightly sealed enclosure, checking for leaks before work begins. Workers then handle the brake or clutch materials through impermeable sleeves. A high-efficiency particulate air filter (HEPA) vacuum keeps the enclosure under negative pressure and is used to loosen and remove asbestos-containing residue from brake and clutch parts.

Respiratory Protection

For the affected employees who use respirators required by 29 CFR 1910.1001 Asbestos, Romer Utility Services shall provide respirators that comply with the requirements of the regulation. Respirators must be used during:

1. Periods necessary to install or implement feasible engineering and work-practice controls.

2. Work operations, such as maintenance and repair activities, for which engineering and work-practice controls are not feasible.

3. Work operations for which feasible engineering and work-practice controls are not yet sufficient to reduce employee exposure to or below the TWA and/or excursion limit.

4. Emergencies.

The Manager of Safety, superintendents, foremen and/or supervisors while involved in asbestos work, shall utilize the "Respiratory Protection" section of this safety policy for requirements for

compliance with Respirator Use, Permissible Practices, Definitions, Selection of Respirators. Medical Evaluations, Fit Testing, Use of Respirators, Maintenance and Care of Respirators, Breathing Air Quality and Use, Training and Information, and Recordkeeping.

Romer Utility Services shall provide a tight-fitting, powered, air-purifying respirator instead of any negative-pressure respirator. Usually, the employee will use a full-face piece supplied-air respirator in pressure demand mode, in certain situations, he/she may use a powered air-purifying respirator equipped with high-efficiency filters.

If an employee is exposed to asbestos above the TWA and/or excursion limit, or where the possibility of eye irritation exists. Romer Utility Services shall provide at no cost to the employee and ensure that the employee uses appropriate protective work clothing and equipment such as, but not limited to:

1. Coveralls or similar full-body work clothing,
2. Gloves, head coverings, and foot coverings, and
3. Face shields, vented goggles, or other appropriate protective equipment which complies whit 1910.133

Respirator Brands and Models Used by Romer Utility Services

BRAND	MODEL	TYPE	SIZE
Bullard	88 Series	Sand Blasting Helmets	All

Safety Procedures

When protective clothing is used around asbestos, the employees shall have to remove contaminated clothing. Accumulated dust and dirt shall not be blown or shaken off. This clothing shall require special cleaning or disposal. In addition, affected employees who work with asbestos above permissible exposure limits shall have:

1. Clean change rooms
2. Separate lockers or storage facilitates for street clothes and work clothes
3. Showers
4. A lunchroom with a positive pressure filtered air supply

Employees shall change out of work clothes or vacuum off surface asbestos fibers. Prior to eating, drinking, or smoking, the affected employees will wash their hands and face. Affected employees may not leave the workplace wearing any clothing or equipment worn during the work shift. Asbestos-contaminated work clothes shall be disposed of in an assigned closed container. The clothing is then transported in labeled, closed impermeable containers so the fibers are contained. Those who launder or clean the such clothing also trained so they understand asbestos hazards and know how to protect themselves.

They shall be notified by the Field Safety Coordinator of the hazardous nature of the clothing.

Good Housekeeping

Good housekeeping is another safeguard against asbestos contamination. The foreman shall:

1. Keep all surfaces as free of asbestos-containing dust and waste as possible
2. Clean up all asbestos releases as soon as possible
3. Use high-efficiency particulate air (HEPA) vacuums-not compressed air-to clean up asbestos-containing material. We cannot shovel, sweep, or use other dry methods only when vacuuming or wet cleaning is impossible

Employees shall avoid acts that might release asbestos fibers. Cutting through pipe insulation, hammering nails or drill holes in ceilings that might contain asbestos shall be avoided. Employees are not to disturb any asbestos containing material.

Employees shall also practice careful handling with asbestos waste including; empty asbestos containers, manufacturing cuttings or trimmings, or materials that are swept or vacuumed up (including vacuum bags or filters). Other possibly hazardous wastes include the fireproofing, insulating, and other materials removed from buildings. The best method of handling these wastes is to wet them. They can then be placed in labeled, sealed, leak-proof containers for proper disposal. All employees should be aware that released asbestos fibers can be very hazardous to their health. Employees shall use protective clothing, equipment and the procedures to limit exposure risks as well as paying attention to monitoring and take advantage of medical check-ups that can identify problems.

For those employees who smoke, if there is any possibility of exposure to asbestos, they should be encouraged to stop smoking. There are many good reasons not to smoke. Smoking is absolutely prohibited in work areas where there's a risk of asbestos exposure. In addition, employers and doctors who participate in medical surveillance will warn employees who smoke of the dangers.

Stop Smoking!
Here's How to Get Help

Every community offers programs, booklets, and support groups for people who want to stop smoking.

1. Contact local hospitals; many provide such help.
2. Ask your doctor for information.
3. Check your local phone book. The *White Pages* may list some of the organizations below. Or look in the *Yellow Pages* under *Smoking* or *Health* for these or other organizations that can help you stop smoking.
4. The National Cancer Institute, Office of Cancer Communications, National Institutes of Health, Building 31, Room 10A24, Bethesda, MD 20892. Or call toll-free **1-800-4-CANCER**
5. American Cancer Society (Check your local phone book)
6. American Heart Association, 7320 Greenville Ave., Dallas, TX 75231; (214)750-5300
7. American Lung Association, 1740 Broadway, New York, NY 10012; (212)245-8000. Assistance includes a Freedom from Smoking self-help program.
8. Office on Smoking and Health, U.S. Department of Health and Human Services, 5600 Fishers Lane, Park Building, Room 100, Rockville, Maryland 20857 offers many free publications on smoking.

Asbestos Safety Checklist

Be aware of materials that could contain asbestos:

1. Floor tiles
2. Ceiling tiles
3. Roofing felts
4. Asbestos-cement pipe and sheet
5. Fire-resistant drywall
6. Pipe and boiler insulation
7. Sprayed-on building insulation
8. Automotive brake and clutch linings
9. Fire-resistant clothing

Be aware of asbestos health hazards that develop over time:

1. Respiratory diseases
2. Cancer

Asbestos is dangerous when it's friable (loose and crumbly). Prevent release of fibers:

1. Use local exhaust ventilation and dust collection systems, especially when using saws, drills, scorers, abrasive wheels, etc.
2. Handle, mix, apply, remove, cut, score, etc. asbestos in a wet state whenever possible.
3. Remove asbestos cement, mortar, coating, grout, plaster, or similar materials from shipping bags or containers only if wet, enclosed, or ventilated.
4. Don't sand flooring materials that contain asbestos.
5. Don't burnish or dry-buff floors containing asbestos unless there's enough finish so the pad won't contact the asbestos.
6. Don't remove asbestos or asbestos-containing materials with compressed air unless a ventilation system can capture the dust.
7. Use engineering controls, work practices, and respirators to reduce risk when cutting, grinding, and sanding asbestos products.
8. Use enclosures, impermeable sleeves, HEPA vacuums, and similar protections when working on automotive brakes and clutches.
9. Try to keep asbestos-containing dust and waste off all surfaces.
10. Clean up all asbestos releases as soon as possible.
11. Use high-efficiency particulate air (HEPA) vacuums to clean up asbestos- containing material.
12. Use dry shoveling, sweeping, etc. To clean up asbestos only when vacuuming or wet cleaning is impossible.
13. Wet asbestos waste before disposal when possible.
14. Place waste that could contain asbestos in labeled, sealed. Leak proof containers for proper disposal.

Assured Equipment Grounding Program (GFCI)

1. Written Program. Romer Utility Services will review and evaluate this standard practice instruction on an annual basis, or when changes occur to 29 CFR 1926.404, that prompt revision of this document, or when facility operational changes occur that require a revision of this document. Effective implementation requires a written program for job safety, health, that is endorsed and advocated by the highest level of management within this company and that outlines our goals and plans. This written program will be communicated to all required personnel. It is designed to establish clear goals, and objectives. Safety Representative will be responsible for ensuring that the previous stated is done.

2. General Requirements. Romer Utility Services shall be responsible for the safe condition of electrical tools and equipment used its employees, including tools and equipment which may be furnished by employees. Romer Utility Services will develop assured grounding operational procedures through the use of this document. After tool and equipment selection and evaluation, equipment will be used and maintained in a safe condition. Supervisors will ensure that equipment utilized at each job site is maintained in a safe condition.

3. Power Tool and Accessories Selection, Evaluation and Condition. The greatest hazards posed by power tools usually results from misuse and or improper maintenance. Tool selection sometimes is not considered a priority when arrangements are made to begin work. All employees will consider the following when selecting tools:

3.1 Is the tool correct for the type work to be performed?

3.2 Are grounding methods sufficient when working in wet conditions?

3.3 Is the grounding terminal present on the plug?

3.4 Is the polarity of connections correct? No grounded conductor can be attached to any terminal or lead which results in a reversed designated polarity.

3.5 Are grounding terminals or grounding-type devices on receptacles, cord connectors, or attachment plugs used for the intended purpose?

3.6 Are grounding terminals or grounding-type devices on receptacles, cord connectors, or attachment plugs defeated in any way?

3.7 Are all receptacles and attachment caps or plugs tested for correct attachment of the equipment grounding conductor? The equipment grounding conductor must be connected to its proper terminal.

3.8 Are grounding terminals or grounding-type devices on receptacles, cord connectors, or attachment plugs defeated in any way?

3.9 Are all 12 volt, single-phase 15 and 20 ampere receptacle outlets on construction sites, which are not a part of the permanent wiring of the building or structure equipped with approved ground-fault circuit interrupters for personnel protection?

3.10 Are conductors used as a grounded conductor identifiable and distinguishable from all other conductors?

3.11 Is each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, visually inspected daily before use for external defects, such as deformed or missing pins or insulation damage, and for indications of possible internal damage? (Exception - cord sets and receptacles which are fixed and not exposed to damage).

3.12 Is equipment found damaged or defective removed from service until repaired or replaced?

3.13 Are guards installed properly and in good condition?

3.14 Are all required tests performed:

3.14.1 Before first use;

3.14.2 Before equipment is returned to service following repairs;

3.14.3 Before equipment is used after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over; and;

3.15.4 At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage must be tested at intervals not to exceed 6 months.

3.15 Are all required tests documented, maintained and include the following:

3.15.1 Identity of all equipment having passed the test?

3.15.2 The last date tested or the testing interval?

3.15.3 Is the test documentation maintained until replaced by a more current record?

3.16 Does the tool create sparks or heat? Has this been considered when working around flammable substances?

3.17 Are cutting tools sharp? Dull tools are more hazardous than sharp ones.

3.18 Is the tool used on the proper working surface? Tools used on dirty or wet working surfaces can create a multitude of hazards.

3.19 Are tools stored properly when not being used? Saw blades, and like sharp tools should be stored so that sharp edges are directed away from aisles and coworkers.

4. Power Tool Precautions. Power tools can be hazardous when improperly used, this company uses several types. The following precautions will be taken by employees of this company to prevent injury.

4.1 Power tools will always be operated within their design limitations.

4.2 Eye protection, gloves and safety footwear are recommended during operation.

4.3 Tools will be stored in an appropriate dry location when not in use.

4.4 Tool work will only be conducted in well illuminated locations.

4.5 Tools will not be carried by the cord or hose.

4.6 Cords or hoses will not be yanked to disconnect it from the receptacle.

4.7 Cords and hoses will be kept away from heat, oils, and sharp edges or any other source that could result in damage.

4.8 Tools will be disconnected when not in use, before servicing, and when changing accessories such as blades, bits and cutters.

4.9 Observers will be kept at a safe distance at all times from the work area.

4.10 Work will be secured with clamps or a vice where possible to free both hands to operate tools.

4.11 To prevent accidental starting, employees should be continually aware not to hold the start button while carrying a plugged-in tool.

4.12 Tools will be maintained in a clean manner, and properly maintained in accordance with the manufacturer's guidelines.

4.13 Ensure that proper shoes are worn and that the work area is kept clean to maintain proper footing and good balance.

4.14 Ensure that proper apparel is worn. Loose clothing, ties, or jewelry can become caught in moving parts.

4.15 Tools that are damaged will be removed from service immediately and tagged "Do Not Use".

4.16 Cracked saws. All cracked saws will be removed from service.

5. Methods of Guarding. One or more methods of guarding shall be provided where required to protect the operator and other employees in the area from hazards such as those created by point of operation, in running nip points, rotating parts, flying chips and sparks. Examples of guarding methods are; barrier guards, two-hand tripping devices, electronic safety devices, etc. The guard shall be such that it does not offer an accident hazard in itself. Employee's will:

5.1 Inspect tools without guards for signs of guard removal. If it is evident that a guard is required. Tag-out the tool and obtain a replacement. Tools will not be energized during inspection.

5.2 Inspect tools having guards for proper operation and maintenance prior to use. Tools will not be energized during inspection.

5.3 Never remove a guard during use.

6. Initial Training. Training shall be conducted prior to job assignment. Romer Utility Services shall provide training to ensure that the grounding requirements, purpose, function, and proper use of tools to be used in the normal function of their jobs is understood by employees and that the knowledge and skills required for the safe application, and usage is acquired by employees. This standard practice instruction shall be provided to, and read by all employees receiving training. The training shall include, as a minimum the following:

6.1 Grounding requirements for tools and associated site electrical equipment.

6.2 Types of tools appropriate for use.

6.3 Recognition of applicable electrical hazards associated with work to be completed.

6.4 Tool selection requirements.

6.5 Procedures for removal of an electrical tool/accessory from service.

6.6 All other employees whose work operations are or may be in an area where tools which could present a hazard to other than the user, will be instructed to an awareness level concerning hazards.

6.7 Tools identification. Tools having identification numbers will be checked for legibility.

7. Refresher Training. This standard practice instruction shall be provided to, and read by all employees receiving refresher training. The training content shall be identical to initial training. Refresher training will be conducted on as required basis or when the following conditions are met, which ever event occurs sooner.

7.1 Retraining shall be provided for all authorized and affected employees whenever (and prior to) there being a change in their job assignments, a change in the type of tools used, or when a known hazard is added to the work

7.2 Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever Romer Utility Services has reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of tools.

7.3 The retraining shall reestablish employee proficiency and introduce new or revised methods and procedures, as necessary.

7.4 Certification. Romer Utility Services shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

Behavior Based Safety Program

PURPOSE

Romer Utility Services has established this written Behavior Based Safety Program, in accordance with the company's belief in how important behaviors are in relation to safety in the work place. Employee's behaviors are a direct link to how safely they work. A positive and safe attitude will lead workers down a safe path, were as a poor attitude or an attitude that leans towards short cuts and variances from safety procedures will more times than not result in the employee becoming injured or injuring someone else.

RESPONSIBILITIES

Safety Representative will manage the Behavior Based Safety program. Safety Representative will ensure that upper level management is given to the program through periodic audits and daily safety talks Employees will have full access to the plan by simply contacting the main office during normal business hours.

TRAINING

Training on the program will be accomplished by way of it becoming a part of the monthly safety meetings that are held for all company employees.

This training will include:

- Program objectives and incident metrics reviewed
- How to conduct the observation
- How to complete the observation form
- What do the behaviors mean
- Feedback training and role play (mentoring and coaching)
- Employees should be aware they may be observed at any time

OBSERVATIONS

Upon completion of an observation, the observer is expected to have a discussion with the observed to get feedback and to communicate the value of a positive behavior as well as communicate with the employee how the negative behavior can affect the employee's health and safety as well as the safety of others.

The observer will:
- Review the observation with observed employee
- Start with a positive comment
- Reinforce safe behaviors observed first
- Describe and discuss unsafe behaviors observed
- Solicit from observed employee explanation of his/her unsafe behavior with open-ended questions
- Re-emphasize no consequence to observed employee

TREND IDENTIFICATIONS

Individual departments, as well as the company as a whole, will compare these measurements and track these results by an acceptable method so that numerical and statistical comparisons can be made over time. These trends will be used to identify if and changes are needed to the company's program.

FOLLOW UP

Once trend analysis is complete, TWS will take the appropriate action needed to develop and address all unsafe behaviors.

Action planning will include:
- Evaluate unsafe behaviors from trend analysis and prioritize
- Develop action plan for unsafe behaviors based on comments and feedback from data sheets
- Designate responsible parties and timeframes within the action plan
- Define who is responsible for action planning
- Ensure management support

Benzene Safety Program

1. **Written Program.** Romer Utility Services will review and evaluate this standard practice instruction in accordance with the following:

✓ On an annual basis.
✓ When changes occur to governing regulatory sources that require revision.
✓When changes occur to related company procedures that require a revision.
✓When facility operational changes occur that require a revision.
✓When there is an accident or close-call that relates to this area of safety.
✓Anytime the procedures fail.

Effective implementation of this program requires support from all levels of management. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of the number of workers employed or the number of work shifts. It is designed to establish clear goals and objectives.

2. **Related Programs.** The following safety programs are to be used in consonance with this program:

✓OSHA - 29 CFR 1910.1000, Air Contaminants
✓OSHA - 29 CFR 1910.1200, Hazard Communication
✓OSHA - 29 CFR 1910.132-138, Personal Protective Equipment

3. Hazard Overview. Benzene is a clear, colorless liquid with a pleasant, sweet odor. The odor of benzene does not provide adequate warning of its hazard. Benzene can affect your health if you inhale it, or if it comes in contact with your skin or eyes. Benzene is also harmful if you happen to swallow it. Routes of entry into the body include; Inhalation and skin absorption.

4. Health Affects.
4.1 Short-term (acute) overexposure: If you are overexposed to high concentrations of benzene, well above the levels where its odor is first recognizable, you may feel breathless, irritable, euphoric, or giddy; you may experience irritation in eyes, nose, and respiratory tract. You may develop a headache, feel dizzy, nauseated, or intoxicated. Severe exposures to benzene may cause convulsions and loss of consciousness.

4.2 Long-term (chronic) exposure: Repeated or prolonged exposure to benzene, even at relatively low concentrations, may result in various blood disorders, ranging from anemia to leukemia, an irreversible, fatal disease. Many blood disorders associated with benzene exposure may occur without symptoms.

5. OSHA Overview. Benzene is available industrially, mainly as a clear, colorless water-insoluble liquid that vaporizes readily at room temperature conditions. When exposed to an ignition source, a mixture of benzene vapor and air burns readily with a very sooty flame. In the workplace, OSHA regulates the exposure of employees to Benzene. Benzene is formerly recognized as a popular industrial solvent, but no longer. Benzene is now recognized as a human carcinogen, causing a number of health problems. OSHA stipulates a permissible exposure limit of 1 ppm as an 8-hour time-weighted average.

6. DOT Overview. The Department of Transportation regulates Benzene as a flammable liquid. Containers are labeled as FLAMMABLE LIQUID, and their transport vehicles are similarly placarded.

7. NFPA Overview.

Description: Clear, colorless liquid with a distinctive sweet odor.
Fire and Explosion Hazard: Flammable liquid. Vapors form flammable mixture in air.
Flammable Range: Lower: 1.3%, Upper: 7.5%.
Ignition Temperature: 580 degrees (C) (1076 Degrees (F).
Vapor Density: 2.7, (vapors are heavier than air) (air = 1.0) will seek lower areas.
Boiling Point: 80.1 deg. C (176 deg. F).
Chemical Abstract Service (CAS) Number: 71-43-2.

8. General Requirements. Romer Utility Services will establish Benzene operational procedures through the use of this document.

8.1 Facility Evaluation. This employer shall evaluate our facility(s) to determine if any work area meets the criteria for designation as a Regulated Benzene Hazard Area.

8.2 Regulated areas. This employer 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.

9. Employee Notification and Signage. This employer shall post signs at entrances to regulated areas. The signs shall bear the following legend:

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

9.1 Containers. This employer shall ensure that labels or other appropriate forms of warning are provided for containers of benzene within the workplace. There is no requirement to label pipes. The labels shall comply with the requirements of 29 CFR 1910.1200 (Hazard Communication Standard) and in addition shall include the following legend:

DANGER
CONTAINS BENZENE
CANCER HAZARD

10. Training.

10.1 Types of training. The company will determine whether training required for specific jobs will be conducted in a classroom or on-the-job. The degree of training provided shall be determined by the complexity of the job and the Benzene exposure hazards associated with the individual job.

10.1.1 Initial Training. Prior to job assignment, this employer shall provide training to ensure that the hazards associated with Benzene are understood by employees and that the knowledge, skills and personal protective equipment required are acquired by employees. The training shall as a minimum include the following:

10.1.1.1 Each authorized employee shall receive training in the recognition of applicable hazards involved with the particular job and job site, as well as the methods and means necessary for safe work.

10.1.1.2 The specific nature of the operation which could result in exposure to Benzene.

10.1.1.3 The purpose, proper selection, fitting, use and limitation of personal protective equipment (PPE).

10.1.1.4 The adverse health effects associated with excessive exposure to Benzene.

10.1.1.5 The engineering controls and work practices associated with the employee's job assignment, including training of employees to follow relevant good work practices.

10.1.1.6 The contents of any compliance plan in effect

10.1.1.7 The requirements of the Hazard Communication Standard under 29 CFR 1910.1200.

10.1.1.8 The employee's right of access to records under 29 CFR 1910.20.

10.1.1.9 The medical surveillance program in place at this facility used to determine Benzene exposure.

10.1.2 Refresher Training. Scheduled refresher training will be conducted on an as needed basis.

11. Retraining.

11.1 Retraining shall be provided for all affected employees as a minimum whenever:

11.1.1 There is a change in job assignments.

11.1.2 There is a change in personal protective equipment.

11.1.3 There is a change in equipment that presents a new hazard.

11.1.4 There is a change in processes that presents a new hazard.

11.1.5 Their work takes them into hazardous or regulated area.

11.1.6 There is a change in Benzene safety procedures.

11.1.7 Safety procedure fails resulting in a near-miss, illness, or injury.

11.2 Additional retraining. Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever this employer has reason to believe, that there are deviations from or inadequacies in the employee's knowledge of known hazards, or use of equipment or procedures.

11.3 The retraining shall reestablish employee proficiency and introduce new equipment, or revised control methods and procedures, as necessary.

11.4 Certification. This employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain a synopsis of the training conducted, each employee's name, and dates of training.

12. Work operations

12.1 Work operations in which Benzene may be encountered at this facility as well as while working on other Operators locations. The following are possible areas of concern.

Fueling locations, Maintenance operations, Old Pipe Removal.

12.2 The equipment and materials used to accomplish work operations are those normally associated with a petroleum nature, such as fuels and greases.

12.3 Employee crew size will vary and employee job responsibilities will be that of their craft as stated in the company's policy manual. Specific additional responsibilities will be:

12.3.1 Superintendent/General Supervisor.

12.3.1.1 Monitors procedure to ensure compliance with this work practice.

12.3.2 Supervisors.

12.3.2.1 Ensures that the initial determination for potential Benzene or toxic exposure has been accomplished before work begins.

12.3.2.2 Supervises the safe performance of work in accordance with this and other related work practices.

12.3.2.3 Assigns jobs only to qualified employees.

12.3.2.4 Responsible for obtaining owners contingency plan and provisions in place prior to employees' potential exposure.

12.3.2.5 Responsible for relaying information regarding Owners contingency plan to employees.

12.3.3 Employees.

12.3.3.1 Uses the protective and safety equipment as assigned and directed.

12.3.3.2 Abides by the requirements of this and site-specific work practices.

13. Monitoring and Medical Surveillance. Romer Utility Services will monitor the workplace and work operations to determine accurately the airborne concentrations of benzene to which employees may be exposed.

13.1 Initial monitoring. Initial monitoring will be completed within 30 days of the introduction of benzene into the workplace.

13.2 Periodic monitoring and monitoring frequency. If the monitoring reveals employee exposure at or above the action level but at or below the TWA, the monitoring will be repeated each such employee at least every year.

13.3 Exposures above TWA. If the monitoring reveals employee exposure above the TWA, the monitoring will be repeated for each such employee at least every six (6) months.

13.4 Exposures at or below the TWA. The monitoring schedule may be reduced 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.

13.5 Termination of monitoring. If the initial reveals employee exposure to be below the action level, the monitoring may be discontinued for that employee, except as otherwise required.

14. Spill and Leak Procedures. Spills and leaks will be under the supervision of the site safety personal or site manager.

14.1 Persons not wearing protective equipment and clothing will be restricted from areas of spills or leaks until cleanup has been completed.

14.2 Emergency Containment. Benzene exposure can be hazardous. Only authorized and trained emergency response personnel should attempt containment. If you are not trained in containment of Benzene, evacuate the area in accordance with established procedures. If Benzene is spilled or leaked the following steps as a minimum should be taken.

14.2.1 Remove all ignition sources.

14.2.2 Ventilate the area of the spill or leak to disperse vapors.

14.2.3 If possible, stop flow of liquid, allow to vaporize.

14.2.4 Use containment equipment such as dikes, compatible absorbent materials, etc.

14.2.5 Use non-sparking tools and explosion proof equipment at all times in the spill area.

15. Emergency First Aid Procedures. In the event of an emergency, institute first aid procedures and send for first aid or medical assistance in accordance with local procedures. Dial 911 for emergency response personnel.

15.1 Eye Exposure: Wash immediately with large amounts of water for at least 15 minutes. Lifting the lower and upper lids occasionally, get medical attention as soon as possible.

15.2 Skin Exposure: Immediately flush with copious amounts of water. Remove any clothing contaminated, and flush exposed skin areas, get medical attention as soon as possible.

15.3 Swallowing Exposure: If benzene has been swallowed and the patient is conscious, do not induce vomiting. Call for medical assistance or a doctor immediately.

15.4 Respiratory Exposure: Get the victim to open, fresh air immediately. If breathing has stopped perform CPR. Keep the victim warm and at rest. Get medical attention as soon as possible.

15.5 Rescue Considerations. Don't become a second victim. Move the affected person from the hazardous area. If the exposed person has been overcome, initiate local emergency notification procedures. Never enter any vessel or confined space where the benzene concentration might be high enough to displace air or create an explosive atmosphere without proper training, equipment and procedures. Understand the facility's emergency rescue procedures and know the locations of rescue equipment before the need arises.

16. Protective Clothing and Personal Protective Equipment (PPE). Where engineering controls, administrative controls, and job hazard analyses do not eliminate all job hazards, employees will (where appropriate) wear personal protective equipment (PPE).

16.1 These include items such as caps, hair nets, face shields, safety goggles, glasses, hearing protection, foot guards, gloves, sleeves, aprons, respirators etc. Supervisors will ensure that equipment selected will meet the following requirements:

16.1.1 It will be appropriate for the particular hazard.

16.1.2 It will be maintained in good condition.

16.1.3 It will be properly stored when not in use, to prevent damage or loss.

16.1.4 It will be kept clean, fully functional and sanitary.

16.2 Hazards associated with wear of protective clothing, PPE, personal clothing and jewelry. Protective clothing and PPE can present additional safety hazards. Supervisors will ensure workers wear appropriate clothing and PPE. These items will be worn so as not create additional hazards.

16.2.1 Personal clothing and jewelry. Personal clothing and jewelry will be monitored by the immediate supervisor. Clothing or jewelry that could become entangled in tools, equipment or machinery or of an excessively flammable nature will be prohibited.

16.3 Respirators. Respirators are required for those operations in which engineering controls or work practice controls are not feasible to reduce exposure to the permissible level. If it can be documented that benzene is present in the workplace less than 30 days a year, respirators may be used in lieu of engineering controls. If you experience difficulty breathing while wearing a respirator, you may request a positive pressure respirator. Contact your supervisor immediately.

16.4 Protective Clothing. You must wear appropriate protective clothing (such as boots, gloves, sleeves, aprons, etc.) over any parts of your body that could be exposed to liquid benzene.

16.5 Eye and Face Protection. You must wear splash-proof safety goggles if it is possible that benzene may get into your eyes. In addition, you must wear a face shield if your face could be splashed with benzene liquid.

16.6 Documentation. PPE requirements will be documented on a “Protective Measures Determination” form and properly filed.

17. Tool Selection, Evaluation and Condition. The greatest hazards posed by tools usually result from misuse and/or improper maintenance. Tool selection sometimes is not considered a priority when arrangements are made to begin work. All employees will consider the following when selecting tools:

17.1 Is the tool correct for the type work to be performed?

17.2 Are grounding methods sufficient when working in wet conditions?

17.3 Does the tool create sparks or heat? Has this been considered when working around flammable substances?

17.4 Are tools stored properly when not being used?

17.5 Have tools been modified beyond the manufacturer's specification? If so, have the modifications been approved by a "competent person"?

18. Work Practices. Benzene liquid is highly flammable. It should be stored in tightly closed containers in a cool, well ventilated area. Benzene vapor may form explosive mixtures in air. All sources of ignition must be controlled. Use non sparking tools when opening or closing benzene containers. Fire extinguishers, where provided, must be readily available. Know where they are located and how to operate them. Smoking is prohibited in areas where benzene is used or stored. Ask your supervisor where benzene is used in your area and for additional facility safety rules.

19. Medical Surveillance. The medical surveillance provisions of this standard practice instruction are intended to provide our employees with a comprehensive approach to prevention of benzene-related illnesses or disease. The primary purpose is to supplement the OSHA standard's primary mechanisms of disease and illness prevention, the elimination or reduction of benzene exposure, by facilitating the early detection of medical effects associated with exposure to benzene. The medical surveillance program is in place for employees who are or may be exposed to benzene at or above the action level 30 or more days per year; and 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.

19.1 All medical examinations and procedures will be performed by or under the supervision of a licensed physician and are to be provided without cost to employees at a reasonable time and place.

19.2 Initial and periodic examinations. Will be conducted before the time of initial assignment of work where benzene hazards are present this employer shall provide each employee with a medical examination in accordance with the requirements of 29 CFR 1910.1028.

19.3 Emergency examinations. In addition to the initial and periodic examination and surveillance, if an employee is exposed to benzene in an emergency situation, the employee will be asked to 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, this employer 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.

Bloodborne Pathogens

Policy Statement

It is the policy of Romer Utility Services to provide a safe and healthful workplace for our employees. This policy and procedure will provide a method to safe guard our employees from being occupationally exposed to blood and other potentially infectious materials (OPIM), during first-aid and emergency situations. It is also the intent of this policy to comply with federal OSHA requirements listed in 29 CFI 1910.1030.

Scope

This policy applies to individuals, who in an emergency situation, have the potential for being exposed to blood and other potentially infectious materials when responding solely to injuries resulting from workplace incidents. This policy also applies to janitorial personnel who are directly responsible for the cleanup of an incident site after an accident.

Responsible Persons

There are three groups of responsible persons that are central to the effective implementation of our Bloodborne Pathogen Program. These are:

The Safety Manager

Department Supervisors and Foreman

Our employees

Safety Manager

Safety Representative will be responsible for the overall management and support of our facility's Bloodborne Pathogens Program. Activities delegated to this position typically include, but are not limited to:

-Primary responsibility for implementing the Exposure Control Program for the entire facility.

-Working with management and other employees to develop and administer any additional bloodborne pathogens related policies and practices needed to support the effective implementation of this plan.

-Looking for ways to improve the Exposure Control Program, as well as to revise and update the plan when necessary.

-Collecting and maintaining suitable reference materials.

-Acting as facility liaison during OSHA inspections.

-Conducting periodic facility audit to maintain an up-to-date Exposure Control Program.

-Maintaining an up-to-date list of facility personnel requiring training, in conjunction with facility management.

-Developing suitable education and training.

Department Supervisors and Foreman

Department Supervisors and foreman are responsible for exposure control in their receptive areas. They work directly with the Safety Manager and our employee to ensure the proper exposure control measure are followed.

Employees

As with all of our facility's safety programs, our employees have the most important role in our Bloodborne Pathogens Compliance Program, for the ultimate execution of much of the program rest in their hands. In this role they may be required to know and perform the following:

Know what tasks, if any, they perform having occupational exposure.

-Attend the Bloodborne Pathogens Training Sessions.

-Plan and conduct all operations in accordance with our work practice controls.

-Develop good personal hygiene habits.

Availability of the Exposure Control Plan to Employees

To help employee with their efforts, our facility's Exposure Control Plan is available at any time for review. Employees are advised of this availability during their education and training sessions. Copies of the Exposure Control Plan are kept in the Safety Manager's office.

Plan Review and Update

To keep our Exposure Control up-to-date, the plan will be reviewed and updated under the following circumstances:

-Annually, on or before January 30th of each year.

-Whenever new or modified tasks and procedures are implemented which could affect occupational exposure of our employees.

-Whenever our employees' jobs are revised such that new instances of occupational exposure may occur.

-Whenever we establish new functional positions within our facility that may involve exposure to bloodborne pathogens.

Exposure Determination

OSHA requires employers to conduct an exposure determination concerning which employees may incur occupational exposure to potentially infectious materials. The exposure determination is made without regard to the use of personal protective devices. This is, the employee is considered exposed even if they wear personal protective equipment. At this facility, the following job classifications

have been determined to have the possibility of an occupational exposure to bloodborne pathogens:

Examples are listed below:

-Janitor - Tasks or procedures which may cause exposure are cleaning of restrooms and cleaning of a first aid station or accident site.

-Foreman - Task or procedures which may cause exposure is attending a work-related injury. (only foreman which have received first aid training should be attending an injury.)

-First Aid Personnel - Task or procedures which may cause exposure is attending a work-related injury.

The Safety Manager will work with department supervisors and foreman to review and update this list as our tasks, procedures, and classifications change.

Methods of Compliance

We understand that there are a number of areas that must be addressed in order to effectively eliminate or minimize exposure to bloodborne pathogens in our facility.

-These areas consists of:
-The use of Universal Precautions.
-Establishing appropriate Engineering Controls.
-Implementing appropriate Work Practice Controls.
--Using necessary Personal Protective Equipment.
-Implementing appropriate Housekeeping Procedures.

Universal Precautions

Universal precautions will be observed at our facility in order to prevent contact with blood or other potentially infectious materials. All blood or other potentially infectious material will be considered infectious regardless of the perceived status of the source individual.

-Gloves will be worn when touching blood or other body fluids, mucus membranes, non-intact skin, or handling items or surfaces soiled with blood or other body fluids.

-If it is anticipated droplets of blood or anybody fluid may be come in contact with the mucus membranes of the employees' eye, nose or mouth, he/she will wear protective equipment. {i.e. goggles or face shield}

-Hands or other skin surfaces will be washed immediately if contaminated with blood or other body fluids. Hands will also be washed immediately upon glove removal.

-Any items such as razors, knife blades, broken glass or equipment will be disposed of in a puncture and leak proof container, labeled for disposal of such items.

-To minimize exposure to body fluids during CPR, non-reflexive breathers or other disposable aids will be used.

-If clothing is contaminated it is to be removed as soon as possible.

-Eating, drinking, smoking, applying cosmetics or lip balm, and handling contact lens are prohibited in the first aid room.

Engineering Controls

Engineering controls help to eliminate or minimize employee exposure to bloodborne pathogens. At our facility, the following engineering controls will be utilized:

-Use of sharps container for disposable sharps.

-Use of containers and appropriate disposal bags for potentially infectious waste.

-Hand-washing facilities which are readily accessible to the employees who incur exposure to blood and other potentially infectious materials. Hand-washing facilities are located in the first aid room and restrooms.

Personal Protective Equipment

Personal protective equipment is our employees' "last line of defenses" against bloodborne pathogens. Our facility provides, at no cost to employees, the personal protective equipment they need to protect themselves against exposure. This equipment includes, but not limited to those listed below:

-Gloves
-Safety
-Goggles
-Face shields
Respirators

The Safety Manager, working with the department foreman, is responsible for ensuring that all department and work areas have appropriate personal protective equipment available to employees.

Employees' personal protective equipment is chosen based on the anticipated exposure to blood or other potentially infectious materials.

To ensure that personal protective equipment is not contaminated and is in the appropriate condition to protect employee from potential exposure, our facility adheres to the following practices:

-All personal protective equipment is inspected periodically and repaired or replaced as needed to maintain its effectiveness.

-Reusable personal protective equipment is cleaned, laundered, and decontaminated as needed, at no cost to employees.

To ensure equipment is used as effectively as possible, our employees adhere to the following practices when using their personal protective equipment.

All potentially contaminated personal protective equipment is removed prior to leaving a work area.

Disposable gloves are replaced as soon as practical after contamination or if they are torn, punctured, or otherwise lose their ability to function as a exposure barrier. Reusable utility gloves are not used at this facility.

Protective clothing, such a coats, are worn whenever potential exposure to the body is anticipated.

Housekeeping

Maintaining our facility in a clean and sanitary condition is an important part of our Exposure Control Plan for Bloodborne Pathogens. Our janitorial and cleaning staff employs the following practices:

-Any surface or equipment contaminated with blood or other body fluids will be cleaned as soon as possible.

-Employees will use paper towels to remove the visible materials and then decontaminate using 10:1 water and bleach solution, that is one cup bleach to ten cups water.

-Cleaning products such as paper towels and gloves will be placed in plastic bags and burned or removed by a hazardous waste disposal company. The bags will be red in color and marked with biohazard label.

-Regulated wastes, including bandages, feminine hygiene products, etc. are also placed in biohazard bags for disposal consistent with the manner listed above.

The Safety Manager, working with the Plant Manager, is responsible for setting up our cleaning and decontamination schedule and insuring it effectiveness within our facility.

Hepatitis B Vaccination, Post-Exposure Evaluation and Follow-Up

Vaccination Program

To protect our employees as much as possible from the possibility of a Hepatitis B infection, our facility has implemented a vaccination program. This program is available, at no cost to the employees, to all individuals who have been identified as having the possibility of occupational exposure to blood or other body fluids. The vaccination will be made available within ten working days of the job assignment or ten days after an exposure. {See Appendix B

Employees who decline the Hepatitis B vaccine will sign a waiver which uses the wording in Appendix A of the OSHA standard {See Appendix A at the end of this sample program}. Employees who initially decline the vaccine but who later wish to have it may request and receive it within ten days at no cost to that employee.

The Safety Manager will announce the date for the vaccinations and be responsible for keeping the recorded employee consent or refusal forms. (See Appendix A and B)

Vaccinations are performed under the supervision of a licensed physician or other healthcare professional.

Post Exposure Evaluation and Follow-Up

If one of our employees is involved in an accident where exposure to bloodborne pathogens may have occurred, there are two things we immediately focus our efforts on:

1. Investigating the circumstances surrounding the exposure incident.
2. Ensuring that our employees receive medical consultation and treatment (if necessary) as quickly as possible.

The Safety Manager will investigate every exposure incident that occurs in our facility. This investigation is initiated within 24 hours of the incident and involves gathering, but not limited to, the following information:

-Where, when, and how the incident occurred.
-What potentially infectious materials were involved.
-Source of the infectious materials.
-What circumstances surrounded the incident.
-Personal protective equipment being used at the time.
-Action taken as a result of the incident.

This information is evaluated and documented using the "Incident Investigation Form" (Appendix C) or a form requiring at least the same basic information.

Our follow-up process consists of several steps, as outlined below:

(See Appendix D)

-First, an exposed employee is provided with (1) documentation regarding the routes of exposure and the circumstances under which the exposure incident occurred and (2) identification of the source individual (if possible).

-Next, (if possible) the source individual blood is tested to determine HBV and HIV infectivity. This information will also be made available to the exposed employee, if it is obtained. At that time, the exposed employee will be made aware of any applicable laws and regulation concerning disclosure of the identity and infectious status of a source individual.

-Finally, the blood of the exposed employee is collected and tested for HBV and HIV status.

Once these procedures have been completed, an appointment is arranged with a qualified healthcare professional to discuss the medical status of the exposed employee. This includes an evaluation of any reported illnesses, as well as any recommended treatment.

We recognize that much of the information involved in this process must remain confidential, and will do everything possible to protect the privacy of the individuals involved.

Information Provided to the Healthcare Professional

To offer assistance, we forward a number of documents to the healthcare professional. These typically include the following:

A copy of the Bloodborne Pathogen Standard.
A copy of the "Incident Investigation Form" (Appendix C) and any accompanying information describing the exposure incident.
The exposed employee's relevant medical records.
Any other pertinent information.

Healthcare Professional's Written Opinion

After consultation, the healthcare professional will provide a written opinion to the employer (within 15 days) evaluating the exposed employee's situation. The employer will then notify the exposed employee of the results of that evaluation.

The healthcare professional shall be instructed to limit their opinions to the following:

-Whether the Hepatitis B vaccine is indicated and of the employee has received the vaccine.

-Following an exposure incident, that the exposed employee has been informed of the results of the evaluation.

-Following an exposure incident, that the employee has been told about any medical conditions resulting from that exposure to blood or other potentially infectious materials.

-The written opinion to the employer will not reference any personal medical information.

Medical Records

To ensure that we have as much medical information as possible available for the participating healthcare professional, our facility will maintain comprehensive medical records on our employees. The Administrative Manager is responsible for maintaining these records, which will include the following information:

-Name of the employee.

-Employee's social security number.

-A copy of the employee's Hepatitis B Vaccination status.

-Copies of the results of the examinations, medical testing, and follow-up procedures which took place as a result of an employee exposure to bloodborne pathogens.

A copy of the information provided to the consulting healthcare professional as a result of any exposure to bloodborne pathogens.

As with all information in these areas, we recognize it is important to keep information in these medical records confidential. We will not disclose or report this information to anyone without our employees written consent, except as required by law.

Training Topics

Training will be provided to all affected employees at the time of hire and at least annually thereafter. Training will include, but not limited to, the following:

-Employees will be provided access to a copy of the OSHA Bloodborne Pathogen Standard, 29 CFR 1910.1030, and a written copy of the company's exposure control plan.

-The employees will receive general information regarding bloodborne pathogen diseases with emphasis on epidemiology, symptomology, and modes of transmission of Hepatitis B and HIV.

-The employees will be shown how to identify tasks that may involve exposure to blood or other infectious materials.

-The employees will review the use and limitations of methods that will reduce or prevent exposure. These methods are engineering controls, work practice control, and personal protective equipment.

-The employees will learn the types and proper use, location, removal, and handling of contaminated personal protective equipment. The information regarding the selection of PPE will also be included.

-The employees will be provided information on the Hepatitis B Vaccine, including its; efficiency, safety, mode of administration, benefits of vaccination, and our facility's free vaccination program.

-The employees will be instructed in actions to take in the event of an exposure, including reporting, medical follow-up, and counseling.

-The employees will be shown the visual warnings of biohazards in our facility, including labels, signs, and color-coded containers.

-The employees will be provided with an opportunity to ask questions of the instructor in the training program.

Training Methods

Our facility's training presentation typically consists of a classroom type atmosphere with personal instruction and employee handouts. Time is allotted to provide the employees an opportunity to ask questions and interact with the instructor.

Recordkeeping

We maintain training records containing the following information:

-Dates of all training sessions.
-Contents/summary of the training sessions.
-Name and qualifications of the instructor(s).
-Names and job titles of employees attending the training sessions.

The training records are available for examination and photocopying by employees and their representatives, as well as OSHA and it representatives. These records are maintained by the Safety Manager.

Labels and Signs

Biohazard labels are the most obvious warnings of possible exposure to bloodborne pathogens. Because of this, we have implemented a comprehensive biohazard warning labeling program in our facility using approved labels, or when appropriate, red "color coded" containers. The Safety Manager is responsible for setting up and maintaining this program in our facility.

The following items in our facility will be properly labeled: {Below are some examples of some items needing labeling. Please add or subtract items needed in your specific facility.}

-Containers of regulated waste.

-Sharps disposal containers.

-Other containers used to store, transport or ship blood and other I infectious materials.

-Laundry bags and containers, if containing or were in contact with infectious materials.

-Contaminated portions of equipment.

Information and Training

All employees who have the potential for exposure to bloodborne pathogens are put through a comprehensive training program providing them with as much information as possible on the issue.

New employees or employees changing jobs or job functions requiring training in bloodborne pathogens will receive this training at the time of their new job assignment. After initial training, employees will be retrained at least annually to jeep their knowledge current. The Safety Manager is responsible for seeing that all employees who have any potential for exposure to bloodborne pathogens receive this training.

Appendix A
Vaccination Declination Form

Date _____

Employee Name: _____

Employee SSN: _____

I understand that due to my occupational exposure to blood or other potential infectious materials I may be at risk of contracting the Hepatitis B viral (HBV) infection. I have been given the opportunity to be vaccinated with Hepatitis B vaccine, at no charge to myself.

However, I decline the Hepatitis B vaccination at this time. I understand that by declining this vaccine, I continue to be at risk of contracting Hepatitis B, a serious disease.

If, in the future, I continue to have occupational exposure to blood or other potentially infectious materials and I want to be vaccinated with the Hepatitis B vaccine, I can receive the vaccination series, at no charge to me, at that time.

_____ _____

Employee Signature **Date**

_____ _____

Safety Manager Signature **Date**

Romer Utility Services

Appendix B

Employee Consent to Hepatitis B Vaccine

On _____, I _____ received information concerning the risk of occupational exposure to blood or other potentially infectious material in the position of _____, which has been determined as job classification exposure Category _____. I have received a copy of the Hepatitis B information packet which has been explained to me and I understand this information.

I have been informed and understand (1) that Hepatitis B vaccination may reduce the potential risk of occupationally contracted viral hepatitis infection, and (2) the risks of the Hepatitis B vaccination which may include pain, itching, bruising at the injection site, sweating, weakness, chills, flushing and tingling, and (3) to obtain adequate immunity to viral Hepatitis B, it will be necessary to receive all three vaccinations of the vaccine series which are administered one month and six months after the initial vaccination, and (4) that the vaccination will be provided to me free of charge by _____. If at such future time the U.S. Public Health Service recommends a booster dose(s) of Hepatitis B vaccine, such booster dose(s) shall also be provided to me at no cost if I am employed by the facility in a job classification that involves some risk of an occupational exposure to blood or other potentially infectious materials.

If I leave the employment of this facility before the series is completed, it is my responsibility to contact my own medical provider to complete the vaccine series.

I hereby consent to the administration of the Hepatitis B vaccination and voluntarily acknowledge that:

-I do not have an allergy to yeast.
-I am not pregnant or nursing.
-I am not planning to become pregnant within the next six months.
-I have not had a fever, gastric symptoms, respiratory symptoms, or other signs of illness in the last 48 hours.

I do have the following known allergies:

Food: _____
Drugs: _____
Other: _____

YOU MAY WISH TO CONSULT WITH YOUR PHYSICIAN BEFORE TAKING THE VACCINE.

_____ _____

(Employee Name) (Date)

_____

(Social Security Number)

_____ _____

(Witness Signature) (Date)

Appendix C
Exposure Incident Investigation Form

Date of Incident: _____ Time of Incident: _____
Location: _____

Potentially Infectious Materials Involved:

Type: _____ Source: _____
_____ _____

Circumstances: {Work being performed, etc.} _____
_____
_____
_____

How Incident Was Caused: {Accident, equipment malfunction, etc.}
_____
_____
_____

Personal Protective Equipment Used: _____
_____

Actions Taken: {Decontamination, clean-up, reporting, etc.}
_____
_____
_____

Recommendations for Avoiding Repetition: _____

_____

_____

_____

Appendix D

Post-Exposure Evaluation and Follow-up Checklist

The following steps must be taken, and information transmitted to healthcare professional, in the event of an employee's exposure to Bloodborne Pathogen.

Activity	Completion Date

1. Employee furnished with documentation regarding exposure incident: _____

2. Source individual identified: _____

_____

(Source individual)

3. Source individual's blood collected and results given to exposed employee: _____

_____ Consent from source has not been obtained.

4. Exposed employee's blood collected and tested: _____

5. Appointment arranged for employee with healthcare professional: _____

_____

(Healthcare Professional Name)

Documentation forwarded to healthcare professional:

_____ Bloodborne Pathogens Standard.

_____ Description of exposed employee's duties.

_____ Description of exposure incident, including exposure routes.

_____ Results of source individual's blood testing.

_____ Employee's medical records.

Compressed Gas Plan

Purpose

It is the policy of Roemer Utility Services to permit only trained and authorized employees to handle, store, use, and inspects compressed gases and equipment at any time. This policy is applicable to daily users and those who only occasionally have cause to use the equipment.

This written Compressed Gas Plan describes methods and practices for care and use of compressed gases that can be read and understood by all managers, supervisors, and employees at Roemer Utility Services. This written plan is intended to be used to:

* Create an awareness of the hazards among our workforce,
* Standardize procedures for use and care of the equipment,
* Provide a consistent format for training employees on the proper procedures to be used,
* Minimize the possibility of injury or harm to our employees, and
* Demonstrate Roemer Utility Services compliance with OSHA's compressed gas requirements.

Administrative Duties

Brad Revett, our company's Manager, is responsible for developing and maintaining this written Compressed Gas Plan. This person is solely responsible for all facets of the plan and has full authority to make necessary decisions to ensure the success of this plan. Brad Revett is also qualified, by appropriate training and experience that is commensurate with the complexity of the plan, to administer or oversee our compressed gas safety program and conduct the required evaluations.

This written Compressed Gas Plan is kept at the following location: Main office.

If, after reading this plan, you find that improvements can be made, please contact Brad Revett. We encourage all suggestions because we are committed to creating a safe workplace for all our employees, and a safe and effective compressed gas safety program is an important component of our overall safety plan. We strive for clear understanding, safe work practices, and involvement in the program from every level of the company.

Roemer Utility Services is the owner/operator of our company. This person is ultimately responsible for compliance with compressed gas requirements.

List of Compressed Gases and Equipment

The compressed gases used at this company include the following: compressed air, nitrogen, propane and calibration gases.

The compressed gas equipment used at this company includes the following: compressed gas cylinders

Personal Protective Equipment

We have assessed the hazards associated with the compressed gases and equipment at Roemer Utility Services. and have taken measures to eliminate or reduce their presence with engineering and administrative controls. Where these controls were not enough for employee protection, our company provides all necessary personal protective equipment according to both our written respirator and personal protective equipment (PPE) programs. See the respirator program for details about respirator selection, training, inspection, cleaning, maintenance, storage, work area surveillance, program evaluation, user physical fitness determination, and air quality standards. See the PPE program for details about hazard assessments, PPE selection, employee training, PPE cleaning and maintenance, and PPE-specific information.

Inspection Procedures

Only trained employees, is qualified to determine that compressed gas cylinders at the company are in a safe condition to the extent that can be determined by visual inspection.

Inspections of cylinders, hoses, and connections are conducted according to the following schedule: monthly.

Our inspections are conducted as prescribed by the following, as applicable:

* 49 CFR 171 - 179 and 14 CFR 103 (Hazardous Materials Regulations under the Department of Transportation).
* Compressed Gas Association Pamphlet C-6-1968 (Standards for Visual Inspection of Steel Compressed Gas Cylinders).
* Compressed Gas Association Pamphlet C-8-1962 (Standard for Requalification of DOT-3HT Seamless Steel Cylinders).

Of course, if a cylinder is found to be unfit in its present condition, then only trained employees must determine whether it can be repaired or must be scrapped. If a cylinder is repaired, it can only go back into service if the defect is corrected as specified according to the requirements listed above.

Handling Procedures

Compressed gases are considered to be handled when employees perform any of the following activities:

* Identify contents;
* Fill, Trans fill, change gas service, maintain and move containers; and
* Connect containers and withdraw content.

We follow the safe handling procedures found in the CGA pamphlet series, including the P-1-1991 pamphlet. Our handling procedures include the following:

* Identify a gas and its dangers before using it. Look for this information on labels, MSDSs, and cylinder markings. If you don't know what's in a cylinder, don't use it.
* Examine cylinders as soon as you receive them. If you detect signs of damage or leakage, move them to a safe, isolated area and return them to the supplier as soon as possible.
* Use only regulators, pressure relief devices, valves, hoses, and other auxiliary equipment that is designed for the specific container and compressed gas/cryogenic liquid to be used.
* Do not interchange equipment between different types of gases.
* Make sure valves, hoses, connectors, and regulators are in good condition. Don't use cylinders without them.
* Use pressure relief devices and safety devices to help maintain cylinder or system pressure at the desired levels. (Exceeding the desired pressure could damage the cylinder or system.)
* Check to see if regulators, hoses, and gauges can be used with different gases. Assume they cannot.
* Never open valves until regulators are drained of gas and pressure-adjusting devices are released. When opening cylinders, point outlets away from people and sources of ignition, such as sparks or flames. Open valves slowly. On valves without hand wheels, use only supplier-recommended wrenches. On valves with hand wheels, never use wrenches.
* Do not tamper with connections and do not force connections together.
* Do not hammer valves open or closed.
* Only use appropriate tools to open and close valves. Only tools supplied by the supplier should be used to open and close cylinder valves.
* Do not drop, bang, slide, clank, or roll cylinders.
* Cylinders may be rolled along the bottom rim.
* Don't let cylinders fall or have things fall on them.
* Don't lift a cylinder by its cap unless using hand trucks so designed.
* Use carts or other material handling equipment to move cylinders. Use ropes and chains to move a cylinder only if the cylinder has special lugs to accommodate this. Some cylinders may require special hand trucks.

* Keep cylinders secured and upright. (But never secure cylinders to conduit carrying electrical wiring.)
* When transporting compressed gas cylinders, be sure the vehicle is adequately equipped to haul compressed gases safely. Stop the engine while loading or unloading flammable compressed gases.
* Don't drive a vehicle hauling liquefied hydrogen through a tunnel.
* Know accident procedures.

Storage Procedures

The following activities are involved in safely storing compressed gases:

* Post areas where gases are present,
* Group gases,
* Separate combustibles,
* Avoid corrosives or areas where container damage can occur,
* Position containers properly, and
* Use indoor and outdoor storage appropriately.
* Hoses and connections stored in cool areas

We follow the safe storage procedures found in the CGA pamphlet series, including the P-1-1991 pamphlet. Our storage procedures for compressed gases include the following:

* Store cylinders upright.
* When a cylinder is in storage, keep the steel protective cap screwed on. This step reduces the chance that a blow to the valve will allow gas to escape.
* Group cylinders by types of gas.
* Store full and empty cylinders apart.
* Store gases so that old stock is removed and used first.
* To keep cylinders from falling over, secure them with chains or cables.
* Store compressed gas containers in dry, well-ventilated areas away from exits and stairways. If outside, store containers off the ground and out of extremely hot or cold environments.
* Do not store compressed gas containers in high pedestrian and vehicle traffic areas. (Containers are more likely to be damaged there.)
* Store oxygen cylinders at least 20 feet from flammables or combustibles or separate them by a 5-foot, fire-resistant barrier.
* Keep oil and grease away from oxygen cylinders, valves, and hoses.
* If your hands, gloves, or clothing are oily, do not handle oxygen cylinders.
* Make sure fire extinguishers near the storage area are appropriate for gases stored there.
* Post signs stating the name(s) of gas present and NO SMOKING where gases are stored.

Usage Procedures

Safe use of compressed gases involves the following activities:

* Properly handle leaking containers,
* Prevent abuse,
* Identify contents,
* Properly use container and valve caps and plugs, and
* Return empty containers.

We follow the safe usage procedures found in the CGA pamphlet series, including the P-1-1991 pamphlet. Our procedures for using compressed gases include the following:

* Remove any leaking containers to a well-ventilated area and post a warning of the hazard.
* Shut a leaking valve and tighten the valve gland or nut. Then try opening the valve; if it still leaks, close it and tag the container unserviceable.
* Make sure labels are legible before using containers; otherwise, return the containers to the supplier.
* Do not misuse containers (i.e., using them for support); only use them as they were intended.
* Keep containers away from fire, sparks, and electricity.
* Don't smoke or allow others to smoke in the vicinity of flammable compressed gas containers.
* Do not subject containers to extreme heat or cold.
* Use a respirator or SCBA (self-contained breathing apparatus) according to 29 CFR 1910.134 when using toxic compressed gas.
* Contact the manufacturer/supplier with questions about safe handling.
* Always keep removable caps and valve outlet caps/plugs on containers except when connecting to dispensing equipment.
* If Cylinder cap cannot be removed by hand the cylinder shall be tagged out of service and do not use, and the cylinder returned to the designated storage area to return to the vendor.
* Do not use oxygen and compressed air interchangeably. They are not the same.
* Comply with ANSI Z49.1 when using or storing oxyfuel-gas containers for welding and cutting and other similar activities.
* When empty, close and return cylinders. Empty cylinders must be marked MT or Empty. Empty acetylene cylinders must be so labeled.
* Be sure valves are closed when not using the container and before returning containers. Properly label returning containers.
* Do not refill non-refillable containers once they are empty.

Gas-Specific Safety Procedures

Roemer Utility Services. complies with the following gas-specific procedures:

* General requirements for gases such as chlorine, sulfur dioxide, and nitrogen, in 29 CFR 1910.101.
* Liquid oxygen requirements in 29 CFR 1910.104.

Compressed Gas Emergency Procedures

In an emergency, Brad Revett may seek advice from the Chemical Transportation Emergency Center, known as CHEMTREC, which can be reached 24 hours a day by dialing (800) 424-9300. This service is provided by the Chemical Manufacturers Association. A similar Canadian service, CANMTEC, is available at (613) 996-6666.

Refer to our written emergency action plan for employee escape procedures and assignments during a compressed gas emergency.

Training Program

Trained Supervisor is responsible for training personnel who will handle, store, or use a compressed gas. Under no circumstances will an employee handle, store, or use a compressed gas until he/she has successfully completed this company's compressed gas training program. This includes all new workers who will handle, store, and use compressed gases, regardless of claimed previous experience.

Individuals in the following departments receive training: all effected departments.

Management is responsible for identifying all new employees in our Employee Orientation Program and making arrangements with department management to schedule the instruction for those employees previously identified in this policy as needing training.

General training elements include the following:

* Compressed gases and equipment at the company.
* Hazards of compressed gases and equipment at the company.
* Personal protective equipment.
* Inspection procedures.
* Handling procedures.
* Storage procedures.
* Usage procedures.
* Gas-specific safety procedures.
* Compressed gas emergency procedures.

Recordkeeping

Brad Revett s responsible for maintaining records of cylinder inspections and maintenance. These records are kept the main office.

Brad Revett is responsible for maintaining records of individuals trained and certified for handling, storage, and use of compressed gases and equipment. These records are kept the main office.

Disciplinary Procedures

Constant awareness of and respect for compressed gas safety procedures and compliance with all safety rules are considered conditions of employment. Supervisors and individuals in the Safety and Personnel Department reserve the right to issue disciplinary warnings to employees, up to and including termination, for failure to follow the guidelines of this compressed gas safety program.

Program Evaluation

Although we may not be able to eliminate all problems, we try to eliminate as many as possible to improve employee protection and encourage employee safe practices. Therefore, Brad Revett is responsible for evaluating and updating this written plan. The evaluation will include a review of reported accidents, as well as near misses, to identify areas where additional safety measures need to be taken.

Brad Revett will also conduct a periodic review to determine the effectiveness of the program. This review may include:

* A walk-through of the facility, and
* Interviews with employees to determine whether they are familiar with the requirements of this program and if safety measures are being practiced.

Confined Space

RESPONSIBILITIES

Health and Safety Manager

It will be the responsibility of the Safety Representative to ensure compliance with the following:

1. Ensure employees are trained properly in confined spaces.
2. Review and evaluate entry operations on a periodic basis.
3. Take active steps to help prevent unauthorized entry.
4. Conduct investigations after a confined space incident.
5. Perform an annual audit of the confined space program (to include a review of cancelled permits, which are maintained for at least one year).
6. Maintain training records. Include each employee name and signature, signature of the trainer, and the dates of training.

Managers / Supervisors

It will be the responsibility of Safety Representative to ensure compliance with the following:

1. Attend necessary training sessions.
2. Complete permits and other required documentation.
3. Ensure that your personnel attend required training sessions.
4. Follow all policies and procedures related to confined spaces.
5. Comply with manufacturer recommendations and specifications regarding proper start-up, usage, and maintenance of all equipment.
6. Notify the Health and Safety Manager of any unauthorized entry, any employee noncompliance or the detection of prohibited conditions.

Employees

It will be the responsibility of the employees of Romer Utility Services to ensure their own compliance with the following:

1. Attend necessary training sessions.
2. Comply with all sections of this written program and its procedures.
3. Comply with manufacturer recommendations and specifications regarding proper start-up procedures, usage, and maintenance of all applicable equipment.
4. Follow all instructions of the managers or supervisors.
5. Report to your supervisor, manager, or the Health and Safety Manager if any unsafe conditions, equipment, non-authorized personnel, or items which have an effect on the safe operation of the confined space activities.

DEFINITIONS

See Confined Space Glossary at the end of this written program.

INSPECTION AND EVALUATION

All work areas for Romer Utility Services will be inspected and evaluated to determine if they require a confined space entry permit. The inspection is the responsibility of the Romer Utility Services job supervisor and/or the company safety director/coordinator. When on a client site, coordination with that client will take place to ensure all hazards are identified, listed, and evaluated. Conditions that prohibit entry to a confined space will be evaluated and listed on the entry permit.

PERMITS

All entry into a permit-space is restricted to those with permits. Permits must be available to all employees required to enter a confined space that requires a permit (i.e. a permit-space). The permit should extend only for the duration of the task and cancelled by the entry supervisor when a prohibited condition arises, or when the job is complete. Acceptable atmospheric conditions must be maintained at all times. These conditions are as follows:

1. Oxygen must be between 19.5% and 23.5%
2. Carbon Monoxide must 35ppm or less
3. Lower explosive limit must be less than 10% of the LEL
4. Hydrogen Sulfide must be 10ppm or less

All permits must be retained by the company health and safety director/coordinator for a year to facilitate review of the Confined Space Plan.

Permits must include the following:

- identification of the space
- purpose of entry
- date and duration of permit
- list of authorized entrants
- names of current attendants and entry supervisor
- list of hazards in the permit-space
- list of measures to isolate the permit-space and eliminate or control hazards
- the acceptable entry conditions
- results of tests initialed by the persons performing tests
- rescue and emergency services and means to summon
- communication procedures for attendants and entrants
- required equipment (respirators, communication devices, alarm, etc.)
- any other necessary information
- any additional permits (such as for hot work under the Fire Safety Plan)

The Permit Plan must be reviewed at least annually.

Confined Space Notice

The company safety director/coordinator will inform employees, through signs, training, communication with clients, or other equally effective means, of all confined spaces requiring a permit to enter. The job supervisors will be responsible for coordinating with all contractors involved with entry into Romer Utility Services confined spaces. Measures to prevent unauthorized entry will be implemented by Roemer Utility Services management. Pedestrian, vehicle and other barriers necessary to protect entrants from hazards will be provided if necessary.

Confined Space Plan Lists

Romer Utility Services has a limited number of known confined spaces at its location. But many locations may be encountered on the day to day activities.

PERSONNEL AUTHORIZED TO ISSUE ENTRY PERMITS

Entry supervisors must know hazards of confined spaces and must verify that all air monitoring tests have been conducted and all procedures and equipment are in place before endorsing a permit. They must also verify that rescue services are available and that the means for summoning them are operable.

Entry supervisors may terminate entry and cancel permits. They must remove unauthorized individuals who enter a confined space. They also must determine that conditions are acceptable as specified in the permit.

PERSONNEL AUTHORIZED TO ENTER CONFINED SPACES

All personnel issued permits to enter confined spaces must know the hazards they may face, be trained to recognize signs or symptoms of exposure, and understand the consequences of exposure to hazards.

Entrants must know how to:

- use any needed equipment
- communicate with attendants
- alert attendants when a warning symptom or other hazardous condition exists
- exit as quickly as possible whenever ordered or alerted (by alarm, warning sign, or prohibited condition) to do so

PERSONNEL AUTHORIZED TO SERVE AS ATTENDANTS

Attendants must know the hazards of a confined space and be aware of potential exposures. Attendants must perform the following duties:

- check permits of authorized entrants
- prevent entry by those without a permit
- maintain a continuous count of those in a confined space
- monitor activity in the confined space
- remain outside the confined space until relieved

If necessary, an attendant will:

- order everyone to exit a confined space
- contact rescuers
- perform non-entry rescues

Attendants may not perform any duty that will interfere with the duties listed above.

AUTHORIZED ON-SITE (STAND-BY) RESCUE TEAM MEMBERS

Rescuers should use employee retrieval systems whenever possible. On-site teams must be properly equipped with items such as SCBA, safety lines, signs, retrieval equipment, air monitoring equipment, communication equipment, ladders, SDS, back-boards, lighting, etc. They must practice simulated rescues at least once every 12 months.

They must receive the same training as authorized entrants and additional training about:

- use of personal protective equipment
- use of rescue equipment
- first aid, including CPR

OUTSIDE RESCUE SERVICES

In the event that stand-by rescue is needed on a job that Romer Utility Services personnel cannot adequately provide rescue services for, the company job supervisor or the safety director/coordinator will contact an outside rescue service in advance of the job to provide rescue if needed.

Outside rescue services must be made aware of hazards and have access to permit-spaces in order to develop rescue plans and practice rescues. Employers must provide hospitals or treatment facilities with any SDSs or other information about known hazards in a permit-space, if the information can aid in treatment of rescued employees.

PREVENTING UNAUTHORIZED ENTRY

Romer Utility Services will prevent unauthorized entry through the use of signs, caution tape, safety cones, attendant training and closing up the space as much as possible when leaving the permit space for any prolonged period of time.

INFORMING OTHER CONTRACTORS

Romer Utility Services will provide both visual and verbal notification of any permit required confined spaces that other contractors may be exposed to on a site that Romer Utility Services is in charge of. Romer Utility Services will utilize confined space signs to serve as visual notification as to the whereabouts of applicable confined space hazards other contractors may be exposed to.

CONFINED SPACE TRAINING

Each employee serving as an authorized entrant, attendant, or entry supervisor whose work is regulated by this program shall be trained so that they have the understanding, knowledge, and skills necessary for the safe performance of their duties. This training will be conducted for all levels of exposure to confined spaces including awareness level, entrant, attendant, supervisor level, and rescue level. Refresher training will be conducted annually at a minimum or when duties change, when hazards change, or whenever evaluation determines inadequacies in an employee's knowledge. Training should, a minimum includes the following:

1. The operation of the permit system
2. The specific duties of each person involved in permit space operations
3. The hazards of confined spaces including information on the mode, signs, or symptoms, and consequences of exposure

4. The proper use of equipment required during permit space operations including: testing and monitoring equipment, ventilating equipment, communication equipment, personal protective equipment, lighting equipment, rescue and emergency equipment used for non-entry rescue, and any other equipment necessary for safe entry, work and rescue.
5. The importance of communication between entrant(s) and the attendant.
6. The conditions under which the space should be evacuated.
7. The procedures for summoning others.

EQUIPMENT

Prior to performing confined space operations, it is vital to properly select specific equipment, which will ensure a safe and effective entry operation. Categories of equipment which need to be determined are as follows:

1. Ventilation equipment – purging, natural, forced air, or local exhaust
2. Properly calibrated monitoring equipment – multi-gas, PID, air samplers
3. Personal protective equipment – specific to the hazards
4. Respiratory protection – specific to the hazards
5. Fall protection / Retrieval systems – full body harness, lifeline/lanyard, retractable lifeline, tripod, winch, wristlets
6. Lockout / Tagout – all sources of energy (electric, hydraulic, pneumatic, mechanical, gravity, steam, water, etc.)
7. Hot work / Safe work permits – if needed
8. Communication equipment – intrinsic safety (voice communication is acceptable
9. Lighting – intrinsic safety if required

All equipment needs to be set up and ready for use. Inspections of equipment must be made prior to and after usage.

Crane/ Rigging Safety Program

1. Written Program. Romer Utility Services will review and evaluate this standard practice instruction on an annual basis, or when changes occur to regulatory standards that prompt revision of this document, or when facility operational changes occur that require a revision of this document. Effective implementation of this program requires support from all levels of management within this company. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of number of workers employed or the number of work shifts. It is designed to establish clear goals, and objectives.

2. General Requirements. Romer Utility Services will establish crane safety and operational procedures through the use of this document. This standard practice instruction applies to cranes used in conjunction with other material handling equipment for the movement of material. The types of cranes covered are:

2.1 Boom Type
2.2 Mast Type
2.3 Derek Type

3. Initial Training. Training shall be conducted prior to job assignment. This employer shall provide training to ensure that the purpose, function, and proper use of cranes is understood by employees and that the knowledge and skills required for the safe application and usage is acquired by employees. This standard practice instruction shall be provided to, and read by all employees receiving training. The training shall include, as a minimum the following:

3.1 Preoperational inspection requirements of the crane to be used.

3.2 Specific operational requirements of the crane to be used.

3.3 Principals of crane operations.

3.4 Recognition of applicable hazards associated with the work to be completed.

3.5 Load determination and balancing requirements.

3.6 Procedures for removal of a crane from service.

3.7 All other employees whose work operations are or may be in an area where cranes may be utilized shall be instructed to an awareness level concerning hazards associated with cranes.

3.8 Physical and mental requirements of operators. Crane operators will be screened for physical and mental impairments that could result in improper use. Operators will meet as a minimum, the following requirements before being certified to operate cranes.

- be drug and alcohol free during any lifting event.
- be thoroughly trained in all facets of the required lift.
- Have a mature and safe attitude at all times.
- Have good depth perception (essential for load spotting).
- Have good hearing and vision (corrected or uncorrected).
- Have no history of unsafe acts in the workplace.
- Have the ability to react quickly in an emergency.
- Take no medication that will interfere with the operation.
- Understand the requirements for all phases of the lift.

3.9 Certification. This employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

3.10 Crane trainers. The following employees or position titles will receive training and as required, serve as crane trainers. Qualified trainers will consist of the following:

CRANE TRAINERS

Title	**Member**
Crane Trainer	Qualified Outside Contractors
Crane Trainer	Manufacturers of In-use cranes

4. Refresher Training. This standard practice instruction shall be provided to, and read by all employees receiving refresher training. The training content shall be identical to initial training. Refresher training will be conducted on a (n) annual basis or when the following conditions are met, which ever event occurs sooner.

4.1 Retraining shall be provided for all authorized and affected employees whenever (and prior to) there being a change in their job assignments, a change in the type of crane used, equipment being lifted, lifting procedures, or when a known hazard is added to the lifting environment.

4.2 Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever this employer has reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of crane procedures.

4.3 The retraining shall reestablish employee proficiency and introduce new or revised methods and procedures, as necessary.

4.4 Certification. This employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

5. Safe Operating Practices for Operators. Whenever any crane is used, the following safe practices (as a minimum) shall be observed:

1. Always check warning devices and signals before use.
2. Always document and maintain inspection records.
3. Always ensure cranes shall not be loaded in excess of their rated capacities. (Rating chart must be in plain view of Operator while seated at the controls.)
4. Always ensure the new location support the weight?
5. Always keep employees clear of lifted and or suspended loads.
6. Always keep suspended loads clear of all obstructions.
7. Always lockout before maintenance or repairing cranes.
8. Always position the hook directly over the load before lifting.
9. Always test brakes by a short lift to ensure control.
10. Before being lifted, loads will be checked for proper balance.
11. Follow the manufacturer's recommendations.
12. Frequently inspect cranes exposed to adverse conditions.
13. Hands must clear of the suspension means and the load during lifting.
14. Know where you're going to set the load down!
15. Know your travel path in advance of the lift!
16. Loads will in all cases be properly balanced to prevent slippage.
17. Move loads only after being signaled by the designated, qualified signaler.
18. Never allow riders on loads or hooks.
19. Never allow unauthorized persons to operate cranes.
20. Never attempt to operate a crane or hoist that is suspected to be unsafe.
21. Never carry loads over workers.
22. Never carry loads past workers (they must yield right of way).
23. Never use a crane that is damaged or defective in any way.
24. Operators must watch the signalers.
25. Shock loading is prohibited.
26. Signalers must keep line-of-sight with the operator.
27. Signalers must watch the load.
28. Test all hoist controls and brakes at the beginning of each shift.
29. Employees shall not be exposed to hazardous atmospheres created by the combustion engine.

6. Safe Operating Practices for Signalers. Whenever any crane is used, the following safe practices (as a minimum) shall be observed:

1. Ensure that only one person is the designated signaler.
2. Ensure the operator acknowledges every signal, use only ANSI signals.
3. Follow the manufacturer's recommendations.
4. Know the new location will support the weight.
5. Maintain line-of-sight with the operator.
6. Operators must watch the signalers.
7. Plan in advance where the load is going!
8. Stop the operation any time comprehension is lost.
9. Communication devices must be tested before operations begin.

7. Leaving or Parking Hoists or Cranes. Whenever leaving or parking hoists or cranes, the following safe practices (as a minimum) shall be observed:

1. Follow the manufacturer's recommendations.
2. Make a visual check for any dangerous condition.
3. Place all controls in the "off" position.
4. Place main power switch in the "off" position.
5. Raise all hooks to - but not through - limit switches.
6. Report all cranes that are not in operation immediately.
7. Report any defects immediately.
8. Tag out defective equipment immediately.

8. Rigging. The following general safe practices (as a minimum) shall be observed when handling slung loads.

8.1 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.

8.2. Always keep hands and fingers clear of intentioned loads. At no time are employees to be allowed to wrap their hands around an edge, thus putting their fingers in a pinch point, Tag lines should be used to help eliminate this from happening.

8.3. Always keep suspended loads clear of all obstructions. If spotters are used to assist the operator, they need to have a clear view of all obstructions in the work area.

8.4. Always keep suspended loads clear of employees. There is to never be an employee allowed to pass under a suspended load. If employees are not complying with this rule the operator is to suspend operations and notify the supervisor so retraining can continue.

8.5. Always pad or protect slings from sharp edges of the load. Never allow web slings to be used in a situation where the sling can be damaged by a sharp edge.

8.6. Determine the history of the care and usage of the sling. If during the pre-use inspection it is determined that the sling was damaged during a previous use that sling is to be taken out of service and tagged. The supervisor is responsible for either the repair or the disposal of the sling as soon as the defect is identified.

8.7. Defective equipment shall not be used and removed from service immediately.

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8.8 Ensure you know rated capacity of the sling. And be sure to never exceed those limits. Missing labels cause the sling to have to be taken out of service. At no time is a sling to be used that is missing the rating tag.

9. 9 ensure the angle the sling does not put a horizontal pull against the edge of a load hook. All hooks used for lifting need to be equipped with a self-closing latch.

9.10 Never pull a sling from a suspended load under tension. This action could cause a shock load as well as potentially cause debris to become airborne.

9.11 All rigging equipment needs to be kept picked up and stored properly when not in use. Never leave unused rigging material in the work area.

9. Estimating the Weight of Loads. Lifting will not be conducted until load weights have been determined. When estimating load weights operators will stay within 50% of the cranes rated capacity when estimating loads (or manufacturer recommendation). Never attempt a load lift based solely on a guess! The following methods may be used to estimate the weight of loads.

1. Check equipment nomenclature plates.
2. Check shipping papers.
3. Consult with the equipment manufacturer.
4. Estimate weight using weights of similar loads.
5. Use a dynamometer.
6. Use industry standard tables or charts.

10. Personal Protective Equipment. Supervisor will ensure that a Job Hazard Analysis is conducted for specific lifting operations. Operators will use the required PPE in the conduct of lifting operations. Protective clothing and equipment considerations:

1. Ensure PPE is appropriate for the particular hazard(s).
2. Ensure PPE is kept clean, fully functional, and sanitary.
3. Maintained all PPE in good condition.
4. Properly store PPE when not in use.

11. Electrical hazards. Electrical safety-related 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 overhead lines. The specific safety-related

work practices shall be consistent with the nature and extent of the associated electrical hazards. If work is to be performed near overhead lines, the lines shall be DE energized and grounded, or other protective measures shall be provided before work is started. If the lines are to be DE energized, arrangements shall be made with the person or organization that operates or controls the electric circuits involved to DE energize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions shall prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment. The following guidelines from 29CFR1910.333 will be followed.

For lines rated 50kv or lower a minimum distance of 10' will be kept at all times. For all other lines the regulations will be visited and followed accordingly.

12. Crane Inspections. Where not otherwise delineated, crane inspections will be conducted in accordance with this section.

11.1 Crane inspectors. The following employees or position titles will receive training and as required, serve as crane inspectors. Company qualified inspectors will consist of the following:

CRANE INSPECTORS

Title	**Member**
Crane Inspector	Department Manager
Crane Inspector	Crane Manufacture

11.2 Inspection intervals.

11.2.1 Daily inspections. Cranes will be inspected each day before being used, the crane will inspect in accordance with OSHA, Consensus Standards, and Manufacturer recommendations.

11.2.2 Periodic inspections. Supervisors will determine and schedule additional inspections periodically during crane use, where service conditions warrant. A thorough periodic inspection shall be made on a regular basis, to be determined on the basis of, frequency of crane use; severity of service conditions; nature of lifts being made; experience gained on the service life of cranes used in similar circumstances, and OSHA, Consensus Standards, and Manufacturer recommendations.

11.2.3 Scheduled inspections. Safety Representative will coordinate inspection dates and times with all assigned crane inspectors. The inspections will be conducted on an annual basis. Such inspections shall in no event be at intervals greater than once every 12 months.

11.3 Inspection documentation.

Cranes inspections will be documented as having been inspected. Scheduled inspections will be documented as having been conducted.

1. Identify items that were inspected.
2. Show the status of the inspected items.
3. Provide the signature of the inspector.
4. Show the date.
5. File it and maintain it!
6. Review the manufacturer's specific inspection requirements!

11.4 Inspection documentation storage.

Inspection records and certifications shall be maintained in Safety Representative's office

11.5 Damaged/unserviceable Cranes.

Cranes found to be damaged or unserviceable will be immediately removed from service.

13. Daily Checks.

The following items (as a minimum) shall be checked prior to use of any crane:

1. Check for air or hydraulic fluid leakage.
2. Check for load capacity stenciling on both sides of unit.
3. Check for rating chart in cab.
4. Check for twisted, broken or kinked cables or chains.
5. Check the operation of the crane; controls & movement.
6. Inspect for deformed, cracked, or stretched hooks.
7. Inspect for serviceable safety latches.
8. Observe correct drum spooling as the hook is raised.
9. Operate empty hook till it actuates the upper limit switch.
10. Operate hoist and trolley brakes, ensure no excessive coasting.
11. Visually inspect all units for integrity, leaks etc.
12. Review the manufacturer's specific requirements!
13. Check to ensure a CO2 or dry chemical fire extinguisher is in the crane cab or vicinity of the crane.

14. Monthly Checks. The following items (as a minimum) shall be checked monthly:

1. Follow any additional recommendations of the manufacturer.
2. Inspect for twisted, broken or kinked cables or chains.
3. Inspect hooks for cracks, missing or broken parts.

4. Measure hooks for deformation or stretching.
5. Measure lifting chains for excessive stretch, twisting etc.
6. Review the manufacturer's specific inspection requirements!
7. Visually inspect all critical items.
8. Review the manufacturer's specific requirements!

15. Periodic Checks. Review the manufacturer's specific inspection requirements! The following items (as a minimum) shall be checked at periodic inspections (1 to 12-month intervals):

1. Interval dependent on the type of activity performed.
2. Interval dependent on the severity of service.
3. Interval dependent on the environmental conditions.
4. As a minimum the inspection should cover:

Chain or Cable	Reeving	Hook Condition
Electrification	Hoist Drives	Travel Drives
Brakes	Limit Switches	Couplings
Rails	Balance	Controls
Warning Devices	End Stops	Signage

16. Periodic CMAA Inspection Recommendations:

Class	Description	Typical Schedule
A	Standby or infrequent service	annually
B	Light service - 2-5 lifts hr.	Annually
C	moderate service - 50% capacity, 5-10 lifts hr.	annually
D	Heavy service - 50% capacity, 10-20 lifts hr.	Semiannually
E	Severe service - near capacity, 20+ lifts hr.	Quarterly
F	Continuous severe service - near capacity And continuous service throughout day	bi-monthly

Note: Different conditions may suggest different intervals.

17. New, Idle, Altered, and Used Cranes: The use status of cranes will drive specific requirements for periodic maintenance and servicing. The status of the crane will be determined based on manufacturer recommendations and consultation with specific regulatory standards. Prior to initial or reintroduction into service cranes will be tested and inspected completely using the criteria applicable to periodic inspections. A report will be generated and kept on file for future reference. The manufacturer's specific requirements will be reviewed!

18. Preventive Maintenance: Preventative maintenance procedures will be developed and used for specific cranes. Maintenance procedures will be determined on the basis of, frequency of crane use; severity of service conditions; nature of lifts being made; experience gained on the service life of cranes used in similar circumstances, and OSHA,

Consensus Standards, and Manufacturer recommendations. Typical requirements include:

1. Adjusting the brakes.
2. Adjusting the operation of limit switches.
3. Checking and filling the gear cases to the proper levels.
4. Cleaning and lubricating the wire rope (cable) and load chain.
5. Cleaning or replacing pitted or burned electrical contacts.
6. Cleaning or replacing the air and fluid filters.
7. Inspecting the operation of all controls and warning systems.
8. Lubricating the bearings, gears, pinions, linkages, shafts, etc.
9. Replacing any contaminated soils.

19. Preoperational Testing Requirements: Preoperational tests will be conducted prior to use of any crane. Testing requirements will be determined on the basis of, frequency of crane use; severity of service conditions; nature of lifts being made; experience gained on the service life of cranes used in similar circumstances, and OSHA, Consensus Standards, and Manufacturer recommendations. Typical requirements include:

Preoperational Tests - General:

1. Check for obstructions in the travel path of the crane.
2. Check upper and lower limit switches.
3. Ensure all emergency disconnects are known before any test.
4. Ensure that the manufacturer's recommendations are followed.
5. If you have a checklist - follow it!
6. If you're not familiar with the cranes' operation get help.
7. Inspect all electrical controls for proper operation.
8. Never unwind the spool completely!
9. Observe for smooth operation of the components.
10. Test all controls to determine proper operation.

Preoperational Tests - 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.

1. Replace if deformation or cracks are found.
2. Check for proper function of the safety latch.
3. Inspect for twists from the plane of the unbent hook.
4. Check for proper swivel.
5. Hook repair is generally not recommended.
6. Emergency hook repair must be performed only under competent supervision.
7. After any hook repairs, the hook must be load tested before being returned to normal service.

Preoperational Tests - Rope:

1. Broken or worn outside wires.
2. Corroded or broken wires at end of connections.
3. Corroded, cracked, bent, worn, or improperly applied end connections.
4. Reduction in rope diameter (replace if found).
5. Severe kinking, crushing, cutting or unstranding.

20. Lock Out Tag Out Considerations:

Lockout Tag Out will be conducted when maintenance or servicing is performed on any crane. Lockout requirements will be determined on the basis of, OSHA, Consensus Standards, and Manufacturer recommendations. Typical requirements include:

1. Review requirements for the individual crane.
2. Integrate lock out and maintenance requirements.
3. Ensure training in adequate for level of maintenance.
4. Ensure written programs are established and reviewed.
5. Carefully select lockout devices, ask the manufacturer for recommendations.
6. Do not necessarily assume devices are interchangeable between different . Types of cranes.

21. Modifications: No modifications will be made to any portion of the crane or rigging without the written approval from the manufacture.

Disciplinary Action Program

Role of Disciplinary Systems in the Workplace

The disciplinary system does not exist primarily to punish employees. Its purpose should be to control the work environment so that workers are protected and accidents are prevented. A disciplinary system helps ensure workplace safety and health by letting the ROMER UTILITY SERVICES employees know what is expected of them. It provides workers with opportunities to correct their behavior before an accident happens.

A disciplinary system is one of the keys to successfully implementing the Company's safety and health program. It ensures that the Company's rules and safe working practices are taken seriously by employees and are actually followed. It lets employees know how ROMER UTILITY SERVICES expects them to operate in relation to the goals of the Company's safety and health program. And it lays out the actions the Company will take if individuals do not meet the Company's expectations. The employee's supervisor and all members of management are responsible for the enforcement of this disciplinary program.

A disciplinary system cannot work in a vacuum. Before the Company can hold employees accountable for their actions, the Company first needs to establish its safety and health policy and disciplinary rules.

Policy Statement

Employees need to know the Company's position on safety and health and what the Company expects of them. They need a clear understanding of the rules and the consequences of breaking those rules. This is true in all areas of work, but it is especially important for worker safety and health. As part of the policy statement, and in the employee safety handbook, the Company has a written statement setting forth the Company's disciplinary policy. Safety Representative and site supervisors will always be on the lookout for safety violations and will conscientiously and vigorously enforce the Company's commitment to safety.

Employee Information and Training

It is important that employees understand the system and have a reference to turn to if they have any questions. Therefore, in addition to issuing a written statement of the Company's disciplinary policy, the Company has drawn up a list of what it considers major violations of Company policy and less serious violations. This list specifies the disciplinary actions that will be taken for first, second, or repeated offenses.

- The list for immediate termination and grounds for immediate discharge are:
    - Drinking alcohol, and/or drug abuse prior to or during working hours
    - Fighting, provoking or engaging in an act of violence against another person on Company property
    - Theft
    - Willful damage to property
    - Failure to wear Personal Protective Equipment (eye protection, hearing protection, safety helmets, etc.).
    - Not using safety harnesses and lanyards when there is a potential for falling
    - Removing and/or making inoperative safety guards on tools and equipment
    - Tampering with machine safeguards or removing machine tags or locks
    - Removing barriers and/or guardrails and not replacing them
    - Failure to follow recognized industry practices
    - Failure to follow rules regarding the use of company equipment or materials
    - Major traffic violations while using a company vehicle
    - Engaging in dangerous horseplay
    - Failure to notify the Company of a hazardous situation and
    - Other major violations of company rules or policies

– General Offences requiring a warning and can lead to termination:

  If any violations are observed by management, the employee violating the policy will receive a first offence verbal warning, if the employee is violating the policy a second time, they will receive a written warning. If the employee is caught a third time violating the policy they will be terminated from employment.

  - Minor traffic violations while using Company vehicles
  - Creating unsafe or unsanitary conditions or poor housekeeping habits
  - Threatening an act of violence against another person while on company property
  - Misrepresentation of facts
  - Unauthorized use of Company property
  - Excessive tardiness and late to work
  - Disrespect and/or insubordination to authority
  - Other violations of Company Policy and rules
  - Failure to wear Personal Protective Equipment (eye protection, hearing protection, safety helmets, etc.).
    (Note: Failure to follow the PPE Policy that leads to an employee or co-worker being injured the employee violating the policy can be dismissed even if it is there first offence.)

Training

Training can reduce the need for disciplinary action. The Company shall instruct employees in the importance of workplace safety and health, the need to develop safety habits, the Company's operations, safe work practices, and the hazards they control, and the standards of behavior that the Company expects. The Company's employees must understand the disciplinary system and the consequences of any deliberate, unacceptable behavior.

Supervision

Supervision includes both training and corrective action. Ongoing monitoring of Romer Utility Services employees' work and safety habits gives the Company's supervisors the opportunity to correct any problems before serious situations develop. In most cases, effective supervision means correcting a problem before issuing any punishment. These inspections will occur on a random basis to get a clearer picture of how employees are following the company policy.

Where the relationship between employees and their supervisors is open and interactive, problems are discussed and solutions are mutually agreed upon. This type of relationship fosters a work environment where the need for disciplinary action is reduced. When such action is needed, the parties are more likely to perceive it as corrective than punitive.

Employee Involvement

Employees are encouraged to help informally in the enforcement of rules and practices. The intent here is not to turn employees into spies and informers, but to encourage them to be their "brother's keeper" and to watch out for the safety and health of their colleagues. Many employers successfully have encouraged an atmosphere -- a company "culture" – where employees readily speak up when they see an easily corrected problem, for example, a coworker who needs reminding to put on safety/ goggles.

Romer Utility Services employees deserve the opportunity to correct their own behavior problems. An effective disciplinary system is a two-way process. Once a problem is spotted, discuss it with the employee, who should be given at least one or two opportunities to change the behavior or correct the problem. Only after these discussions (and possibly some retraining) should disciplinary action is taken.

Appropriate Control Measures

Disciplinary actions need to be proportionate to the seriousness of the offense and the frequency of its occurrence. It is certainly inappropriate to fire someone for occasional tardiness. It is equally inappropriate to issue only oral warnings to an employee who repeatedly removes a machine guard.

Disciplinary procedures should not be instituted without explanation. Romer Utility Services will provide feedback to the employee on what behavior is unacceptable, why the corrective action is necessary, and how the employee can prevent future violations and disciplinary action. In addition, take time to recognize an employee who improves or corrects his/her behavior.

Consistent Enforcement

Workers must realize that safe work practices are a requirement of employment and that unsafe practices will not be tolerated. It is necessary, therefore, that the employers have a disciplinary system that is implemented fairly and consistently.

Romer Utility Services disciplinary system is to work well and be accepted by the Company's workforce, the system applies equally to everyone. This includes subjecting managers and supervisors to similar rules and similar or even more stringent disciplinary procedures.

For minor violations, supervisors shall meet with the employee to discuss the infraction and inform the employee of the rule or procedure that was violated and describe the corrective action needed to remedy the situation.

Documentation

One key to ensuring fairness and consistency in a disciplinary system is keeping good records. It is in the best interest of both the Company and the employee to have written rules and disciplinary procedures. It is just as important to document instances of good or poor safety and health behavior, including discussions with the employee, and to place relevant information in the employee's personnel file. The "Safety Hazard Citation" on the next page will be used to document infractions.

Documentation serves a variety of purposes. It helps the Company to track the development of a problem, corrective actions, and the impact of measures taken. It provides information so the Company can keep employees informed of problems that need correction.

When the Company is evaluating the managerial and supervisory skills of a supervisor, it provides a useful record of how they handled problems.

If warnings, retraining, and other corrective actions fail to achieve the desired effect, and if the Company decides to discharge an employee, then documentation becomes even more critical. Conversely, the Company will conduct an annual clearing of the personnel files of employees whose good overall safety records are marred by minor warnings. Minor safety violations will be documented and a copy of the below form will become part of the employee's personnel record:

Safety Hazard Citation

Date: _____

Name of Violator:

_____

Location of Violation:

_____

Type of Violation: _____

_____

_____

Violator's Signature

_____

A Copy of this Citation will be placed in the employees Employment File. Three Citations can be grounds for termination.

Positive Reinforcement

Each supervisor should provide frequent reinforcement of work practices training. The informal observation described above serves not only to gauge training effectiveness, but also to reinforce the desired behavior.

Driving Safety

Contents

Driver Safety

Program Goal

Romer Utility Services is committed to a continuing, aggressive program of driver safety at all levels of state government. Driver Safety is intended to increase safety awareness among drivers of Romer Utility Services vehicles, to minimize Romer Utility Services exposure to liability and financial losses, and to develop accountability for safe driving.

Components of Romer Utility Services Driver Program

Romer Utility Services is responsible for implementing a safe driving program. This program includes rules concerning who should be permitted to operate motor vehicles under Romer Utility Services control. Policies outline the role and responsibilities of managers, supervisors, and employees in driver safety. These policies should be issued to all drivers and form the basis for Romer Utility Services Driver Safety Program. Only employees authorized by Manager or Supervisor should operate Romer Utility Services vehicles for work and business. Employees should only operate Safety Frist vehicles for which they are licensed. Safety Frist will provide guidance and direction to employees in the development of Driver Safety Policies.

It is Romer Utility Services responsibility to designate which employees are authorized to drive vehicles for Romer Utility Services work or business. The authorization process shall include a review of the employee's motor vehicles driving record and their respective class of license. Romer Utility Services should also determine when driving responsibility must be taken away from an employee because of reckless operation of a vehicle or traffic violations. All authorized drivers must report any traffic violation to manager or supervisor. Only employees possessing a motor vehicle operation license may be authorized by Romer Utility Services to operate a motor vehicle for Romer Utility Services business. High risk drivers are those individuals having three or more convictions guilty pleas and reckless operation for moving violations with in the previous 12-month period.

Romer Utility Services employees are not allowed to operate vehicles while on Romer Utility Services business, under the influence of alcohol, illegal drugs or certain medications.

Responsibility for Safety

Romer Utility Services is responsible for implementations of the Driver Safety Program and must stress the importance the Driver Safety Program to all employees. Managers and Supervisors are responsible for reviewing driver records and identifying employees authorized to drive Romer Utility Services vehicles. They are responsible for conducting annual reviews of all drivers to determine whether they should continue to operate Romer Utility Services vehicles and verify each employee has a valid vehicle operation license. Employees who drive their personal vehicle for Romer Utility Services business shall be required to show proof of insurance.

Training

Romer Utility Services will train authorized employees in proper operation of vehicle, vehicle of correct size for intended use, handling, securing loads to manufactures legal limits, maintain log book if required, inspection, and maintaining vehicle is safe working order.

Employees Driving Responsibility

Romer Utility Services employees and passengers must wear seatbelts at all times. The use of
not manipulating radios, cell phones unless hands free is installed in vehicle is prohibited, must maintain posted speed limits at all times, and must keep a safe distance between other vehicles, slow down, move over or stop for emergency vehicles on side of roadway or Highway.

Accident Reporting

1. An Accident is defined as any incident in which the vehicle comes in contact with another vehicle, person, object, or animal, which results in death, personal injury, or property damage, regardless of who was injured, what was damaged or to what extent, where it occurred or who was responsible.
2. All accidents shall be reported to Romer Utility Services management or supervisor by the vehicle driver having the accident on the day of the accident. If the driver is not able to complete the accident report, the Driver's supervisor will complete the report form them.
3. Failure of a driver to report any accident may be cause for disciplinary action.
4. The supervisor of the driver having the accident shall review the accident report within 48 hours (two working days) of the accident and verify the accuracy of the report. Incomplete or inaccurate reports are unacceptable and shall be returned for completion or corrected information. The Supervisor may have to aid the employee in completing the report if the employee is injured from the Incident/Accident.
5. The manager or supervisor of the employee driver having the accident will, after reviewing the accident report, make a determination of whether the accident was preventable. The manager or supervisor must consider what corrective action(s) is necessary for accidents thought to be preventable. The corrective action(s) may include: temporary suspension of driving privileges, special training, physical examination, etc. This should be noted immediately on the report.

Drug and Alcohol Policy Statement

I. PURPOSE

The Company Drug and Alcohol Policy (the "Policy") is established to comply with the Federal Drug-Free Work Place Act of 1988, American With Disabilities Act, and the United States Department of Transportation (DOT) regulations, specifically 49 C.F.R. Parts 40, and 382. This policy is not intended to supersede any collective bargaining agreement except where Federal and State law takes precedence. In the absence of any Federal or State law, collective bargaining agreement or other legal requirement, this policy applies to all covered employees (defined as: anyone working directly for, leased to, or subcontracted by the Company). The purpose of this policy is to maintain a safe, healthful and efficient working environment for our employees, to protect company property, equipment and operations, and to protect the motoring public from the effects of alcohol, illegal drugs or drugs taken for non-medical purposes.

The illegal use of controlled substances and alcohol by employees in the work place is unacceptable since it can adversely affect health, safety, security and productivity, as well as public confidence and trust. This is particularly true in the transportation industry, which is subject to extensive government regulation. In view of this, the company wants to clearly state its policy to accurately detect and to deter the illegal use of drugs and alcohol in our transportation and work environment either through testing, cessation of use or termination of employment. This policy will take effect September 01, 2010.

II. APPLICATION

This policy is applicable to all employees. Employees who are subject to the drug and alcohol testing requirements set forth by the Department of Transportation will be in a separate consortium than the Non-DOT employees. This includes supervisors, managers and any other employee who operates equipment subject to the federal regulations governing drug and alcohol testing. This program includes DOT and Non-DOT consortiums.

III. DEFINITIONS

A. **"Commercial Motor Vehicle (CMV)"** is any vehicle which has a gross combination weight rating of 26,001 pounds or more inclusive of a towed unit with a gross vehicle weight rating of more than 10,000 pounds; has a gross vehicle weight rating of 26,001 or more pounds; is designed to transport 16 or more passengers, including the driver; or is any size transporting hazardous materials requiring placards.

B. **"Company Premises"** includes, but is not limited to, all property whether it is owned or leased or used by the company. This policy also includes any other locations or modes of transportation to and from those locations while in the course and scope of employment.

C. **"Driver"** means an employee who is required to operate a vehicle that requires a Commercial Drivers / Effected Employees License (CDL).

D. **"Follow-up Testing"** means Drivers / Effected Employees who have tested positive and have been referred to rehabilitation must submit to a minimum of six (6) follow-up tests in a twelve (12) month period. The Substance Abuse Professional (SAP) may recommend a longer period of time not to exceed five (5) years and is in addition to the other types of testing and at the cost of the employee.

E. **"Performing A Safety Sensitive Function"** means any period in which the driver is actually performing, ready to perform or immediately available to perform any safety sensitive duty.

F. **"Prohibited Substances"** has the meaning defining by 21 U.S.C., Section 802, and includes all substances listed on Schedule I (21 C.F.R., Part 1308) or identified in Appendix D or the Federal Motor Carrier Safety Regulations; an amphetamine or any formulation thereof; a narcotic drug or any derivative thereof and any other substance which renders an employee incapable of safely operating a motor vehicle or performing their work assignments.

G. **"Reportable Accident"** means an occurrence involving a commercial motor vehicle on a public road which results in a fatality, injury to a person requiring immediate treatment away from the scene of the accident or disabling damage to a vehicle requiring it to be towed from the scene.

H. **"Reasonable Cause"** is the observation and documentation of any unusual on-duty behavior and includes, but is not limited to: slurred speech, unsteady walking, abrupt mood swings, breath (alcohol), or odor; observation of physical manifestations frequently associated with some forms of substance abuse, e.g., needle marks, sudden nose bleeds, frequent illness not explained by other medical conditions; accidents; injuries; absenteeism; declining productivity; misconduct; excessive tardiness and suspicious activity indicating possible involvement with prohibited substances or alcohol in violation of this policy. *Reasonable cause will be determined to exist upon the concurrence of two members of management based on observation of the employee's job performance or personal behavior and any other evidence of alcohol or other drug use*.

I. **"Safety Sensitive Duties"** include, but are not limited to, all the time from the time the driver begins work, is required to be in readiness to work or until the time the driver is relieved from work and all responsibility for performing work.

J. **"Split Specimen"** means that each urine specimen is split into two different containers. If retesting is requested the untested "split specimen" will be tested.

K. **"Under the Influence" of any prohibited substance** means any detectable level of a prohibited substance in an employee's system above the National Institute on Drug Abuse (NIDA) cut off limits.

L. **"Under the Influence" of alcohol** means a blood alcohol level of .04 percent. A positive alcohol test is a blood alcohol level of .02 percent or greater.

Records and Right to Audit.

Records. Romer Utility Services shall maintain records of how it is complying with this Policy, including identifying the employees and other personnel who have received training and information about this Policy. Romer Utility Services shall maintain such records for a period of at least twenty-four (24) months after the termination of its applicable Agreement with Contractors that required the compliance and implementation of this Policy.

Right to Audit.

In addition to any right that Contractors may have to audit in the applicable Agreement with Romer Utility Services , or its representatives shall have the right to audit Romer Utility Services records upon reasonable notice; provided however, that Contractors or its representative shall not have access to individual controlled substance or alcohol test results without the individual's written consent or where such access is prohibited by applicable law.

IV. PROHIBITIONS

This policy prohibits the:

A. Use, possession or being under the influence of a prohibited substance while on duty, operating or in physical control of a motor vehicle and/or on company premises, property or worksite.

B. Consuming an intoxicating beverage, regardless of its alcohol content, within four (4) hours of reporting for work or operating or having physical control of a motor vehicle. (*In instances where an employee is called into work with less than four (4) hours advance notice, the employee must inform their Supervisor if they have been drinking alcohol or using a controlled or illegal substance. It is the immediate responsibility of the Supervisor to determine if the person should be placed in a work status.* ***In no case will a driver or equipment operator be allowed to operate company-owned vehicles or equipment if known to be impaired in any way***.)

C. Possessing, consuming or being under the influence of an intoxicating beverage, regardless of its alcohol content, while on duty or operating or in physical control of a motor vehicle and/or on company premises, property or worksite.

D. Refusing to sign a consent or release form authorizing the collection of a specimen, analysis of the specimen for designated prohibited substances and/or alcohol and release of the results to the company.

V. IMPLEMENTATION AND ENFORCEMENT OF POLICY

Pre-Work Testing – Safety Sensitive Positions.

Romer Utility Services shall require a negative pre-work controlled substance test prior to hiring or retaining any individual to be assigned to work in a position in which the individual performing the duties of the position has the ability to create hazards or danger to other individuals, the community, or the environment ("safety sensitive position"). Negative pre-work testing shall not be required for individuals already working for Romer Utility Services at the time the new Agreement becomes effective; provided, however, that: (I) the individual has already been tested and the test results were negative within one year of the Effective Date of the new Agreement between the individual and Romer Utility Services is satisfied with the information provided or relating to that individual is accurate and meets the requirements of this Policy with respect to the individual's test and the test results being negative. In the event that the individual already working for Romer Utility Services was not tested, the information about the individual's testing was not satisfactory, or the individual was not tested in the previous year prior to the Effective Date of the Agreement, then Romer Utility Services shall have the individual tested for controlled substances as soon as practical, but not later than sixty (60) days after the Effective Date of the Agreement, to confirm that the individual is in compliance with this Policy. Anyone who tests positive (i.e., non-negative) for controlled substance or alcohol shall immediately be removed from Romer Utility Services premises and will not be reinstated by Romer Utility Services except pursuant to the Reinstatement Procedure stated below. Unless Romer Utility Services has received prior written consent from an authorized representative of Romer Utility Services,

Romer Utility Services shall not assign any individual to perform any work or services for Romer Utility Services (including providing parts, materials or Products to Romer Utility Services): (I) who tests positive or refuses, delays, or fails to have a requested test (i.e., non-negative) for controlled substances or alcohol; or (ii) who has tested positive or refused, delayed, or failed to have a requested test (i.e. non-negative) for controlled substances or alcohol within three (3) months prior to that individual being assigned or proposed to perform work or services for Romer Utility Services

Romer Utility Services shall have the right to withhold such consent in its sole discretion. Romer Utility Services shall advise that all individuals working in a safety sensitive position have tested negative within three (3) months of the Effective Date of the Agreement, or in the event that someone is hired or retained after the Agreement is in effect, Romer Utility Services shall advise individual of the test results within sixty (60) days of receiving the test results of the applicable individual

A. DRUG TESTING

The following procedures will be employed to assure compliance with this policy. All testing will follow 49 CFR, Part 40.

1. Testing – Drivers / Effected Employees are required to submit to urine analysis testing for prohibited substances under the following circumstances:

   a. To be considered for employment. (If a prospective employee fails the drug test, they will not be hired. However, they may re-apply in three (3) months.)

   b. Where management has reasonable cause to believe that an employee is under the influence of a prohibited substance while on duty.

   c. Following a reportable accident in which there is the loss of human life, injury to a person requiring immediate treatment away from the scene of the accident or disabling damage to a vehicle requiring it to be towed from the scene.

d. As part of a transfer/promotion to a position which requires the operation of company equipment or vehicles

e. As part of the random selection process. (All employees that are subject to random testing will be chosen randomly by computer and, after each selection for testing, each employee will be included in the testing pool for the next selection date.)

f. Return-to-Duty, following the completion of a substance abuse program the employee must take and pass a drug test before they may be returned to their safety sensitive position. (The employee is responsible for the cost of the rehabilitation drug testing.) They must also accept and sign a "Return-to-Work Monitoring Agreement".

g. Follow-up testing, after an employee has a confirmed positive test, they must agree to undergo follow-up drug testing – minimum of six (6) tests in a twelve (12) month period (the employee is responsible for the cost of the rehabilitation drug testing) and must accept and sign a "Return-to-Work Monitoring Agreement".

3. Post-accident Testing – A driver shall provide a urine specimen to be tested for prohibited substances as soon as possible after a reportable accident, but in no case later than thirty-two (32) hours after the accident. If the driver is seriously injured and cannot provide a urine specimen for testing at that point, he/she must later provide authorization for a company representative to obtain hospital or doctor reports that would indicate if there were any prohibited substances or alcohol in his/her system at the time of the accident or incident.

3. Availability of Test Results – The results of any drug test, and the records connected with the testing procedures, will be made available to the individual tested upon written request. The results of the tests themselves are reviewed by a licensed physician, medical review officer (MRO) who has knowledge of substance abuse disorders. If the tests are positive, the individual tested will be given the opportunity to discuss the test results with the MRO prior to the time the test results are made available to the employer. After notification of the MRO's final positive determination, the employee has seventy-two (72) hours to request a test of the "split specimen" at another Department of Health and Human Services (DHHS) certified laboratory. The documentation of the test results will not be made available to other parties, except upon written request of the individual tested, or when an applicable DOT regulation requires such disclosure, or if in the MRO's reasonable judgment the information could result in the employee being medically unqualified to perform their duties or if the information would cause a safety risk.

4. Retesting of Original Split Specimen - The employee may request the MRO, in writing, to have the "split specimen" of a positive test tested at another DHHS certified laboratory selected by the employee. The employee will be required to pay for the test.

   Should the results of such test be negative, the employer shall reimburse the employee for all costs related to such testing. Further, the employee shall not suffer any discipline as a result of the initial positive test and will be reimbursed for any lost wages or benefits that suffered as a result of preliminary actions taken by the employer based on the initial test results.

5. Method of Testing –

Urine specimens will be collected for testing. Initially, a immunoassay drug screen will be performed. When the initial results identify a drug presence, a confirmation test will be performed using gas chromatography/mass spectrometry (GS/MS) techniques at the cutoff levels listed below. The confirmation test will be conducted at a NIDA-approved laboratory. Non-DOT collections involve a single specimen collection.

Urine specimens shall be collected with medical or laboratory supervision at a location approved by the company. CDL Drivers / Effected Employees are required to complete and sign a standard "urine custody and control" form as well as a "consent and release" form. The CDL driver shall identify any and all medications he/she is taking on the appropriate forms

6. Drug Levels

a. Initial Test

Marijuana metabolites	50 ng/ml
Cocaine metabolites	300 ng/ml
Opiate metabolites	300 ng/ml (or 25 ng/ml is test is specific for free morphine)
Phencyclidine	25 ng/ml
Amphetamines	1,000 ng/ml
Barbiturates	positive
Benzodiazepines	positive

b. Confirmation Test:

Marijuana metabolites	50 ng/ml
Cocaine metabolites	150 ng/ml
Opiate metabolites	
Morphine	300 ng/ml
Codeine	300 ng/ml
Phencyclidine	25 ng/ml
Amphetamines	
Amphetamine	500 ng/ml
Methamphetamine	500 ng/ml

B. ALCOHOL TESTING

The following procedures will be employed to assure compliance with this policy. All testing will follow CFR 49, Part 40.

1. **Testing** – All Drivers / Effected Employees are required to submit to breathe testing for alcohol under the following circumstances

General Right to Test While on Romer Utility Services Premises.

Romer Utility Services shall have the right at any time to, or instruct its Contractor to, perform reasonable, unannounced controlled substance test(s) and/or alcohol test(s) and or Searches on any of Contractor's or its subcontractors' employees or personnel while such individuals are on Romer Utility Services premises and/or engaged in Romer Utility Services business or operating Romer Utility Services owned or controlled equipment.

For-Cause Testing -- Individuals Subject to Testing.

Romer Utility Services and Contractor shall have the right to perform controlled substance and alcohol tests, and shall perform such tests, whenever Contractor or Romer Utility Services (or upon request by Romer Utility Services to Contractor) has a reasonable belief that an individual is using alcohol or drugs on the basis of specific physical, behavioral, or performance indicators. Contractor shall have the obligation to remove any employee from performing work if the individual exhibits unusual job behavior or unacceptable job performance and it is believed by Contractor or Romer Utility Services that he/she may be using controlled substances or is presently under the influence of alcohol. The individual must be tested by Romer Utility Services immediately for drugs and alcohol.

Following a reportable accident in which there is loss of human life, serious incident causing injury to self and/or other person requiring immediate treatment away from the scene motor vehicle accident, whether or not there was significant damage to personal or private, Significant release which harms the environment (air, land, water). Any serious near-miss incident that could have caused injury to persons or the environment.

a. As part of a random selection process (All employees that are subject to unannounced random testing will be chosen randomly by computer including employees in safety-sensitive positions and, after each selection for testing, each employee will be included in the testing pool for the next selection date.)

b. Return-to-Duty, following the completion of a substance abuse program the employee must take and pass an alcohol test before they may return to their safety sensitive position. The employee is responsible for the cost of the rehabilitation alcohol testing

c. Follow-up testing, after an employee has a confirmed positive test, they must agree to undergo follow-up alcohol testing. A minimum of six (6) tests must be conducted in a twelve (12) month period. The employee is responsible for the cost of the follow-up testing

2. Post-Accident Testing – No driver that is required to take a post-accident alcohol test shall use alcohol for eight hours following the accident or until he/she undergoes a post-accident alcohol test.

   Post-accident alcohol tests must be administered as soon as practical, but in no case later than eight (8) hours following the accident involving a CDL holder. If the test is not administered within eight (8) hours, all attempts to perform the test shall cease.

   If the test is not administered within two (2) hours, the company must prepare and maintain on file a written record stating the reason(s) why the test was not promptly administered.

3. Testing Procedure – All alcohol tests will be conducted by a trained Breath Alcohol Technician (BAT) and all tests will be administered using a DOT approved Evidential Breath Testing Device (EBT).

4. Penalties – Any driver who has a confirmed breath test greater than .02% but less than .04% will be removed from their duties and deemed medically unqualified to perform those duties until they have completed a substance abuse program and tested negative for drugs and alcohol.

5. Voluntary Disclosure – Employees who seek voluntary assistance for alcohol and/or substance abuse may not be disciplined for seeking such assistance. Requests from employees for such assistance shall remain confidential and shall not be revealed to other employees or management personnel without the employee's consent. Employees enrolled in substance abuse programs shall be subject to all company rules, regulations and job performance standards with the understanding that an employee enrolled in such a program is receiving treatment for an illness.

C. PRESCRIPTION AND NON-PRESCRIPTION MEDICINE

Before any drug test is given, the employee or prospective employee may note the use of any prescription or non-prescription medications. The laboratory procedures will report the significant presence of all prescription and non-prescription drugs.

An employee may be suspended, without pay, for using a medication until the company is provided with a copy of the prescription, the name of the physician prescribing the medication and a statement from the employee's physician describing the effects of the medication and indicating that the medication will not affect the employee's ability to safely operate a motor vehicle or otherwise perform the duties of his/her position without creating a risk to himself/herself or others.

VI. CONSEQUENCES FOR VIOLATION OF THIS POLICY

Drivers / Effected Employees who are known to have engaged in prohibited behavior, with regard to alcohol misuse or the use of controlled or illegal substances, are subject to the following consequences per the DOT rules and regulations:

A. Disqualification (unable to operate a commercial motor vehicle) for the following offenses:

1. Driving a commercial motor vehicle (CMV) while under the influence of alcohol. This includes:

    a. Driving a CMV with a blood alcohol concentration (BAC) of .04% or more
    b. Driving under the influence of alcohol, as prescribed by State law
    c. Refusal to undergo such testing as required by any State or jurisdiction with enforcement authority

2. Driving a CMV under the under the influence of a prohibited drug or substance

3. Transportation, possession, or unlawful use of a prohibited drug or substance while on duty

4. Leaving the scene of an accident while operating a CMV

5. Committing a felony involving the use of a CMV

B. DURATION OF DISQUALIFICATION

1. First Offense – The driver is disqualified for one (1) year after the date of conviction or forfeiture of bond or collateral if, during the three (3) years preceding that date, the driver was not convicted of, or did not forfeit bond or collateral upon a charge of, an offense that would disqualify the driver. Exemption: The period of disqualification is six (6) months if the conviction or forfeiture of bond or collateral solely concerned the transportation or possession of prohibited substances.

2. Second Offense – The driver is disqualified for three (3) years after the date of conviction or forfeiture of bond or collateral if, during the three (3) years preceding that date, he/she was convicted of, or forfeited bond or collateral upon a charge of, an offense that would disqualify him/her.

C. TERMS OF DISQUALIFICATION

Drivers / Effected Employees shall be subject to the following:

1. Not being permitted to perform safety-sensitive functions

2. Advised of the resources available to them in evaluating and resolving problems associated with misuse of alcohol and/or controlled or illegal substances

3. Evaluation by a substance abuse professional (SAP) who shall determine what assistance, if any, the employee needs in resolving problems associated with the misuse of alcohol and/or controlled or illegal substances

4. Undergo a return-to-duty alcohol test, with a result indicating a breath alcohol level of less than .02%, if the conduct involved alcohol, or a controlled substance test, with a verified negative result, if the conduct involved controlled or illegal substances, before returning to duties requiring performance of a safety sensitive function

5. Evaluation by a SAP to determine that the employee has followed the rehabilitation program prescribed

6. Subjected to unannounced follow-up alcohol and controlled or illegal substance testing, which will consist of at least six (6) tests in the first twelve (12) months

7. Treated as having a positive test result if the employee refuses to be tested or does not cooperate with the testing personnel, therefore, will be considered medically unqualified to perform his or her normal work

8. **In addition to the penalties imposed by the DOT, the company reserves the right to impose disciplinary action, up to and including discharge, for any violation of the Substance Abuse Policy**.

D. VIOLATION OF POLICY – Penalties/Consequences: (Imposed by the company)

Any employee who violates the requirements of this policy shall be subject to disciplinary action up to and including termination as indicated below. Applicants who violate the requirements of this policy shall be deemed ineligible for hire or transfer to a safety sensitive position within the company.

1. First Offense:

   a. Suspended for thirty (30) days without pay.

   b. At the expense of the employee, be evaluated by a SAP who will make a determination of assistance of treatment programs.

   c. Comply with the recommendations of the SAP.

   d. Submit to return to duty testing.

   e. Submit to unannounced follow-up alcohol and controlled or illegal substance testing, which will consist of at least six (6) tests in the first twelve months, and may continue for a period of up to five (5) years.

2. Second Offense: Termination

VII. TRAINING - ASSISTANCE TO EMPLOYEES IN UNDERSTANDING ALCOHOL AND/OR SUBSTANCE ABUSE

To assist employees in understanding alcohol and controlled or illegal substance use and abuse, the company has made available and will provide training on information that details:

A. The effects of alcohol and controlled or illegal substances on an individual's health, work and personal life.

B. The effects and consequences of controlled substances and Alcohol on personal health, safety, and work environment.

C. Consequences for failing to comply with contractors and company's policy.

D. Signs and symptoms of an alcohol and controlled or illegal substances problem.

E. Available methods of intervening when an alcohol or controlled or illegal substance problem is suspected.

The company shall provide information and training and shall document regarding the personal and professional affects-controlled substances may have on your personal wellbeing. This training is compliant with the "Right to Know" requirements per current standards. Supervisors will further be trained in "reasonable suspicion" recognition commensurate with the company written program and current standards.

VIII. EMPLOYEE ASSISTANCE PROGRAMS (SAP)

The company supports Employee Assistance Programs just as this policy supports the treatment of employees for alcohol and controlled or illegal substance abuse. The company will supply employees with information about treatment programs on a timely basis whenever needed. The company will not be financially responsible for any rehabilitation treatment.

Substance Abuse Professionals (SAP) are available at the following locations:

Al-Anon Family Groups	231-938-7399
Alcohol & Drug Services	231-258-5565
Alcoholics Anonymous	231-946-8823
Bay Area Counseling	231-933-4009
Munson Healthcare Drug & Alcohol Center	800-662-6766

The employee is responsible for the cost of the evaluation. The evaluation must be completed before an employee may return to work.

Questions regarding this policy should be directed to your Supervisor

Romer Utility Services
DRUG AND ALCOHOL POLICY
ACKNOWLEDGMENT

I acknowledge receipt of the Company Drug and Alcohol Policy. I have reviewed and understand the Drug and Alcohol Policy and have had all of my questions answered to my satisfaction. Additionally, I understand and agree to abide by these guidelines and be bound by its contents while under the employ of the company.

Employee Signature: _____Date: _____

Company Representative Signature: _____Date: _____

Electrical Safety & Ground Fault Protection Plan

Purpose

The Electrical Safety program is designed to prevent electrically related injuries and property damage. This program also provides for proper training of maintenance employees to ensure they have the requisite knowledge and understanding of electrical work practices and procedures. Only employees qualified in this program may conduct adjustment, repair or replacement of electrical components or equipment. Electricity has long been recognized as a serious workplace hazard, exposing employees to such dangers as electric shock, electrocution, fires and explosions. References: NFPA 70E, Electrical Safety Requirements for Employee Workplaces, National Electrical Code (NEC) and OSHA Standard (Electrical Safety) 29 CFR 1910.331 to 1910.339.

A written description of the program, including the specific procedures adopted by us, is available at all job sites for inspection and copying by OSHA and any affected employee.

Administrative Duties

We have designated the following competent person(s) to implement the program: Safety Representative, Safety Representative. The competent person(s) are responsible for developing and maintaining this written Electrical Safety Plan for Construction.

They are qualified, by appropriate training and experience that is commensurate with the complexity of the plan, to administer and oversee our electrical safety plan and conduct the required evaluations of plan effectiveness.

Equipment Grounding Conductor Program

This written plan is intended to establish and implement specific procedures for equipment grounding conductor program covering:

- all cord sets,
- receptacles which are not a part of the building or structure, and
- equipment connected by cord and plug which are available for use or used by employees.

These requirements apply to all of Romer Utility Service's construction job sites.

This part of the written plan complies with the requirements of 1926.404(b)(1)(iii).

Equipment Grounding Conductor Inspection

Each cord set, attachment cap, plug and receptacle of cord sets, and any equipment connected by cord and plug, except cord sets and receptacles which are fixed and not exposed to damage, are visually inspected by Site Supervisor before each day's use for external defects, such as deformed or missing pins or insulation damage, and indications of possible internal damage.

Equipment found damaged or defective is not to be used until repaired, and is to be removed from service immediately by the person finding it and handed over to Site Supervisor.

Equipment Grounding Conductor Testing

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

- All equipment-grounding conductors are tested for continuity and are electrically continuous.

- Each receptacle and attachment cap or plug is tested by (enter your answer) for correct attachment of the equipment-grounding conductor. The equipment-grounding conductor is connected to its proper terminal.

All required tests are performed:

- Before first use.
- Before equipment is returned to service following any repairs.
- Before equipment is used after any incident which can be reasonably suspected to have caused damage (for example, when a cord set is run over).
- At intervals not to exceed 3 months, except that cord sets and receptacles which are fixed and not exposed to damage will be tested at intervals not exceeding 6 months.

Romer Utility Services does not provide or permit employees to use any equipment, which has not met the requirements of this program.

Record keeping

Tests performed as required in this program are recorded. The test records: Identify each receptacle, cord set, and cord- and plug-connected equipment that passed the test, and indicate the last date it was tested or the interval for which it was tested.

Safety Representative is responsible for maintaining these records.

This record is kept by means of an inspection log and is maintained until replaced by a more current record. The record is made available on the job site for inspection by OSHA and any affected employee.

Working on Electric Circuit Parts or Equipment

Only qualified personnel are permitted to work on electric circuit parts or equipment that has not been de-energized. Qualified personnel will be made familiar with the use of special precautionary techniques, including but not limited to the following:

- Proper personal protective equipment.
- Insulating and shielding materials.
- The use of insulated tools to ensure safety.

Overhead Lines

If work is to be performed near overhead lines, the lines will be deenergized and grounded, or other protective measures will be provided before work is started. If the lines are to be deenergized, arrangements will be made with the person or organization that operates or controls the electric circuits involved to deenergize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions will prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment.

Overhead Lines Continued

Safety Measures:

1. Work may not be performed when adverse weather conditions would affect work practices and safety of employees.
2. Before employees are allowed to climb or perform work on poles or tower, employee representative must ascertain that the structures are capable of sustaining the additional stresses. If structure is unable to withstand stresses, braces/supports must be implemented.
3. All employees pole setting near exposed energized overhead are required to wear electrical protective equipment provided my Roemer Utility.
4. There is to be an employee guarding/ attending to exposed holes when poles are to be placed.
5. Tension stringing method, barriers, or other equivalent measures will be used to minimize the possibility that conductors and cables will contact energized power lines or equipment.
6. Reel handling equipment is to be in safe operating condition and leveled and aligned.
7. Load ratings of stringing lines, pulling lines, conductor grips, load-bearing hardware and accessories, rigging, and hoists may not be exceeded at any time.
8. Prior to using live-line bare-hand technique on energized circuits, all employees working on overhead lines will be trained in the technique and receive refresher training on an annual basis.

Warnings and Barricades

Warnings and barricades will be employed to alert unqualified Employees of the present danger related to exposed energized parts. The following rules apply:

1. Safety signs, warning tags, etc., must be used to warn Unqualified Employees of the electrical hazards present, even temporarily, that may endanger them.

2. Non-conductive barricades will be used with safety signs to prevent Unqualified Employees access to exposed energized parts or areas.

3. Where barricades and warning signs do not provide adequate protection from electrical hazards, an Attendant will be stationed to warn and protect Employees.

Working Clearances 600 Volts, Nominal, or Less

Working space about electric equipment. Sufficient access and working space will be provided and maintained about all electric equipment to permit ready and safe operation and maintenance of such equipment.

Working clearances. Except as required or permitted elsewhere in this Chapter, the dimension of the working space in the direction of access to live parts operating at 600 volts or less and likely to require examination, adjustment, servicing, or maintenance while alive will not be less than indicated in Table 1.

In addition to the dimensions shown in Table 1, workspace will not be less than 30 inches (762 mm) wide in front of the electric equipment. Distances will be measured from the live parts if they are exposed, or from the enclosure front or opening if the live parts are enclosed. Walls constructed of concrete, brick, or tile is considered to be grounded.

Working space is not required in back of assemblies such as dead-front switchboards or motor control centers where there are no renewable or adjustable parts such as fuses or switches on the back and where all connections are accessible from locations other than the back.

TABLE 1 WORKING CLEARANCES

Nominal voltage to ground	Minimum clear distance for conditions [1]		
	(a)	(b)	(c)
	Feet[2]	*Feet*[2]	*Feet* [2]
0 - 150	3	3	3
151 - 600	3	3 ½	4

[1] Conditions (a), (b), and (c) are as follows: (a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by insulating material. Insulated wire or insulated busbars operating at not over 300 volts are not considered live parts. (b) Exposed live parts on one side and grounded parts on the other side. (c) Exposed live parts on both sides of the workspace (not guarded as provided in Condition (a)) with the operator between.

[2] **NOTE:** For International System of Units (SI): one foot = 0.3048 m.

Clear spaces. Working space required will not be used for storage. When normally enclosed live parts are exposed for inspection or servicing, the working space, if in a passageway or general open space, will be guarded.

Access and entrance to working space. At least one entrance will be provided to give access to the working space about electric equipment.

Front working space. Where there are live parts normally exposed on the front of switchboards or motor control centers, the working space in front of such equipment will not be less than 3 feet (914 mm).

Headroom. The minimum headroom of working spaces about service equipment, switchboards, panel boards, or motor control centers will be 6 feet 3 inches (1.91 m).

Guarding of live parts.

1. Except as required or permitted elsewhere, live parts of electric equipment operating at 50 volts or more will be guarded against accidental contact by cabinets or other forms of enclosures, or by any of the following means:

    A. By location in a room, vault, or similar enclosure that is accessible only to qualified persons.

B. By partitions or screens so arranged that only qualified persons will have access to the space within reach of the live parts. Any openings in such partitions or screens will be so sized and located that persons are not likely to come into accidental contact with the live parts or to bring conducting objects into contact with them.

C. By location on a balcony, gallery, or platform so elevated and arranged as to exclude unqualified persons.

D. By elevation of 8 feet (2.44 m) or more above the floor or other working surface and so installed as to exclude unqualified persons.

2. In locations where electric equipment would be exposed to physical damage, enclosures or guards will be so arranged and of such strength as to prevent such damage.

3. Entrances to rooms and other guarded locations containing exposed live parts will be marked with conspicuous warning signs forbidding unqualified persons to enter.

Over 600 Volts, Nominal

General. Conductors and equipment used on circuits exceeding 600 volts, nominal, will comply with all applicable provisions of paragraphs (a) through (g) of this section and with the following provisions, which supplement or modify those requirements. The provisions of paragraphs (j)(2), (j)(3), and (j)(4) of this section do not apply to equipment on the supply side of the service conductors.

Enclosure for electrical installations. Electrical installations in a vault, room, closet or in an area surrounded by a wall, screen, or fence, access to which is controlled by lock and key or other equivalent means, are considered to be accessible to qualified persons only. A wall, screen, or fence less than 8 feet (2.44 m) in height is not considered adequate to prevent access unless it has other features that provide a degree of isolation equivalent to an 8-foot (2.44-m) fence. The entrances to all buildings, rooms or enclosures containing exposed live parts or exposed conductors operating at over 600 volts, nominal, will be kept locked or will be under the observation of a qualified person at all times.

1. **Installations accessible to qualified persons only.** Electrical installations having exposed live parts will be accessible to qualified persons only and will comply with the applicable provisions of paragraph (j)(3) of this section.

2. **Installations accessible to unqualified persons.** Electrical installations that are open to unqualified persons will be made with metal-enclosed equipment or will be enclosed in a vault or in an area, access to which is controlled by a lock. Metal-enclosed switch-gear, unit substations, transformers, pull boxes, connection boxes, and other similar associated equipment will be marked with appropriate caution signs. If equipment is exposed to physical damage from vehicular traffic, guards will be provided to prevent such damage. Ventilating or similar openings in metal-enclosed equipment will be designed so that foreign objects inserted through these openings will be deflected from energized parts.

3. **Workspace about equipment.** Sufficient space will be provided and maintained about electric equipment to permit ready and safe operation and maintenance of such equipment. Where energized parts are exposed, the minimum clear workspace will not be less than 6 feet 6 inches (1.98 m) high (measured vertically from the floor or platform), or less than 3 feet (914 mm) wide (measured parallel to the equipment). The depth will be as required in Table 2. The workspace will be adequate to permit at least a 90-degree opening of doors or hinged panels.

4. **Working space.** The minimum clear working space in front of electric equipment such as switchboards, control panels, switches, circuit breakers, motor controllers, relays, and similar equipment will not be less than specified in Table 2 unless otherwise specified in this Chapter. Distances will be measured from the live parts if they are exposed, or from the enclosure front or opening if the live parts are enclosed.

5. However, working space is not required in back of equipment such as dead front switchboards or control assemblies where there are no renewable or adjustable parts (such as fuses or switches) on the back and where all connections are accessible from locations other than the back. Where rear access is required to work on de-energized parts on the back of enclosed equipment, a minimum working space of 30 inches (762 mm) horizontally will be provided.

TABLE 2 MINIMUM DEPTH OF CLEAR WORKING SPACE IN FRONT OF ELECTRIC EQUIPMENT

Nominal voltage to ground	**Conditions [1]**		
	(a)	**(b)**	**(c)**
	Feet[2]		*Feet*[2]
601 to 2,500	3	4	5
2,501 to 9,000	4	5	6
9,001 to 25,000	5	6	9
25,001 to 75 kV	6	8	10
Above 75 kV	8	10	12

[1] Conditions (a), (b), and (c) are as follows: (a) Exposed live parts on one side and no live or grounded parts on the other side of the working space, or exposed live parts on both sides effectively guarded by insulating material. Insulated wire or insulated busbars operating at not over 300 volts are not considered live parts. (b) Exposed live parts on one side and grounded parts on the other side. Walls constructed of concrete, brick or tile is considered to be grounded surfaces. (c) Exposed live parts on both sides of the workspace (not guarded as provided in Condition (a)) with the operator between.

[2] **NOTES:** For SI units: one foot = 0.3048 m.

Lighting outlets and points of control. The lighting outlets will be so arranged that persons changing lamps or making repairs on the lighting system will not be endangered by live parts or other equipment. The points of control will be so located that persons are not likely to come in contact with any live part or moving part of the equipment while turning on the lights.

Elevation of unguarded live parts. Unguarded live parts above working space will be maintained at elevations not less than specified in Table 3.

TABLE 3 ELEVATION OF UNGUARDED ENERGIZED PARTS ABOVE WORKING SPACE

Normal voltage between phases	Minimum elevation
601 - 7,500 ..... 7,501 - 35,000 ..... Over 35 kV	8 feet 6 inches [1] 9 feet 9 feet + 0.37 inches per kV above 35 kV

[1] **NOTE:** For SI units: one inch = 25.4 mm; one foot = 0.3048 m.

Entrance and access to workspace. At least one entrance not less than 24 inches (610 mm) wide and 6 feet 6 inches (1.98 m) high will be provided to give access to the working space about electric equipment. On switchboard and control panels exceeding 48 inches (1.22 m) in width, there will be one entrance at each end of such board where practicable. Where bare energized parts at any voltage or insulated energized parts above 600 volts are located adjacent to such entrance, they will be guarded.

Vehicular and Mechanical Equipment Any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines will be operated so that a clearance of 10 ft. (305 cm) is maintained. If the voltage is higher than 50kV, the clearance will be increased 4 in. (10 cm) for every 10kV over that voltage. However, under any of the following conditions, the clearance may be reduced:

If the vehicle is in transit with its structure lowered, the clearance may be reduced to 4 ft. (122 cm). If the voltage is higher than 50kV, the clearance will be increased 4 in. (10 cm) for every 10 kV over that voltage.

If insulating barriers are installed to prevent contact with the lines, and if the barriers are rated for the voltage of the line being guarded and are not a part of or an attachment to the vehicle or its raised structure, the clearance may be reduced to a distance within the designed working dimensions of the insulating barrier.

If the equipment is an aerial lift insulated for the voltage involved, and if the work is performed by a qualified person, the clearance (between the uninsulated portion of the aerial lift and the power line) may be reduced to the distance given in Table S-5.

Employees standing on the ground may not contact the vehicle or mechanical equipment or any of its attachments, unless:

- The employee is using protective equipment rated for the voltage; or
- The equipment is located so that no uninsulated part of its structure (that portion of the structure that provides a conductive path to employees on the ground) can come closer to the line than permitted in paragraph (c)(3)(iii) of this section.

If any vehicle or mechanical equipment capable of having parts of its structure elevated near energized overhead lines is intentionally grounded, employees working on the ground near the point of grounding may not stand at the grounding location whenever there is a possibility of overhead line contact. Additional precautions, such as the use of barricades or insulation, will be taken to protect employees from hazardous ground potentials, depending on earth resistivity and fault currents, which can develop within the first few feet or more outward from the grounding point.

Illumination

Employees may not enter spaces containing exposed energized parts, unless illumination is provided that enables the employees to perform the work safely.

Where lack of illumination or an obstruction precludes observation of the work to be performed, employees may not perform tasks near exposed energized parts. Employees may not reach blindly into areas, which may contain energized parts.

Confined or Enclosed Work Spaces

When an employee works in a confined or enclosed space (such as a manhole or vault) that contains exposed energized parts, Romer Utility Services will provide, and the employee will use, protective shields, protective barriers, or insulating materials as necessary to avoid inadvertent contact with these parts. Doors, hinged panels, and the like will be secured to prevent they're swinging into an employee and causing the employee to contact exposed energized parts.

Conductive Materials and Equipment

Conductive materials and equipment that are in contact with any part of an employee's body will be handled in a manner that will prevent them from contacting exposed energized conductors or circuit parts. If an employee must handle long dimensional conductive objects (such as ducts and pipes) in areas with exposed live parts, Romer Utility Services will institute work practices (such as the use of insulation, guarding, and material handling techniques), which will minimize the hazard.

Portable Ladders

Portable ladders will have nonconductive siderails if they are used where the employee or the ladder could contact exposed energized parts.

Conductive Apparel

Conductive articles of jewelry and clothing (such a watch bands, bracelets, rings, key chains, necklaces, metalized aprons, cloth with conductive thread, or metal headgear) may not be worn if they might contact exposed energized parts. However, such articles may be worn if they are rendered nonconductive by covering, wrapping, or other insulating means.

Housekeeping Duties

Where live parts present an electrical contact hazard, employees may not perform housekeeping duties at such close distances to the parts that there is a possibility of contact, unless adequate safeguards (such as insulating equipment or barriers) are provided. Electrically conductive cleaning materials (including conductive solids such as steel wool, metalized cloth, and silicon carbide, as well as conductive liquid solutions) may not be used in proximity to energized parts unless procedures are followed which will prevent electrical contact.

Lockout and Tagging of Circuits

This portion of the plan has been created to maintain a written copy of procedures to be followed during work on or near enough to exposed de-energized parts of conductors and electric equipment to expose employees to any electrical hazard they present. The requirements apply to all of Romer Utility Service's construction job sites.

This written procedure includes procedural steps for each one of the following: De-energizing equipment,

- Application of locks and tags,
- Verification of de-energized condition, and
- Re-energizing equipment.

While any employee is exposed to contact with parts of fixed electric equipment or circuits which have been de-energized, the circuits energizing the parts will be locked out or tagged or both according to the requirements of this written plan. Conductors and parts of electric equipment that have been de-energized but have not been locked out or tagged according to these procedures will be treated as energized parts.

The requirements must be followed in the order in which they are presented. Romer Utility Services maintains this written copy of procedures in the Office and makes it available for inspection by employees and the Assistant Secretary of Labor (the head of OSHA) and his or her authorized representatives.

De-energizing Equipment

Safe procedures for de-energizing circuits and equipment will be determined by Site Supervisor before circuits or equipment are de-energized.

The circuits and equipment to be worked on will be disconnected from all electric energy sources. Control circuit devices, such as push buttons, selector switches, and interlocks, may not be used as the sole means for de-energizing circuits or equipment. Interlocks for electric equipment may not be used as a substitute for lockout and tagging procedures.

Stored electric energy, which might endanger personnel, will be released. Capacitors will be discharged and high capacitance elements will be short-circuited and grounded, if the stored electric energy might endanger personnel.

If the capacitors or associated equipment are handled in meeting this requirement, they will be treated as energized.

Stored non-electrical energy in devices that could re-energize electric circuit parts will be blocked or relieved to the extent that the circuit parts could not be accidentally energized by the device.

Application of Locks and Tags

A lock **and** a tag will be placed on each disconnecting means used to de-energize circuits and equipment on which work is to be performed. Employees can obtain these locks and tags from Site Supervisor.

The lock will be attached so it prevents persons from operating the disconnecting means unless they resort to undue force or the use of tools.

Each tag will contain a statement prohibiting unauthorized operation the disconnecting means and removal of the tag.

If a lock cannot be applied or if Romer Utility Services can demonstrate that tagging procedures will provide a level of safety equivalent to that obtained by the use of a lock, a tag may be used without a lock.

If a tag is used without a lock, the tag will be supplemented by at least one additional safety measure that provides a level of safety equivalent to that obtained by the use of a lock. Examples of additional safety measures include the removal of an isolating circuit element, blocking of a controlling switch, or opening of an extra disconnecting device.

A lock may be placed without a tag only under the following conditions:
Only one circuit or piece of equipment is de-energized, and

The lockout period does not extend beyond the work shift, and
Employees exposed to the hazards associated with re-energizing the circuit or equipment is familiar with this procedure.

Use of either of these exceptions must be approved by Site Supervisor

Verification of De-energized Condition

The following requirements must be met before any circuits or equipment can be considered and worked as de-energized:

- A qualified person will operate the equipment operating controls or otherwise verify that the equipment cannot be restarted.
- A qualified person will use test equipment to test the circuit elements and electrical parts of equipment to which employees will be exposed and will verify that the circuit elements and equipment parts are de-energized.
- The test will also determine if any energized condition exists as a result of inadvertently induced voltage or unrelated voltage back feed even though specific parts of the circuit have been de-energized and presumed to be safe. If the circuit to be tested is over 600 volts, nominal, the test equipment will be checked for proper operation immediately before and immediately after this test.

Only authorized employees that have been trained and designated as qualified persons are authorized to perform duties in that capacity.

Re-Energizing Equipment

The following requirements will be met, in order given, before circuits or equipment are re-energized, even temporarily:

- A qualified person will conduct tests and visual inspections, as necessary, to verify that all tools, electrical jumpers, shorts, grounds, and other such devices have been removed, so that the circuits and equipment can be safely energized.

- Employees exposed to the hazards associated with re-energizing the circuit or equipment will be warned to stay clear of circuits and equipment.

- Each lock and tag will be removed by the employee who applied it or under his or her direct supervision. However, if this employee is absent from the workplace, then the lock or tag may be removed by a qualified person designated to perform this task provided that the employee who applied the lock or tag is not available at the workplace, and the employee is aware that the lock or tag has been removed before he or she resumes work at that workplace.

- There will be a visual determination that all employees are clear of the circuits and equipment.

See the Lockout Tagout Program for complete details.

Training

Training is provided to ensure that employees are familiar with the requirements of this plan. This training is provided to employees at the time of hire and annually thereafter.

Safety Representative, Safety Representative is responsible for conducting training.
The training program addresses the required written elements for electrical safety for:

- The assured equipment grounding conductor program.

- Lockout and tagging procedures to be used when working on exposed de-energized parts.

Training for Unqualified Employees

Training for Unqualified Employees is general electrical safety precautions to provide an awareness and understanding of electrical hazards.

Electrical Safety Rules for Non-Qualified Workers

1. Do not conduct any repairs to electrical equipment
2. Report all electrical deficiencies to your supervisor
3. Do not operate equipment if you suspect and electrical problem.
4. Water and electricity do not mix.
5. Even low voltages can kill or injure you
6. Do not use cords or plugs if the ground prong is missing
7. Do not overload electrical receptacles

Training for Qualified Employees

Training for Qualified Employees includes specific equipment procedures and requirements of:

Electrical Safety, 29 CFR 1910.331 to 1910.339

Program Evaluation

The Electrical Safety Plan is evaluated and updated annually by Safety Representative to ensure the continued effectiveness of the program.

Emergency Action Plan

Purpose

Romer Utility Services is dedicated to the protection of its employees from emergencies such as tornadoes and fires. When emergencies do occur, our Emergency Action Plan (EAP) is initiated. This EAP is in place to ensure employee safety from emergencies during regular hours and after hours. It provides a written document detailing and organizing the actions and procedures to be followed by employees in case of a workplace emergency.

OSHA's Emergency Action Plan requirements, require Romer Utility Services to have a written emergency action plan (EAP). This EAP addresses emergencies that our company expects may reasonably occur at any of sites.

The EAP communicates to employees, policies and procedures to follow in emergencies. This written plan is available, upon request, to employees, their designated representatives, and any OSHA officials who ask to see it.

Administrative Duties

Safety Representative (or designee) is the EAP administrator, who has overall responsibility for the plan. This responsibility includes the following:

- Developing and maintaining a written Emergency Action Plan for regular and after hours work conditions;
- Notifying the local fire or police departments, and the building owner/superintendent in the event of an emergency affecting the facility;
- Taking security measures to protect employees;
- Integrating the Emergency Action Plan with any existing general emergency plan covering the building or work area occupied;
- Distributing procedures for reporting emergencies, the location of safe exits, and evacuation routes to each employee;

- Conducting drills to acquaint employees with emergency procedures and to judge the effectiveness of the plan;

- Training designated employees in emergency response such as the use of fire extinguishers and the application of first aid;

- Deciding which emergency response to initiate (evacuate or not);

- Ensuring that equipment is placed and locked in storage rooms or desks for protection;

- Maintaining records and property as necessary; and

- Ensuring that our facility meets all local fire codes, building codes, and regulations.

The Safety Manager is responsible for reviewing and updating the plan as necessary. Copies of this plan may be obtained from the Safety Manager's office.

The Safety Manager has full authority to decide to implement the EAP if he believes an emergency might threaten human health. The following potential emergencies might reasonably be expected at this facility or work areas and thus call for the implementation of this EAP:

- Fire emergencies (process area fires, non-pressurized tank fires, pressurized tank fires, fires at loading facilities, warehouse fires, office building fires, electrical fires)

- Toxic gas releases

- Flammable gas releases

- Hazardous liquid spills

- Oil spills

- Release of radiation

- Tornadoes

- Winter storms
- Flooding
- Earthquakes
- Bomb threat/Civil disturbance.
- First-aid emergencies

The Safety Manager can be contacted regarding further information about duties under this written Emergency Action Plan

Key management personnel home telephone numbers are kept in a safe place, on office and work area bulletin boards, and in company vehicles, for immediate use in the event of an emergency.

These telephone numbers of key management personnel have been distributed all supervisors to be retained in their homes for use in communicating an emergency occurring during non-work hours:

If, after reading this plan, you find that improvements can be made, please contact the plan administrator, Safety Representative. We encourage all suggestions because we are committed to the success of our Emergency Action Plan. We strive for clear understanding, safe behavior, and involvement in the program from every level of the company.

We have posted the following emergency telephone numbers near telephones, or emergency notice boards, and other conspicuous locations for use when telephones serve as a means of reporting emergencies

Emergency responder:	Telephone number:
Ambulance	911
Fire	911
Police	911

Emergency Reporting and Weather Monitoring Procedures

In the Event of an Emergency Requiring Evacuation

When employees detect an emergency that requires an evacuation, such as a fire or hazardous release, they should Activate the fire alarm and exit the building to the designated safe area for a headcount. The fire department will be notified via telephone.

In the Event of a Tornado Watch

We monitor tornadoes by severe weather radio. When available, our backup method for monitoring tornadoes includes city and county tornado sirens

Evacuation Procedures

Some emergencies require evacuation or escape procedures, while some require employees to stay indoors, or in a safe area. Our emergency escape procedures are designed to respond to many potential emergencies, depending on the degree of seriousness. Nothing in these procedures precludes the plan administrator's authority in determining whether employees should remain inside or evacuate. At this company, the following types of emergency evacuations exist:

- total and immediate evacuation
- partial evacuation

Our emergency escape procedures and assignments are designed to respond to many potential emergencies that require them, including: fire, tornado, bomb threat, chemical release.

Employees need to know what to do if they are alerted to a specific emergency. After an alarm is sounded to evacuate, employees should take the following steps:

1. Cease work immediately and proceed to the nearest available exit.
2. Go to your designated safe area for a headcount and further instructions.

Procedures to Account for Employees

Trained evacuation personnel assist in safe and orderly evacuation for all types of emergencies that require evacuation. Once evacuation is complete, they conduct head counts. The employees selected are trained in the complete workplace layout and the various alternative escape routes from the workplace. All trained personnel are made aware of employees with disabilities who may need extra assistance, such as using the buddy system, and of hazardous areas to be avoided during emergencies. Before leaving, these employees check rooms and other enclosed spaces in the workplace for employees who may be trapped or otherwise unable to evacuate the area.

Frontline supervisors must be aware of the locations of those employees working on a particular day when an emergency occurs, and be aware of who is absent or otherwise away from the premises. Accounting for employees will aid local responding fire/rescue departments in determining whether rescue efforts are necessary.

Once each evacuated group of employees have reached their evacuation destinations, each trained evacuation employee:

- Takes roll of his or her group,
- Makes sure all persons are accounted for,
- Reports in to a central checkpoint managed by Safety Representative, Safety Manager, and
- Assumes role of department contact to answer questions.

Head count results should be given to the Fire Chief or firefighter, if requested.

No employees are to return to their work area until advised by Safety Representative, Safety Manager or designee (after determination has been made that such re-entry is safe).

Fire

1. Upon sounding the alarm, all personnel shall evacuate the work area by the most direct route. The routes are shown on the work place maps posted on the bulletin boards.

2. Prior to exiting, turn off machine at your work station or close the valves on gas operated equipment such as oxygen/acetylene carts. Do not try to retrieve items or tools.

3. Safety Representative, prior to exiting the area, shall ensure that all equipment is secured and all areas are checked to ensure that no employee remains in his area.

4. All employees shall go directly upon sounding the alarm to the parking lot and assemble with your Supervisor for a head count. At no time will you leave this area unless directed by management or supervision. Do not try to re-enter the work area to obtain personal items or tools. Supervisors will report to Safety Representative or his or representative with the names of all employees counted and any unaccounted-for personnel as soon as the head count is completed.

5. Any firefighting, rescue or medical duties will be performed by the fire department, police department, or hospital medical personnel. At no time will our personnel attempt on their own initiative, a rescue or fire suppression, after departing the area. The only firefighting attempted by our personnel will be in the incipient stage of the fire.

6. Should an employee discover a fire, he or she will notify the Supervisor in that area who will advise Safety Representative or his or her representative. At the same time the Supervisor will direct the use of fire extinguishers against the fire and evacuate when he or she deems it necessary.

7. Safety Representative will be responsible for furnishing any further information to the employees concerning this plan.

Tornado

1. Upon being advised of the distinct possibility that a tornado may strike the area Safety Representative or his representative shall sound the alarm or make every attempt to warn all employees. All personnel shall seek shelter immediately by either crawling under sturdy work benches, equipment, inside rooms or basements within the shop after shutting off power to machines.

2. Upon sounding the all clear signal which will be a voice signal and providing the tornado missed the shop, all personnel shall resume normal production duties.

3. If the tornado strikes the shop and the all clear is sounded by the U.S. Weather Bureau, it may be necessary to evacuate part of the work area.

4. Personnel in each building will be advised by voice communication by Safety Representative or his representative as to what action is necessary. If evacuation is deemed necessary those personnel to be evacuated will proceed directly to the parking lot. Do not try to retrieve personal items or tools. Head counting procedures will be the same as for fires. At no time will you leave this area unless directed by management or supervisory personnel.

5. All firefighting, rescue and medical duties will be performed by fire department, police department, and hospital medical personnel. At no time will our personnel attempt on his own initiative a rescue after departing the work area.

6. Safety Representative or a Supervisor in Charge will be responsible for furnishing any further information to the employees.

Earthquake

1. Upon realization that an earthquake is occurring get under the nearest workbench or equipment that will provide you overhead protection from falling objects. Try to stay away from electrical lines and overhead storage racks containing heavy objects.

2. Upon sounding the alarm, all personnel shall evacuate the area by the most direct exit. The routes are shown on the work place maps posted on bulletin boards. Prior to your exit turn off your machine at your work station and close the valves on gas operated equipment such as oxygen/acetylene welding carts. Do not try and retrieve personal items or tools.

3. Safety Representative, prior to exiting the work area, shall ensure that all equipment is secured and all areas are checked to ensure that no employee remains on the work area.

4. All employees shall go directly upon sounding of the alarm to the parking lot and assemble with your Supervisor for a head count. At no time will you leave the area unless directed by management or supervisory personnel. Do not try to re-enter the work area to obtain personal items or tools. Supervisors report to Safety Representative or his or her representative the names of personnel counted and any unaccounted personnel as soon as the head count is completed.

5. Any rescue or medical duties will be performed by fire departments, police departments, or hospital medical personnel. At no time will our personnel attempt on their own initiative a rescue or fire suppression after departing the work area.

Terrorist Bomb Threat

Conduct Bomb Search

1. All supervisory personnel shall be advised by voice communication that a bomb threat has been received by the company at this work area.

2. All work activities shall cease in the suspected areas and a planned, organized search for the suspected bomb will be conducted by all personnel. They are to be instructed to look for any item that normally would not be in this area. This could be a package, bundle, sack, box, or any object that might look suspicious Employees are to be instructed never to touch the object in any way, but to notify supervision who in turn advise fire and police personnel of the find.

3. At this time management must consider the possibility of a partial evacuation of the area. If this evacuation is deemed advisable then evacuation procedures outlined in the following paragraph shall be followed.

Evacuation

1. Upon sounding the alarm, personnel shall evacuate the area by the most direct exit.

   The routes are shown on the work place maps posed on bulletin boards.

2. Prior to exit, turn off your machine at the work station or close valves on gas operated equipment. Do not try to retrieve personal items, tools or vehicles. Safety Representative, prior to exiting the work area, shall ensure that all equipment is secured and all areas are checked to ensure no employees remain on the work area. LEAVE THE LIGHTS ON TO ASSIST SEARCH PERSONNEL.

The employees shall go directly upon sounding of the alarm, to the parking lot and assemble with your Supervisor for a head count.

At no time will you leave this area unless directed by management or supervisory personnel. Do not try to re-enter the building or grounds to obtain personal items or tools or cars. Supervisors shall report to Safety Representative or his representative the names of all employees counted and any unaccounted-for personnel as soon as head count is completed.

Hazardous Chemical Release

In the event of an accidental release of hazardous chemicals, an evacuation would be required if the release is in a significant amount to cause, or have potential to cause, harm to employees.

1. After it is determined that there is a hazardous chemical emergency, the Management Team will be notified and make the decision whether to evacuate any areas. All unqualified Employees should remain clear of any spill or release of any hazardous material. If evacuation procedures have been initiated, ALL EMPLOYEES MUST LEAVE THE AREA and proceed to the designated meeting area

   NO ONE MAY ENTER THE RELEASE/SPILL/AFFECTED AREAS WITHOUT PROPER PERSONAL PROTECTIVE EQUIPMENT AND MANAGEMENT PERMISSION.

   PPE is required at all times until the hazard has been dissipated with proof by proper testing procedures.

2. Maintenance Manager will proceed directly to the emergency area to determine if evacuation or outside help is necessary.

3. Management will activate the Emergency Response Team if required by dialing 911.

4. Management will implement the **Emergency Spill Procedures** of the **Spill Prevention Control & Countermeasures Plan** if any hazardous material is released.

Notification of State Department of Environmental Monitoring and EPA is required if spilled oil material discharges or threatens to discharge into a waterway of the State causing a visible sheen on or a discoloration of the surface water or shorelines, or if a reportable quantity for a hazardous substance is discharged or may unavoidably be discharged to a waterway of the State.

Medical Emergencies

All Medical Treatment provided by OHCP employed by Company shall follow the *Medical Directives and Nursing Procedures for Emergency Care*

1. After a medical emergency has been identified, the Assigned Manager, Occupational Health Care Professional or Senior Management Team Member and Area Supervisor should be notified immediately. The Area Supervisor has the responsibility to assure that the Assigned Manager, OHCP or Senior Management Team Member has been notified.

2. The severity of the medical emergency and level of action required will be determined by the on-site OHCP.

3. All Medical Emergency Care Providers will use the proper PPEs as outlined in the *Control of Bloodborne Pathogens Program* and will follow the proper standards of care.

4. All injured or ill Employees requiring emergency medical care for life/death medical emergencies will be transported by local Emergency Medical Services (EMS) to the nearest local Hospital.

5. All non-life/death medical emergencies will be managed by the OHCP and Company Physician following proper standards of care.

6. All Employees who are involved in an injury or accident shall be screened for drugs and alcohol as prescribed by company policy.

7. During any emergency, the OHCP or Assigned Manager will have the responsibility to set-up the emergency medical care station at a location directed by the Senior Management Team Member depending on the emergency and relevant conditions.

Plan Administrator Duties

During an emergency, Safety Representative, Safety Manager will do the following:

- Take all necessary measures to contain the hazard and prevent its spread to other nearby areas, with the assistance of emergency personnel.

- If the emergency is a hazardous material spill, ensure that the hazardous material and any material with which in came into contact (gravel, soil, etc.,), will be scraped up using shovels and/or brooms. All this combined material will be considered hazardous waste unless analysis shows otherwise.

  Provide for collection, treatment, and disposal of the waste and contaminated material by the emergency crew or outside contractor, as appropriate.

- Ensure that contaminated soil, liquids, or other material is placed in drums and handled as a hazardous waste.

- Ensure that the emergency crew restores all emergency equipment to full operational status.

- Assisted by other qualified persons, begin to investigate the cause of the emergency and take steps to prevent a recurrence of such or similar incidents.

- Ensure that the cause of the emergency has been eliminated and that cleanup and restoration have progressed at least to the point of not jeopardizing the health and safety of the employees, and that EPA, state, and local authorities have been notified, if required.

- Ensure that for spills or releases involving a hazardous substance at or above its reportable quantity, the following necessary information is recorded and reported: name of chemical(s) involved, whether the substance is listed under 40 CFR 302—extremely hazardous substances, estimated quantity of the released substance, time of the release and duration, medium into which the substance was released, health risks associated with the release, precautions taken to respond to the release, name and telephone numbers of persons who can be contacted for further information.

Training

Our Plan Administrator reviews with each of our employees at the following times, those parts of the Emergency Action Plan that employees must know to protect themselves in the event of an emergency:

- Initially when the plan is developed,
- Whenever an employee's responsibilities or designated actions under the plan change, and
- Whenever the plan is changed.

The information in this plan is not intended for casual reading, but is intended to get the appropriate message across.

Drills are conducted annually. After a drill, the Plan Administrator judges the effectiveness of the plan and reviews any employee input concerning the drill. Employees performing the drill may identify something that did not follow procedure or was ineffective. For example, they may discover doors that would not open; they may enter storage closets instead of exiting; they may get lost and confused. These are the types of things the Plan Administrator needs to hear about after a drill. That way, they can be addressed before a real emergency

Emergency Action Diagram

Attached is a copy of the company Emergency Action Diagram showing the following:

- Exit Locations
- Fire Extinguisher Locations
- Storage Locations for Hazardous/Flammable Materials
- Storage Area for Spill Response Supplies and Personal Protective Equipment
- Tornado Shelters

A copy of this diagram is posted on company bulletin boards and near each exit.

Fall Protection Plan

OSHA currently regulates fall protection for construction under Part 1926, Subpart M. The standards for regulating fall protection systems and procedures are intended to prevent employees from falling off, onto or through working levels and to protect employees from falling objects. Fall protection requirements under the OSHA Construction regulations require considerable planning and preparation.

Written fall protection procedures establish guidelines to be followed whenever an employee works above dangerous equipment on ramps or runways, or at heights with fall protection at the job site. The regulations:

- Are designed to provide a safe working environment, and
- Govern use of fall protection procedures and equipment.

Written procedures for fall protection establish uniform requirements for fall protection training, operation, and practices. The effectiveness of the written fall protection procedures depends on the active support and involvement of all employees who perform the jobs requiring it. This plan is intended to document procedures that ensure all work requiring fall protection is carried out safely.

Purpose

Romer Utility Services is dedicated to the protection of its employees from on-the-job injuries. All employees of Romer Utility Services have the responsibility to work safely on the job. The purpose of this plan is to:

- Supplement our standard safety policy by providing safety standards specifically designed to cover fall protection on this job.

- Ensure that each employee is trained and made aware of the safety provisions which are to be implemented by this plan prior to the start of erection.

This program informs interested persons, including employees, that Romer Utility Services is complying with OSHA's Fall Protection requirements, (29 CFR 1926.500 to.503).

This program applies to all employees who might be exposed to fall hazards, except when designated employees are inspecting, investigating, or assessing workplace conditions before the actual start of construction work or after all construction work has been completed.

All fall protection systems selected for each application will be installed before an employee is allowed to go to work in an area that necessitates the protection. Safety Representative, Safety Manager, is the program coordinator/manager and is responsible for its implementation. Copies of the written program may be obtained from the Safety Manager's Office. Certain employees are authorized to inspect, investigate, or assess workplace conditions before construction work begins or after all construction work has been completed. These employees are exempt from the fall protection rule during the performance of these duties. They are the Safety Manager and Site Supervisors.

These authorized employees determine if all walking/working surfaces on which our employees work have the strength and structural integrity to support the employees. Our employees will not be allowed to work on these surfaces until they have the requisite strength and structural integrity.

All employees, or their designated representatives, can obtain further information about this written program, and/or the fall protection standard from Safety Representative, Safety Manager.

Our Duty to Provide Fall Protection

To prevent falls Romer Utility Services has a duty to anticipate the need to work at heights and to plan our work activities accordingly. Careful planning and preparation lay the necessary groundwork for an accident-free jobsite.

Worksite Assessment and Fall Protection System Selection

Because some sites may require fall protection while others may not, this is the written General Plan applying to all applicable worksites.

This fall protection plan is intended to anticipate the particular fall hazards to which our employees may be exposed. Specifically, we:

- Inspect the area to determine what hazards exist or may arise during the work.

- Identify the hazards and select the appropriate measures and equipment.

- Give specific and appropriate instructions to workers to prevent exposure to unsafe conditions.

- Ensure employees follow procedures given and understand training provided.

- Apprise ourselves of the steps our specialty subcontractors have taken to meet their fall protection requirements.

Providing fall protection requires an assessment of each fall situation at a given jobsite. Our criteria for selecting a given fall protection system follow those established at 29 CFR 1926.502, fall protection systems criteria and practices. Each employee exposed to these situations must be trained as outlined later in this plan.

Unprotected Sides and Edges

Our employees must be protected when they are exposed to falls from unprotected sides and edges of walking/working surfaces (horizontal and vertical surfaces) which are 6 feet or more above lower levels.

We know that OSHA has determined that there is no "safe" distance from an unprotected side or edge that would render fall protection unnecessary.

We have chosen the following fall protection for unprotected sides and edges at our worksites:

- Guardrails
- safety nets
- personal fall arrest

We maintain the fall protection system(s) chosen until all work has been completed or until the permanent elements of the structure which will eliminate the exposure to falling hazards are in place.

Leading Edge Work

Leading edges are defined as the edge of a floor, roof, or formwork that changes location as additional floor, roof, or formwork sections are placed, formed, or constructed. If work stops on a leading edge it will be considered to be an "unprotected side or edge" and will be covered by the section of this plan on unprotected sides and edges.

We presume that it is feasible and will not create a greater hazard to implement at least one of the conventional fall protection systems for our leading-edge work.

Employees who are not constructing the leading edge, but who are on walking/working surfaces where leading edges are under construction, are also protected from a fall by guardrails, safety nets, personal fall arrest.

Hoist Areas

In all situations where equipment and material hoisting operations take place, we protect our employees from fall hazards. When we are involved in hoisting operations, we will use the following fall protection systems at these specific locations:

- guardrails or personal fall arrest systems

When operations require the materials to be lifted by crane to a landing zone (and do not require an employee to lean through the access opening or out over the edge to receive or guide materials), we can select either personal fall arrest equipment or a guardrail system.

When guardrails (or chains or gates) are removed to facilitate hoisting operations, and one of our employees must lean through the access opening or out over the edge to receive or guide materials they will be protected by a personal fall arrest system.

Holes

Romer Utility Services protects employees from:

- Tripping in or stepping into or through holes (including skylights).
- Objects falling through holes (including skylights).

We use the following fall protection system to protect our employees working on walking/working surfaces with holes where they can fall 6 feet or more to a lower surface:

- Covers
- guardrails
- personal fall arrest systems

At this worksite employees can trip or step into or through a hole (including skylights) or an object could fall through a hole and strike a worker. In these instances, we use covers to prevent accidents.

We understand that OSHA does not intend that a guardrail be erected around holes while employees are working at the hole, passing materials, and so on. Therefore, if the cover is removed while work is in progress, guardrails are not required because they would interfere with the performance of work. When the work has been completed, we will be required to either replace the cover or erect guardrails around the hole.

Formwork and Reinforcing Steel

A jobsite may require formwork or reinforcing steel work 6 feet or more above lower levels. We could be involved in work where different systems fit different applications. Therefore, we have chosen the following fall protection systems that might be used to protect our employees:

- positioning device
- safety net
- personal fall arrest system
-

Ramps, Runways, and Other Walkways

We equip all ramps, runways, and other walkways with guardrails when employees are subject to falling 6 feet or more to lower levels.

Excavations

Some jobsites may have excavation edges that will not be readily seen (I. e., concealed from view by plant growth, etc.). When it is necessary, and when the excavation is 6 feet or more deep, we protect these excavations by:

- guardrail systems
- fences
- barricades

In addition, walls, pits, shafts, and similar excavations 6 feet or more deep will be guarded to prevent employees from falling into them by:

- guardrail systems
- fences
- barricades
- covers

Dangerous Equipment

Romer Utility Services is committed to protecting our employees from falling onto dangerous equipment. When this equipment is less than 6 feet below an employee, but because of form or function is dangerous, the employee is protected by guardrails or an equipment guard

When this equipment is more than 6 feet below an employee, but because of form or function is dangerous, the employee is protected by guardrails, personal fall arrest system, or a safety net.

Roofing Work on Low-Slope Roofs

Each of our employees engaged in roofing activities on low-slope roofs (4 in 12 or less, vertical to horizontal pitch) with unprotected sides and edges six-feet or more above lower levels will be protected from falling by:

- guardrails
- personal fall arrest system
- safety net
- a combination of warning line and guardrail
- a combination of warning line and safety net
- a combination of warning line and personal fall arrest

We follow the guidelines in Appendix A of Subpart M to determine how to correctly measure a roof that is not a rectangle.

Steep Roofs

We will protect our workers on roofs with slopes greater than 4 in 12 verticals to horizontal pitch (steep roofs) from falling when the roof has unprotected sides or edges more than 6 feet above lower levels by the use of:

- guardrail with toe boards
- personal fall arrest system, or
- safety net

Wall Openings

Employees who are exposed to the hazard of falling out or through wall openings (including those with chutes attached) where the outside bottom edge of the wall opening is 6 feet or more above lower levels and the inside bottom edge of the wall opening is less than 39 inches above the walking/working surface must be protected from falling. We protect our employees from falls out or through wall openings by the following methods:

- guardrails
- safety nets, or
- personal fall arrest systems

Walking/Working Surfaces Not Otherwise Addressed

We realize there will be situations that are not covered by our written safety plan, for which we have the duty to provide fall protection. All employees exposed to falls of 6 feet or more to lower levels must be protected by a guardrail system, safety net system, or personal fall arrest system except where specified otherwise in Part 1926.

We have audited all of our worksites for fall protection hazards that are not covered elsewhere in this plan. We have taken the following measures to address these hazards:

- guardrails
- personal fall arrest system, or
- safety net

Protection from Falling Objects

When employees are exposed to falling objects, we ensure they wear hard hats and also implement one of the following measures:

- Erect toe boards, screens, or guardrail systems to prevent objects from falling from higher levels.

- Erect a canopy structure and keep potential fall objects far enough from the edge of the higher level so that those objects would not go over the edge if they were accidentally moved.

- Barricade the area to which objects could fall, prohibit employees from entering the barricaded area, and keep objects that may fall far enough away from the edge of a higher level so that those objects would not go over the edge if they were accidentally moved.

- Cover or guard holes 6 feet or more above a lower level.

Controlled Access Zones

A Controlled access zone is a work area designated and clearly marked in which certain types of work (such as overhand bricklaying) may take place without the use of conventional fall protection systems, guardrail, personal arrest or safety net to protect the employees working in the zone.

Controlled access zones are used to keep out workers other than those authorized to enter work areas from which guardrails have been removed. Where there are no guardrails, masons are the only workers allowed in controlled access zones.

Controlled access zones, when created to limit entrance to areas where leading edge work and other operations are taking place, must be defined by a control line or by any other means that restrict access. Control lines shall consist of ropes, wires, tapes or equivalent materials, and supporting stanchions, and each must be:

- Flagged or otherwise clearly marked at not more than 6-foot (1.8 meters) intervals with high-visibility material.

- Rigged and supported in such a way that the lowest point (including sag) is not less than 39 inches (1 meter) from the walking/working surface and the highest point is not more than 45 inches (1.3 meters)--nor more than 50 inches (1.3 meters) when overhand bricklaying operations are being performed from the walking/working surface.

- Strong enough to sustain stress of not less than 200 pounds (0.88 kilonewtons). Control lines shall extend along the entire length of the unprotected or leading edge and shall be approximately parallel to the unprotected or leading-edge Control lines also must be connected on each side to a guardrail system or wall. When control lines are used, they shall be erected not less than 6 feet (1.8 meters) nor more than 25 feet (7.6 meters) from the unprotected or leading edge, except when precast concrete members are being erected. In the latter case, the control line is to be erected not less than 6 feet (1.8 meters) nor more than 60 feet (18 meters) or half the length of the member being erected, whichever is less, from the leading edge.

Controlled access zones when used to determine access to areas where overhand bricklaying and related work are taking place are to be defined by a control line erected not less than 10 feet (3 meters) nor more than 15 feet (4.6 meters) from the working edge. Additional control lines must be erected at each end to enclose the controlled access zone. Only employees engaged in overhand bricklaying or related work are permitted in the controlled access zones.

On floors and roofs where guardrail systems are not in place prior to the beginning of overhand bricklaying operations, controlled access zones will be enlarged as necessary to enclose all points of access, material handling areas, and storage areas.

On floors and roofs where guardrail systems are in place, but need to be removed to allow overhand bricklaying work or leading edge work to take place, only that portion of the guardrail necessary to accomplish that day's work shall be removed.

Safety Monitoring Systems

When no other alternative fall protection has been implemented, the Company shall implement a safety monitoring system. Mid-America Environmental Solutions will appoint the site Safety Coordinator of Supervisor to monitor the safety of workers and the Company shall ensure that the safety monitor:

- Is competent in the recognition of fall hazards.
- Is capable of warning workers of fall hazard dangers and in detecting unsafe work practices.
- Is operating on the same walking/working surfaces of the workers and can see them.
- Is close enough to work operations to communicate orally with workers and has no other duties to distract from the monitoring function.
- Not have other assignments that would take monitors attention from the monitoring function.

Mechanical equipment shall not be used or stored in areas where safety monitoring systems are being used to monitor employees engaged in roofing operations on low-sloped roofs.

No worker, other than one engaged in roofing work (on low-sloped roofs) or one covered by a fall protection plan, shall be allowed in an area where an employee is being protected by a safety monitoring system.

All workers in a controlled access zone shall be instructed to promptly comply with fall hazard warnings issued by safety monitors.

Selection & Use Guidelines for Fall Protection Equipment

Providing fall protection requires an assessment of each fall situation at a given jobsite. Our criteria for selecting a given fall protection system follow those established at 29 CFR 1926.502, fall protection systems criteria and practices. Each employee exposed to these situations must be trained as outlined later in this plan. When purchasing equipment and raw materials for use in fall protection systems applicable ANSI & ASTM requirements will be met.

General Worksite Policy

1. If any one of the conditions described in the Workplace Assessment is not met for the area or piece of equipment posing a potential fall hazard, then do not perform that work until the condition is met. If you cannot remedy the condition immediately, notify a supervisor of the problem and utilize a different piece of equipment or work in a different area, according to the situation.

2. If the situation calls for use of fall protection devices such as harnesses or lanyards because the fall hazard cannot be reduced to a safe level, then the employee must don such protective equipment before beginning the work and use it as intended throughout the duration of the work.

3. Only employees trained in such work are expected to perform it.

4. All places of employment, job sites shall be kept clean and orderly and in a sanitary condition.

5. All walking/working surfaces must be kept in a clean and, so far as possible, dry condition. Where wet processes are used, drainage shall be maintained, and false floors, platforms, mats, or other dry standing places should be provided where practicable.

6. All places of employment, job sites shall be kept clean and orderly and in a sanitary condition

7. Equipment and services must be available for prompt rescue prior to elevated work.

Training Program

Under no circumstances shall employees work in areas where they might be exposed to fall hazards, do work requiring fall protection devices, or use fall protection devices until they have successfully completed this company's fall protection training program.

The training program includes classroom instruction and operational training on recognition and avoidance of unsafe conditions and the regulations applicable to their work environment for each specific fall hazard the employee may encounter.

The training program is conducted by the Safety Manager, a "competent person" qualified in each aspect of the program, and must cover the following areas:

- The nature of fall hazards in the work area.

- Selection and use of personal fall arrest systems, including application limits, proper anchoring and tie-off techniques, estimation of free fall distance (including determination of deceleration distance and total fall distance to prevent striking a lower level), methods of use, and inspection and storage of the system.

- The correct procedures for erecting, maintaining, disassembling, and inspecting the fall protection systems to be used.

- The use and operation of guardrail systems, personal fall arrest systems, safety net systems, warning line systems, safety monitoring systems, controlled access zones, and other protection to be used.

- The role of each employee in the safety monitoring system when this is used.

- The limitations on the use of mechanical equipment during the performance of roofing work on low-sloped roofs.

- The correct procedures for the handling and storage of equipment and materials and the erection of overhead protection.

- The role of employees in fall protection plans.

- The standards contained in Subpart M of the construction regulations.

The Safety Manager will identify all current and new employees who require training and schedule the classroom instruction for those employees. Training on the above components will occur both in the classroom and on the job site, as appropriate. Classroom training will cover written policy/procedures on fall protection and include a training video on the subject. Job site instruction will include demonstration of and practice in wearing fall protection equipment and any instruction necessary for a specific job.

Safety Representative, has overall responsibility for the safety of employees and will verify compliance with 1926.503(a), training program, for each employee required to be trained.

The Safety Manager and/or Site Supervisor has the responsibility of determining when an employee who has already been trained, does not have the understanding and skill required by the training program (1926.503(a)).

A written certificate of training is required which must include:

- The name or other identity of the employee trained.
- The date(s) of training.
- The signature of the competent person who conducted the training or the signature of the employer.

Retraining is required when an employee cannot demonstrate the ability to recognize the hazards of falling and the procedures to be followed to minimize fall hazards.

Enforcement

Constant awareness of and respect for fall hazards, and compliance with all safety rules are considered conditions of employment. The jobsite superintendent, as well as individuals in the Safety and Personnel Department, reserve the right to issue disciplinary warnings to employees, up to and including termination, for failure to follow the guidelines of this program.

Incident Investigation

All accidents that result in injury to workers, regardless of their nature, are investigated and reported. It is an integral part of any safety program that documentation take place as soon as possible so that the cause and means of prevention can be identified to prevent a reoccurrence.

In the event that an employee falls or there is some other related, serious incident (e.g., a near miss) occurs, this plan will be reviewed to determine if additional practices, procedures, or training need to be implemented to prevent similar types of falls or incidents from occurring.

Changes to Plan

Any changes to the plan will be approved by the Safety Manager. This plan is reviewed by a qualified person as the job progresses to determine if additional practices, procedures or training needs to be implemented by the competent person to improve or provide additional fall protection. Workers are notified and trained, if necessary, in the new procedures. A copy of this plan and all approved changes is maintained at the jobsite.

Fatigue Management

Table of Contents

1. INTRODUCTION

1.1 What is fatigue?

Fatigue is an acute, ongoing state of tiredness that leads to mental or physical exhaustion and prevents people from functioning within normal boundaries. It is more than feeling tired and drowsy, it is a physical condition that can occur when a person's physical or mental limits are reached.

Fatigue can occur as a result of various factors that may be work-related, lifestyle-related or a combination of both. Work-related factors can include:

- working time
- scheduling and planning (for example, roster patterns, length and timing of shifts)
- inadequate rest breaks
- lengthy periods of time being awake
- insufficient recovery time between shifts
- payment incentives that may lead to working longer shifts
- environmental conditions (for example, climate, light, noise, workstation design)
- type of work being undertaken (for example, physically or mentally demanding work)
- work demands placed on the person (for example, timeframes, deadlines, intensity)
- the organisation's culture, and
- the person's role within the organisation.

Lifestyle-factors can include:

- inadequate or poor quality of sleep due to sleep disorders (for example, sleep apnoea)
- social life
- family responsibilities
- other employment
- travel time (may be considered work time in some cases), and
- health and wellbeing (for example, nutrition and diet, exercise, pain, illness).

How can you tell someone is fatigued?

A person can display the following signs which could mean they are fatigued:

- headaches and/or dizziness
- wandering or disconnected thoughts, daydreaming, lack of concentration
- blurred vision or difficulty keeping eyes open
- constant yawning, a drowsy relaxed feeling or falling asleep at work
- moodiness, such as irritability
- short term memory problems
- low motivation
- hallucinations
- impaired decision-making and judgment
- slowed reflexes and responses
- reduced immune system function
- increased errors
- extended sleep during days off work
- falling asleep for less than a second to a few seconds, and being unaware they have done so (otherwise known as micro-sleeps), and
- drifting in and out of traffic lanes or missing gear changes and turn offs when driving.

Sleep and fatigue

Sleep is the only effective long-term strategy to prevent and manage fatigue. While tired muscles can recover with rest, the brain can only recover with sleep. The most beneficial sleep is a good night's sleep taken in a single continuous period.

The optimum amount of sleep varies for each person; however, an adult generally requires 7 to 8 hours of sleep daily. When individuals get less sleep than they need in a day, they build up a sleep debt which accumulates until they can get enough sleep to overcome the sleep debt. Each additional day without enough sleep increases the debt, and when it becomes large enough fatigue can occur. It may take several days before a person recovers from a sleep debt. Sleep debt is common with night shift workers as they often have difficulty having sufficient and undisturbed sleep during the day.

One sleepless night can be affected in a similar way as someone who has been drinking alcohol, for example:

- being awake for 17 hours is the equivalent of having a blood alcohol level of 0.05
- being awake for 20 hours is the equivalent of having a blood alcohol level of 0.1

Shift workers (including night work) and fatigue

The body has a natural rhythm that is repeated every 24 hours – this is known as our 'body clock'. Our body clock regulates functions including sleeping patterns, body temperature, hormone levels and digestion. As it is programmed for different levels of wakefulness, we experience different levels of alertness depending on the time of the day.

When the human body clock is out of step, our alertness decreases and as a result we feel fatigued. This increases the risk of making errors and causing accidents and injuries, either in the workplace or on the way home from work.

Shift workers are one of the main worker groups affected by fatigue. Body clock rhythms do not generally adjust easily to shift work. In many workplaces shift work, and particularly night work is unavoidable and therefore fatigue should be proactively managed.

Sleep disruption is the most common problem for shift workers as a sleep cycle is usually shorter after working a night shift or if work begins before 7am. The level of tiredness increases with the number of hours worked and is more pronounced during the second half of the shift, especially between 2am and 6am and 2pm and 4pm.

1.2 Why is fatigue a problem?

Fatigue has obvious implications for the workplace and for public safety and can affect a person's performance within the workplace. There is the potential for an increase in accidents and injuries to occur. For example:

- when operating machinery and driving vehicles
- when undertaking critical tasks that require a high level of concentration
- where the consequence of error is serious, and
- when undertaking night work when a person would ordinarily be sleeping.

The effects of fatigue can be short or long term, for example, a person can have:

- difficulty in concentration and be easily distracted
- poor judgment and decision making
- reduced capacity for effective interpersonal communication
- reduced hand-eye coordination and visual perception
- reduced vigilance
- slower reaction times, and
- reduced memory.

Longer term health effects can include heart disease, diabetes, high blood pressure, gastrointestinal disorders, lower fertility, anxiety and/or depression.

Shift workers and former shift workers show more signs of ill health than people on fixed day work. Health problems may appear after a short stint of shift work, or may be only apparent after some years.

1.3 Who has health and safety duties in relation to managing fatigue?

Everyone in the workplace has a health and safety duty to prevent and manage fatigue.

A **person conducting a business or undertaking** has the primary duty under the WHS Act to ensure, so far as is reasonably practicable, that workers and other persons are not exposed to health and safety risks arising from the business or undertaking.

The duty includes a requirement to ensure, so far as is reasonably practicable,

- the provision and maintenance of a work environment that is without risk to health and safety
- the provision and maintenance of safe systems of work, and
- the health of workers and the conditions of the workplace are monitored for the purpose of preventing illness or injury.

A person conducting a business or undertaking may be an employer, self-employed, a principal contractor, a person with management or control of a workplace, a designer, manufacturer, supplier, importer or installer.

Officers, such as company directors, must exercise due diligence to ensure the business or undertaking complies with the WHS Act and Regulations. This includes taking reasonable steps to ensure the business or undertaking has and uses appropriate resources and processes to eliminate hazards or minimise risks associated with fatigue.

Workers must take reasonable care for their own health and safety and must not adversely affect the health and safety of other persons. Workers must also comply with any reasonable instruction and cooperate with any reasonable policy or procedure relating to health and safety at the workplace, including policies for preventing and managing fatigue.

1.4 What is involved in preventing and managing fatigue?

A step by step process

The steps that need to be taken to prevent and manage fatigue will vary from one workplace to the next, depending on the nature of the work, environmental conditions and individual factors.

The best way to address fatigue and other hazards at the workplace is to follow a risk management approach, which involves the following four steps:

- identify hazards that can contribute to fatigue
- assess the risks of these hazards
- implement and maintain risk control measures, and
- review the effectiveness of the control measures.

Further guidance on the risk management process generally is available in the *Code of Practice: How to Manage Work Health and Safety Risks.*

Consulting workers

Consultation involves sharing of information, giving workers a reasonable opportunity to express views and taking those views into account before making decisions on health and safety matters.

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Consultation with workers and their health and safety representatives must occur:

- when the organisation identifies fatigue is a hazard in the workplace
- when the organisation checks how fatigue is currently managed
- when changes are proposed to working hours, work schedules and working procedures
- prior to new work schedules and working procedures being introduced
- each step of the risk management approach
- where there are indications of fatigue affecting the health and safety of workers, and
- after an incident (or 'near miss') occurs.

Consulting, co-operating and co-ordinating activities with other duty holders

A person conducting a business or undertaking must consult, co-operate and co-ordinate activities with all other persons who have a work health or safety duty in relation to the same matter, so far as is reasonably practicable.

Sometimes you may have responsibility for health and safety together with other business operators who are involved in the same activities or who share the same workplace. In these situations, you should communicate with each other to identify and assess health and safety risks associated with fatigue and work together in a co-operative and co-ordinated way so that these risks are eliminated or minimised so far as is reasonably practicable.

For example, if your business involves providing on-hire workers who carry out shift work for a host business, you have a duty of care as well as the host business. In these situations, you must discuss issues such as the mental and physical demands of the job, shift rosters and working hours and ensure the host business has appropriate arrangements to prevent and manage fatigue.

Further guidance on consultation is available in the *Code of Practice: Work Health and Safety Consultation, Co-operation and Co-ordination.*

2. MANAGING RISKS ASSOCIATED WITH FATIGUE

2.1 Identifying the hazards

The first step in the risk management process is to identify all reasonably foreseeable hazards that could contribute to fatigue. Methods that may be used to collect this information include:

- observing work practices and systems of work
- talking to managers, supervisors, workers and their health and safety representatives about the impact of workloads and work schedules, including work-related travel and work completed outside of normal hours (for example, when people take work home)
- examining personnel records to determine working hours, particularly, if excessive hours have been worked or hours have been worked at unusual times
- reviewing records of past incidents and injuries that have occurred in the workplace, as well as any accidents workers have had travelling home or on work-related journeys, and
- obtaining information on fatigue from research, guidance materials and data published by regulators, industry associations, unions or other sources.

Safety critical tasks

Identifying fatigue hazards associated with safety critical tasks is particularly important. Safety critical tasks are those that require a high level of concentration, alertness and/or co-ordination and where the consequences of a mistake or error in judgement could cause serious injury, for example:

- driving a road vehicle or operating a crane or other high-risk plant
- working at heights
- administration of drugs or participating in medical or surgical procedures
- other types of hazardous work, such as electrical work, and
- working with flammable or explosive substances.

Factors that can contribute to fatigue

There are a number of factors that can contribute to fatigue and should be taken into consideration as they may indicate areas where action should be taken to reduce risks. Many of these hazards can be interrelated and, in some cases, cumulative.

a) Mental and physical demands of work

Concentrating for extended periods of time, performing repetitious or monotonous work and performing work that requires continued physical effort can, by producing mental and/or physical tiredness, increase the risk of fatigue. Workers can be mentally and physically fatigued at the same time.

b) Work scheduling and planning

Scheduling work in a way that fails to allow workers enough time to physically recover and socialise can cause fatigue. The time of day (or night) work is performed and the number of hours worked in a working shift can impact on the risk of fatigue. Working at times when workers are biologically programmed to sleep and working for long periods of time can contribute to fatigue.

c) Environmental conditions

Working in harsh and/or uncomfortable conditions can contribute to fatigue, for example, working in extremely hot or cold climates or noisy workplaces can make workers tire quicker and impair performance.

d) Organisational factors

Organisational factors that can contribute to fatigue include:

- culture of an organisation to work extensive hours
- lack of flexibility at the workplace
- lack of clear work procedures
- incentives schemes, wages and conditions, and
- lack of information and training.

e) Individual and lifestyle factors

Factors that cause fatigue due to sleep deprivation include:

- lifestyle
- home environment
- health conditions
- other work commitments, for example, having a second job, and
- extended travel to home residences, for example, inter-state travel or travel overseas.

The checklist at *Appendix A* may assist in identifying fatigue hazards.

2.2 Assessing the risks

The second step in the risk management process is to assess the risk of injury from the fatigue factors identified. The risk assessment should reveal:

- where, which and how many workers (including contractors and subcontractors) are likely to be at risk of becoming fatigued
- how often is this likely to occur, and?
- the potential severity of harm that would result.

In assessing the risks, the factors that contribute to fatigue should not be considered in isolation. For example, in the case of new workers, there may be an inter-relationship between the mental and physical demands of the job, hours of work and level of training. The risks of injury may increase where new workers work long daily hours in a physically demanding job.

Risk assessment methods can include:

- consulting with industry or employee association who may be able to assist with risk assessments for type of work and workplace
- check whether workers have had accidents (including transport) travelling home or on work-related journeys
- consult workers on workloads and schedules and ask if they are having or have experienced work-related fatigue
- comparing planned working hours with hours actually worked, and
- reviewing workplace incident data and asking the following questions:
    - What is the likelihood that fatigue is contributing to the incidents?
    - What time of day do incidents occur?
    - When incidents occurred, how long had the workers involved been working?
    - Do the incidents often happen when a worker's circadian rhythm is low and concentration is poor?

For example, the hazard identification step may have identified that shift work and overtime is a regular feature and potential hazard factor in the workplace. If eliminating shift work is not reasonably practicable, then the risk assessment should determine how the shifts operate and if the rosters could be reasonably modified to minimise the likelihood of sleep deprivation and fatigue. Overtime could also be limited in the shift roster.

The risk assessment should place the fatigue risk factors in order of priority – highest to lowest.

The risk assessment matrix at *Appendix B* provides further guidance on assessing the risks associated with fatigue.

2.3 Controlling the risks

The best way to control fatigue risks is to eliminate the factors that cause it at the source or if this is not reasonably practicable, minimise the risks.

When deciding on control measures to implement, check to see what is currently being used to address the problem and if they are effective. The controls that you choose will also depend on the person carrying out the work, the type of the business or undertaking and the characteristics of the organisation. For example, develop procedures for long daily work hours and related travel, where there may be increased risk of injury.

There are a number of controls measures that can be implemented to prevent fatigue. These are:

a) Mental and physical demands of work

- Use plant, machinery and equipment (for example, ergonomic furniture, lifting equipment and anti-fatigue matting for repetitive tasks performed while standing).
- Redesign the job to limit periods of excessive mental or physical demands.
- Introduce job rotation to limit a build-up of mental and physical fatigue.
- Reduce the time workers need to spend performing physical and mental demanding work by using rest periods (in addition to scheduled meal breaks) or implementing shorter shifts.
- Develop contingency plans for potential situations that could arise where workers will have to unexpectedly work longer hours, more shifts or a long sequence of shifts, for example, in emergencies.

b) Work scheduling and planning

- Schedule safety critical work outside low body clock periods (for instance, not between 2am and 6am or 2pm and 4pm).
- Manage workload and work-pace change caused by machinery breakdowns or planned and unplanned absences.
- Avoid working arrangements that provide incentives to work excessive hours.
- Include rest periods in the work schedule and accommodate for napping and sleeping if necessary.
- Ensure there are enough workers and other resources to do the job without placing excessive demands on them.
- Ensure work demands increase towards the middle of the shift and decrease towards the end.

Working time

- Eliminate or reduce the need to work extended hours or overtime.
- Develop a working-hours policy on daily work hours, maximum average weekly hours, total hours over a three-month period and work-related travel.
- Develop procedures for long daily work hours and related travel, where there may be increased risk of injury – for example, requiring minimum breaks on a regular basis, especially when total hours exceed maximum limits.
- Design working hours to allow for good quality sleep and enough recovery time between work days or shifts for travelling, eating, washing and sleeping.
- Eliminate or minimise the need to work long shifts for more than three consecutive days.
- Schedule work for hours when the risks may be lower – for example, complex and safety-critical tasks are best undertaken during normal day shifts when workers are less likely to be fatigued.

Breaks during working time

- Ensure that workers have adequate and regular breaks so they can rest, eat and rehydrate.
- Providing flexibility and encouraging workers to take breaks as required.

Rostering

- Use a forward rotation system - this means the direction of the roster is day to evening to night whereas a backward rotation shift is from day to night to evening
- Design rosters so there is adequate recovery time between shifts to travel, eat, wash and sleep.
- Avoid morning shifts with early starts before 6am.
- Shorten shift length and change the direction of shifts to a forward rotation system.
- Consider the timing split shifts, for instance, whether there could be sleep disruption because of the times workers are required to work.
- Consider avoiding split shifts that involve, for example, early morning work and late-night work as they can affect the amount of night sleep.
- Offer alternatives to workers who may have difficulties adjusting to working hours.
- Ensure rosters reflect an appropriate mix of workers with different skills.

Shift work

- Set shift rosters ahead of time and avoid sudden changes to allow workers to plan leisure time.
- Avoid quick shift changeovers, such as finishing at 11pm and starting again at 7am.
- Control overtime, shift swapping and on-call duties.
- Allocate shift workers consecutive days off, including some weekends.
- Try to fit shift times in with the availability of public transport.
- Provide alternative transport at end of overtime/long shift.
- Limit shifts to 12 hours including overtime.
- Allow time for communication at shift handovers.
- Maximise breaks between shifts and before rotating staff to a new shift.
- Minimise the number of consecutive night shifts.
- Avoid overtime allocation after afternoon or night shifts (particularly after 10- or 12-hour night shifts).
- Provide information to shift workers that contains tips for them to prevent and manage fatigue. An example of a factsheet is included at *Appendix C.*

Night work

- Consider if night work is necessary and rearrange schedules so non-essential work is not carried out at night.
- Keep sequential night shifts to a minimum (no more than four nights in a row).
- Allow a 48-hour rest period between each set of shifts for night-shift workers.
- Allow regular night workers periods of normal night's sleep to catch up on their sleep debts.
- Ensure that rosters allow for at least two full nights' sleep after the last night shift.
- Arrange shifts so that day sleep is not restricted.
- Except for emergencies, give at least 24 hours' notice before night work. Consider providing a longer period of notice so that workers have time to adjust their activities.
- Minimise night work for workers returning from leave to allow them to adapt.

On-call and call back work

- Design shifts and rosters to allow for good quality sleep and enough recovery time. Consider the opportunities for sleep and recovery in instances where workers are required to work on call after a normal shift or on days off.
- Set a policy in consultation with workers on on-call work.

Seasonal work

- Develop procedures for long daily work hours and work-related travel, for example requiring adequate breaks and additional breaks if total hours exceed a set limit.
- Provide on-site accommodation, meals and other facilities so workers do not have to drive after extended hours of work.
- Consider calling on additional staff.

Fly-in, fly-out work (FIFO)

FIFO is a method of employing people in remote areas. Rather than relocating the worker and their family to a town near the work site, the worker is flown to the work site where they work for a number of days and are then flown back to their home town for a number of days of rest.
Usually a FIFO job involves working a long shift (for example, 12 hours each day) for a number of continuous days with all days off spent at home rather than at the work site.

In these type of work arrangements, the following should be considered:

- Developing a working hours policy that provides information about:
  - the number of hours that can be worked over a three-month period
  - the number of sequential night shifts that a person can work
  - the period of non-work following a sequence of night shifts (24 hours at a minimum), and
  - the return from rest and recreation to operations, allowing for adequate sleep before the first shift.
  -
- Developing a policy and supporting procedures to deal with unexpected delays, for example, providing hotel accommodation, meals and taxis when there are delays in flights.

If organisations use fatigue management software to management their FIFO work arrangements, they may wish to consult experts on roster scheduling to minimise any working arrangements that may cause a worker to become fatigued.

Leave management

- Put in place processes to manage accrued leave balances and requests for leave.
- Consider future rosters and schedules when approving request for leave or shift swaps.
- Consider setting maximum amounts of leave accrual and optimal amounts of leave that can be taken at one time (for example, a minimum of 2 weeks leaves at one time).
- Fill vacant positions as soon as reasonably practicable.
- Ensure the impact of service delivery needs on workers is considered.
- Ensure rosters reflect approved leave.
- Ensure sufficient workers are made available to fill a roster.
- Maintain a relief pool in high demand areas.
- Have access to on-call workers for unplanned leave, emergencies or where workload increases.
- Monitor actual time worked against the allocated roster and identify excessive hours are being worked. Review rosters and organise relief workers if extended breaks are required.

Absenteeism

- Put in place processes to manage absenteeism, accrued leave balances and requests for leave.
- Develop plans to deal with workload changes due to absenteeism.

Emergencies and unexpected events

- Planning for emergencies and unexpected events (for example, staff shortages, plant breakdowns and situations where staff are called back to work) should address control measures to prevent fatigue

c) Environmental conditions

- Avoid working during periods of extreme temperature.
- Install heating devices in cold work environments.
- Install cooling devices and/or provide access to cooled areas in hot work environments.
- Provide shelter in hot work environments.
- Install ventilation and mechanical cooling devices in hot, confined spaces such as truck cabins.
- Provide adequate facilities for rest, sleep, meal breaks, onsite accommodation (if appropriate) and other essential requirements.
- Install adjustable, vibration-free seats in appropriate machinery and vehicles.
- Ensure the workplace and surroundings are well lit, safe and secure.

d) Organisational factors

- Implement effective human resources policy and procedures, for example, procedures on rostering policy and overtime.
- Encourage workers to report any concerns they may have about work-related fatigue.
- Ensure managers and supervisors are trained to monitor fatigue levels in their team in order to prevent and manage fatigue.
- Consider measures to deal with risks where workers drive home tired or fatigued after long working hours, night work or a sequence of FIFO shifts.
- Consider alternative options to face-to-face meetings such as teleconferencing.
- Require field staff working long hours on a project to sleep overnight to avoid driving when tired or fatigued after project completion, for example, scientists or geologists carrying our research drive long distances to get home after their last day of work in a remote area.
- Provide assistance for workers when it becomes apparent that long working hours will arise in order to meet the project completion date.
- Review the need for subcontractors or labour hire staff to work similar shifts and shift cycles to the permanent workforce.
- Develop procedures for dealing with fatigued workers.
- Allow trial periods for new working arrangements and evaluating them.

e) Individual and lifestyle factors

Work and lifestyle often impact each other. For example, if a worker leaves their job tired and exhausted, they may be less able to enjoy out of work activities or could be a danger to themselves and others in the community. Likewise, if a worker arrives at work unfit for duty due to a lack of sleep, illness or other condition, they may be less productive or could be a danger to themselves and others in the workplace.

To avoid any potential conflicts between personal and work demands, controls include:

- consult with workers and design shift rosters that will enable workers to meet both work and personal commitments, and
- develop a fitness for work policy and implement health and fitness programs.

Workers, managers and supervisors should be provided with training and information on how to manage fatigue at work, as well as beneficial practices to minimise the risks, such as gaining sufficient sleep.

2.4 Other hazards

It is also important to look at how the length of time a person is subjected to other workplace hazards, such hazardous manual tasks, exposure to hazardous chemicals, extreme temperatures and noise.

Hazardous manual tasks

A person conducting a business or undertaking must manage the risk of a musculoskeletal disorder associated with hazardous manual tasks.

The risk of a musculoskeletal injury increases during an extended shift due to the cumulative effects of muscle fatigue, strains and sprains. Workers should rotate to less physically demanding jobs towards the end of their shift.

The *Code of Practice: Hazardous Manual Tasks* includes guidance on specific control measures.

Exposure levels

Exposure to hazards including noise, heat and chemicals, may also increase during extended working hours. Under the WHS Regulations, exposure standards for noise and airborne contaminants must not be exceeded. National and international exposure standards are usually based on five eight-hour days per week.

Exposure should be carefully monitored and exposure levels adjusted. Seek expert advice when adjusting exposure levels. Exposure during a 10-hour work day, for example, may not equate to 1.25 times the exposure experienced during an 8-hour shift. The reduced recovery time after being exposed to a hazard during an extended shift also needs to be accounted for.

For potential *noise hazards* implement control measures to ensure that the exposure standard of 85dB(A) averaged over 8 hours is not exceeded. Guidance on noise control is available in the *Code of Practice: Managing Noise and Preventing Hearing Loss.*

For potential exposure to *hazardous chemicals and airborne contaminants* including dusts:

- carry out air monitoring to assess exposure to airborne contaminants
- refer to *Workplace Exposure Standards for Airborne Contaminants*
- install adequate ventilation, and
- where appropriate, suppress atmospheric contaminants with, for example, dust suppression and/or removal of workers from the hazardous area.

For potential exposure to *extreme temperatures*, control measures may include:

- scheduling work for times when temperatures are moderate
- ensure exposure time is minimised – this could include rotating workers' tasks where reasonably practicable
- provide a cool area where workers can take a rest break and rehydrate, and
- provide adequate personal protective clothing and equipment and, where applicable, sunscreen.

For potential exposure to *vibration hazards*:

- where reasonably practicable, redesign the job or substitute equipment to eliminate or reduce the risk of whole body and/or hand vibration
- ensure exposure time is minimised – this could include rotating workers' tasks where reasonably practicable, and
- for hand vibration, requiring workers use anti-vibration protective gloves.

2.5 Information, instruction, training and supervision

Romer Utility Services requires that a person conducting business or undertaking must provide any information, training, instruction or supervision that is necessary to protect all persons from risk to their health and safety arising from work carried out as part of business or undertaking.

Training is an integral part of educating managers, workers and other persons at the workplace about the hazards and risks associated with fatigue. It gives them knowledge and skills to not only do their job but also implement appropriate control measures that can ultimately prevent fatigue from occurring.

Annual Training should be arranged so it is available to all workers on all shifts. If workers must attend training outside normal shifts, it should be considered work time and rosters adjusted accordingly.

Information and training for workers should include:

- the work health and safety responsibilities of everyone in the workplace
- the body clock and how fatigue can affect it
- risk factors for fatigue
- symptoms of fatigue
- hazards and risks that may be associated with fatigue
- effective control measures for fatigue, for example, work scheduling, shift work schedules
- procedures for preventing fatigue, for example, incident reporting
- effects of medication, drugs and alcohol
- nutrition, fitness and health issues relating to fatigue, and
- balancing work and personal lifestyle demand.
- Controlling Fatigue
- Recognize Fatigue
- Reporting to fatigue to supervisor
- Employees must not chronically use over-the-counter, prescription drugs, and any other product which may affect an employee's ability to perform their work safely. Employees must not chronically use over-the-counter or prescription drugs to increase mental alertness.

Other relevant information including human resources policies or programs (for example, a Working from Home policy, Fitness for Work policy, Health and Fitness programs) and consultative mechanisms for raising work health and safety matters should also be provided to the worker at the beginning of their employment or contract.

Managers and supervisors

Managers and supervisors should be trained to:

- Recognise fatigue indicators
- Understand the various ways to prevent and manage fatigue and how they should be implemented, including how to design suitable rosters and work schedules.

Supervision

An appropriate level of supervision relevant to the assessed level of risk (for example a higher level of supervision for safety critical tasks) should be provided, which may include:

- monitoring work to ensure safe work practices are followed
- ensuring workers new to the job or unfamiliar with the work environment are adequately supervised
- where appropriate and practicable, ensuring workers do not work alone; and
- for those working alone, you must provide an effective means of communication. Further guidance on remote and isolated work is available in the *Code of Practice: Managing the Work Environment and Facilities*.

2.6 Monitor and reviewing control measures

Once controls have been implemented, you should be checking and reviewing them to ensure they are effective in preventing and managing fatigue.

In determining the frequency of the monitoring and review processes, consider the level of risk — high-risk hazards need more frequent assessments. Reviews of control measures should be carried out when:

- there is any indication risks are not being controlled
- new tasks, equipment, procedures, rosters or schedules are introduced
- any changes are proposed to the work environment, working hours, schedules and rosters
- there is an incident due to fatigue at the workplace
- new information regarding fatigue becomes available, and
- the results of consultation, including a request from a health and safety representative, indicate that a review is necessary.

Appendix D of this Code provides case-studies on using a risk management approach to address fatigue in the workplace

APPENDIX A – FATIGUE HAZARD CHECKLIST

This checklist can be completed by a range of parties including persons conducting a business or undertaking, OHS managers, managers, supervisors, and health and safety representatives. If the answer is yes to any of the questions in the shaded areas, or yes to three or more of the questions in the non-shaded areas, you should assess fatigue risks and implement control measures.

Mental and physical work demands	
Does anyone undertake work for long periods that is physically demanding? (for example, tasks that are especially tiring and/or repetitive such as bricklaying, typing, process work, moving bags of cement, felling trees)	Yes/No
Does anyone undertake work for long periods that is mentally demanding? (for example, work that requires vigilance, work that requires continuous concentration and minimal stimulation, work performed under pressure, work to tight deadlines, emergency call outs, interacting/dealing with the public)	Yes/No
Work scheduling and planning	
Does anyone consistently work or travel between midnight and 6am?	Yes/No
Does the work scheduled prevent full time workers having at least one day off per week?	Yes/No
Does the schedule make it difficult for workers to consistently have at least two consecutive nights sleep per week?	Yes/No
Do work practices include on-call work, call-backs and/or sleepovers?	Yes/No
Does the schedule differ from the hours actually worked?	Yes/No
Does the work schedule include rotating shifts?	Yes/No
Does anyone have to travel more than one hour to get to their job?	Yes/No
Does anyone work in excess of 12 hours regularly? This would include any overtime worked.	Yes/No
Does anyone have less than 10 hours between each shift? (for example, split shifts, quick shift changeovers)	Yes/No
Is work performed at low body clock times (between 2 am and 6 am)?	Yes/No
Environmental conditions	
Is work carried out in harsh or uncomfortable conditions? (for example, hot, humid, cold temperatures)	Yes/No
Does anyone work with plant or machinery that vibrates?	Yes/No
Is anyone exposed to hazardous chemicals?	Yes/No
Is anyone consistently exposed to loud noise?	Yes/No

Appendix 2 – Risk assessment chart

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he Risk assessment chart can be used to consider potential hazard factors and risks of fatigue. The chart highlights areas where implementation of risk control measures should be considered.
holistic approach should be taken in assessing risks and implementing control measures.

Risk assessment chart – to consider hazards and risks at your workplace/industry, follow the three steps:

Step 1. Hazard identification Identify potential hazard factors at the workplace/industry, such as those listed in the column below. Consider hazard factors in the context of specific workplace/industry circumstances.	Step 2. Risk assessment To assist risk assessment, a general level of risk for each hazard factor is indicated along arrow guides. In assessing risk, consider interaction between hazard factors that could influence level of risk, and as level of risk for each hazard factor is only indicative, take into account specific workplace/industry circumstances that may influence it.		Step 3. Risk control Where a hazard factor is assessed as medium/higher risk, consider implementing control measures, such as those outlined in 'controlling fatigue risks' in this guide.
Hazard factors	General risk indicator for hazard factors Lower risk → Higher risk		Control measures
Mental and physical work demands			
Repetition (physical and/or mental)	Varying task demands	Highly repetitive work and/or high concentration work, with high demands over an extended period of time	Consider control measures – mental and physical demands of work
Physical	Minimal physically demanding work	Highly physically demanding work that results in muscle fatigue	
Mental	Minimal periods of high concentration and/or mentally demanding work	Long periods of high concentration and/or mentally demanding work	
Work scheduling and planning			
Hours			
Average weekly hours	35–40 hours (working week)	48 hours (working week) / 56 hours (working week)	Consider control measures – working time
Total hours over a three-month period		624 working hours	
Daily work hours	9 working hours	12 working hours	
Daily work hours and work-related travel		10 working hours	13 working hours
Scheduling of work	Regular and predictable hours	Irregular and unpredictable hours, short notice of schedule, extended overtime, on call across shift cycle	

Appendix 2 – Risk assessment chart continued

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Risk assessment chart – to consider hazards and risks at your workplace/industry, follow the three steps:

Step 1. Hazard identification	Step 2. Risk assessment Where risk falls into the area of medium/higher risk, undertake Step 3 in the next column.	Step 3. Risk control
Hazard factors	**General risk indicator for hazard factors**	**Control measures**
	Lower risk → Higher risk	
Working time **Night work** Shift end (for those working eight hours or more between 10.00pm and 6.00am)	After 10.00am / Before 6.00am	Consider control measures – night work
Length of shift	8 hours / 10 hours / 12 hours	
Sequential night shifts (other than FIFO)	6 or more 8 hour shifts 5 or more 10 hour shifts 4 or more 12 hour shifts	
Period of non-work following a sequence of night shifts (other than FIFO)	48 hours / Less than 48 hours	Consider control measures – work scheduling and planning
Breaks during work – frequency	Adequate and regular breaks / Infrequent or no breaks	
Breaks between work periods – recovery time	Adequate time for sleep, travel and meals, etc / Inadequate time for sleep, travel and meals, etc	
Seasonal work arrangements – hours worked	Regular hours over 12 months / Long hours during peak season	

Appendix 2 – Risk assessment chart continued

Photocopy for easy use.

Risk assessment chart – to consider hazards and risks at your workplace/industry, follow the three steps:

Step 1. Hazard identification	Step 2. Risk assessment Where risk falls into the area of medium/higher risk, undertake Step 3 in the next column.	Step 3. Risk control
Hazard factors	General risk indicator for hazard factors Lower risk → Higher risk	Control measures
Environmental conditions		
Exposure to hazardous substances and atmospheric contaminants	For hazardous substances, low risk calculated using national exposure standard[1]	For hazardous substances, high risk calculated using national exposure standard[1]
Exposure to noise	– exposure for short duration – low noise levels[2] – exposure for long duration – high noise levels[2]	Consider control measures See section 2.4 of Code of Practice for Managing Noise and Preventing Hearing Loss at Work
Exposure to extreme temperatures	Minimal exposure	Long period of exposure
Exposure to vibration	Minimal exposure	Long period of exposure
Training and information		
Lack of information on fatigue management and health and lifestyle factors	Adequate information is provided	No information is provided
Lack of training on fatigue management and health and lifestyle factors	Adequate training is provided	No training provided
Lack of job skills training	Adequate training for job demands	Inadequate training for job demands

Consider control measures – see training and information section 2.6 of Code of Practice for Managing Noise and Preventing Hearing Loss in the Workplace.

1 To access exposure standards, see the internet database, Hazardous Substances Information System, available at www.safeworkaustralia.gov.au

2 Noise levels must not exceed exposure standards for noise under WHS Regulations.

APPENDIX C – INFORMATION FOR SHIFT WORKERS

FACT SHEET: SHIFT WORKERS AND FATIGUE

☑ **Managing odd hours**

To avoid a build-up of fatigue while you are night shift, you must get as close to your average amount of sleep as possible. The following hints may help:

- Curtains with back or blinds to reduce light levels when sleeping during the day.
- Sleeping in cool conditions helps in getting to and staying asleep.
- Reducing noise with heavy curtains and sound insulation on the doors and windows.
- Maintain a regular sleep schedule – a minimum of four hours sleep is desirable, but try to allow for at least seven hours in bed. Rest without sleep is still beneficial for the body.
- Try different sleep times in the daytime to find out which suits you best, for example, straight after work, before the next night shift or part of both.
- Try relaxing between work and bed. Some shift workers prefer to go straight to bed while others find it better to read or watch television first.
- Don't get upset if you can't sleep straight away. Read the paper or watch television.
- Don't drink too much liquid before going to bed.
- Avoid coffee in the last few hours prior to sleeping.
- Alcohol does not promote sleep – instead it lowers the quality of sleep overloads and stimulates the bladder.
- Be cautious with the use of sleeping tablets. They may help for a few days but should not be used in the long term.
- Heavy smokers have difficulties in going for long periods without a cigarette, especially during the day. Craving for a cigarette may wake you up. If you give up smoking you will sleep poorly until your body adjusts, but then your sleep will improve.

☑ **Managing life at home**

- Just as your body follows a rhythm, so does your social and family life. Once again, the shift worker is out of step. When you are awake everyone else is sleeping, when you are at work, everyone else has free time. School age children may only see their shift working parents for short periods. Try to:
  - Talk with your family ahead of time about problems that result from shift work and look for solutions.
  - Adjust to the household routine where possible. Give your partner or children the opportunity of making suggestions about how you can fit into their activities.
  - Take pre-school children to a playgroup on the mornings before you sleep, or arrange with friends with small children to swap child minding duties on sleeping days.
  - Take over some household duties on days off. One of the advantages of shift work is you will be home during the day.

☑ **Planning your social life**

- Normal social interactions with family and friends are so important people may cut down their sleep time so they can take part in customary social activities. This can affect work performance. When on shift work you should:
  - Plan to make the most of your time off. Let your friends know when you are free.
  - Use your free daytime when others are working for activities you like to do by yourself and do some of the jobs that might otherwise interfere with social occasions. See if there are others on shift work who will join you in daytime sport or other activity.

☑ **Managing your diet and physical fitness**

- The activity of the digestive system is reduced at night. Indigestion, heartburn and constipation may occur as a result of shift work. Extra food eaten at night may be stored as fat rather than used up to provide energy. You might:
  - Try having two meals at the regular times and a light meal in the middle of the night shift.
  - Consider having the largest meal of the day after the day-sleep
  - Take a meal at or before 1am. The effects of a meal may be to decrease alertness in the second part of the night shift, so it's better to eat before become fatigued.
- Light meals, high in carbohydrate, based on rice, pasta, bread, are easy to digest. Avoid meals heavy in calories or with a high fat content because they take longer to digest and may make you feel drowsy.
- Snack on fresh fruit and milk products and avoid spicy and fried foods.
- Limit the amount of coffee towards the end of your shift, as coffee can keep you awake
- General physical fitness is important:
  - Make an effort to increase your physical activity during leisure time.
  - Join a gym or sports club so you can make use of their facilities on your days off.
  - If you are on regular medication (e.g. insulin for diabetes) or have a chronic recurring illness such as asthma, see your doctor for advice before beginning shift work.
  - Using common sense rules for diet and physical fitness will help.

☑ **Other helpful hints**

- Before your first night shift, have a shorter sleep of between one to four hours to help reduce sleepiness at work.
- Where sleeping quarters are provided, consider sleeping in them before driving home after a night shift.
- When coming off night shifts into days off, have a short sleep on reaching home, and go to bed earlier that night. A good sleep is the quickest way of getting the circadian rhythm back to normal.
- Don't take on any extra work that could reduce the time available for sleep, especially, when you are on night shift.
- Social life, particularly on weekends, should be organised so you still get adequate sleep.

☑ **After your shift:**

- Fatigue and sleepiness on the job are the major problems but fatigue after the shift is over is also important. Remember to:
  - Be particularly careful when driving home after the night shift. Never drive if you've worked a double shift.
  - Keep your mind active by listening to the radio.
  - Even in winter, be wary of using the car heater as you may become drowsy in a warm car.

☑ **Who can help?**

- If you find you are having difficulty adjusting to shift work, your manager or supervisor, doctor, counsellor or an employee assistance service may help you find a solution.

APPENDIX D – CASE STUDIES

Case study one – Manufacturing

Situation	Risk Assessment	Outcome
A manufacturing company runs its operations 24 hours a day, with three shifts, morning, afternoon, and evening. All shifts are permanently allocated to three sets of workers. The night shift is undertaken by staff provided through a labour hire company. There is no limit placed on the number of consecutive nights contractors could work and there is less staff rostered to work at night than in the day. The night shift also has minimal maintenance staff working. The company did not think it had risk of fatigue until it undertook a health and safety review of workplace injuries, near misses and incidents. The review revealed that a number of injured workers were the night shift contractors. These injured workers had all worked more than 10 consecutive nights prior to their injuries.	The review of injuries, near misses and incidents revealed there were no effective fatigue risk controls in place during the night shift: • no limit was placed on the number of hours that could be worked • there was no monitoring of rosters actually worked • the continuous night shift roster provides insufficient recovery time to the people that worked it, and • consistent night shifts meant the night workers rarely got good quality sleep.	The review recommended the following risk control measures be implemented: • only operate the lower-risk production lines at night • give the night supervisors and night maintenance staff permission to shut down the production line when necessary • implement an organisation-wide fatigue management system to manage and monitor the number of weekly hours worked by each employee • place a limit of 10 consecutive days that can be worked in a fortnight • agreement with labour hire company to set limit on working hours of contractors, and • workers must have a minimum of six days off every month.

Case study two – Health

Situation	Risk Assessment	Outcome
After a medication administration error, a large city hospital conducted an investigation. During the investigation, they discover the nurse who made the error had worked more than 240 hours that month. She worked many long shifts; some were for 10 hours at night and some were for 12 hours in the day. The nurse had been required to work a number of night shifts at short notice to fill in for absent staff. Her unit manager had not been able to call on agency staff or casuals because of budget constraints. For the entire month, the nurse did not get two days off in a row. The shifts she worked over the month were often on a backward	The risk assessment revealed there were no effective risk controls for fatigue: • There was no monitoring of the rosters staff actually worked • Many shifts were scheduled in a backward rotation • Often the rosters didn't provide sufficient recovery time between shifts • Some rosters meant staff did not get two	The fatigue risk control measures the hospital implemented included: • A safe hour's policy that included clear guidelines on how to develop schedules that reduced the risk of fatigue (including a maximum number of night shifts that could be worked in a roster cycle, minimum number of days off in a roster cycle and minimum hours break between shifts). • A forward-rotating rostering system. • A roster-monitoring system that included checking rosters actually worked against the planned rosters every month.

rotation. Following the investigation, the hospital organised for a risks assessment to be conducted to ensure the situation would not happen again.	consecutive days off a week • Shifts were often varied at short notice.	• budget allocation for agency staff to cover unplanned absences. • supervisor and staff training on the new rostering system.

Case study three – Emergency Services

Situation	Risk Assessment	Outcome
At the peak of the bushfire season, a four-person crew from one region where there are no fires is sent to assist another region fighting a fire front that is 50km wide. The area that needs the additional crew members is a four hour drive from the region's base. The crew are based at the fire ground for either five-day shifts or three-night shifts. The shifts are 12-hours long, including travel to and from a staging area at a community hall that is also used for meals and sleep. The community hall is used as a staging area for other emergency and support services and is therefore quite noisy and busy. A number of strike teams are in the same situation. The safety coordinator becomes concerned the strike teams are not getting the amount of quality rest and sleep time they need to avoid fatigue. The co-ordinator conducts a risk assessment with the health and safety representative to establish the main risk factors and put in place control measure that address the fatigue risk factors.	Key fatigue risk factors identified: • harsh environment caused by extreme heat, smoke and fire • travel time was not adequately accounted for in shift arrangements • the common rest area is noisy • firefighting is very physically demanding work and requires a high level of vigilance to be maintained, and • insufficient recovery time provided.	The risk assessment leads to following fatigue risk control measures being implemented: • once the fire ground is contained, the number of teams working at night is reduced • shift lengths are shortened to 10 hours • supervisors on the fire ground monitor the teams for fatigue • teams alternate between active fighting and asset protection tasks • more suitable accommodation for sleeping is provided, where there is no motel accommodation a base camp is set up away from the main staging area, and • buses are provided for transport to and from fire ground and the meals and accommodation locations.

Fire Prevention Plan

Purpose

The Company Fire Safety Plan has been developed to work in conjunction with company emergency plans and other safety programs. This includes reviewing all new building construction and renovations to ensure compliance with applicable state, local, and national fire and life safety standards. Fire prevention measures reduce the incidence of fires by eliminating opportunities for ignition of flammable materials.

This FPP is in place at this company to control and reduce the possibility of fire and to specify the type of equipment to use in case of fire. This plan addresses the following issues:

- Major workplace fire hazards and their proper handling and storage procedures.
- Potential ignition sources for fires and their control procedures.
- The type of fire protection equipment or systems which can control a fire involving them.
- Regular job titles of personnel responsible for maintenance of equipment and systems installed to prevent or control ignition of fires and for control of fuel source hazards.

Under this plan, our employees will be informed of the plan's purpose, preferred means of reporting fires and other emergencies, types of evacuations to be used in various emergency situations, and the alarm system. The plan is closely tied to our emergency action plan where procedures are described for emergency escape procedures and route assignments, procedures to account for all employees after emergency evacuation has been completed, rescue and medical duties for those employees who perform them. Please see the emergency action plan for this information.

Safety Representative, Safety Manager, is the program coordinator, who has overall responsibility for the plan. The written program is kept in Safety Manager's office. He/she will review and update the plan as necessary. Copies of this plan may be obtained in the Safety Manager's office.

The FPP communicates to employees, policies and procedures to follow when fires erupt. This written plan is available, upon request, to employees, their designated representatives, and any OSHA officials who ask to see it.

If after reading this program, you find that improvements can be made, please contact Safety Representative, Safety Manager. We encourage all suggestions because we are committed to the success of our emergency action plan. We strive for clear understanding, safe behavior, and involvement in the program from every level of the company.

Safety Manager Responsibilities

Here at Romer Utility Services, the Safety Manager is responsible for the following activities. He must:

1. Develop a written fire prevention plan for regular and after-hours work conditions.

2. Immediately notify the local fire department fire or police departments, and the building owner/superintendent in the event of a fire affecting the office.

3. Integrate the fire prevention plan with the existing general emergency plan covering the building occupied.

4. Distribute procedures for reporting a fire, the location of fire exits, and evacuation routes to each employee.

5. Conduct drills to acquaint the employees with fire procedures, and to judge their effectiveness.

6. Satisfy all local fire codes and regulations as specified.

7. Train designated employees in the use of fire extinguishers and the application of medical first-aid techniques.

8. Keep key management personnel home telephone numbers in a safe place in the office for immediate use in the event of a fire. Distribute a copy of the list to key persons to be retained in their homes for use in communicating a fire occurring during non-work hours.

9. Decide to remain in or evacuate the workplace in the event of a fire.

10. If evacuation is deemed necessary, the safety manager ensures that:

    - All employees are notified and a head count is taken to confirm total evacuation of all employees.

    - When practical, equipment is placed and locked in storage rooms or desks for protection.

    - The building owner/superintendent is contacted, informed of the action taken, and asked to assist in coordinating security protection.

    - In locations where the building owner/superintendent is not available, security measures to protect employee records and property are arranged as necessary.

Workplace Fire Hazards

It is the intent of this company to assure that hazardous accumulations of combustible waste materials are controlled so that a fast-developing fire, rapid spread of toxic smoke, or an explosion will not occur. Employees are to be made aware of the hazardous properties of materials in their workplaces, and the degree of hazard each pose.

Fire prevention measures must be developed for all fire hazards found. Once employees are made aware of the fire hazards in their work areas, they must be trained in the fire prevention measures developed and use them in the course of their work. For example, oil-soaked rags must be treated differently than general paper trash in office areas. In addition, large accumulations of waste paper or corrugated boxes, etc., can pose a significant fire hazard.

Accumulations of materials which can cause large fires or generate dense smoke that are easily ignited or may start from spontaneous combustion, are the types of materials with which this fire prevention plan is concerned. Such combustible materials may be easily ignited by matches, welder's sparks, cigarettes and similar low-level energy ignition sources. It is the intent of this company to prevent such accumulation of materials.

Certain equipment is often installed in workplaces to control heat sources or to detect fuel leaks. An example is a temperature limit switch often found on deep-fat food fryers found in restaurants. There may be similar switches for high temperature dip tanks, or flame failure and flashback arrester devices on furnaces and similar heat producing equipment. If these devices are not properly maintained or if they become inoperative, a definite fire hazard exists. Again employees and supervisors should be aware of the specific type of control devices on equipment involved with combustible materials in the workplace and should make sure, through periodic inspection or testing, that these controls are operable. Manufacturer's recommendations should be followed to assure proper maintenance procedures.

Fuel is used throughout the building and work areas/sites as an energy source for various systems or equipment. This fuel can be a significant fire hazard and must be monitored and controlled. Flammables are stored is safe, approved areas away from flames, sparks, heat, or other ignition sources.

Potential Ignition Sources

Flammable or combustible materials may not ignite on their own without an external source of ignition.

- Many of the thousands of chemicals in use in the workplace are both highly toxic and highly volatile. Extreme caution must be used to prevent and fight fires resulting from chemical spills and accidents. Chemicals can cause serious injuries through physical (fire or explosion) or health (burns or poisons) hazards. Chemicals are classified by the inherent properties that make them hazardous.

- Flammable - these chemicals catch fire very easily; hazards include property damage, burns and injuries that result when toxic and corrosive compounds are released into the air.

- Reactive - a reactive material is one that can undergo a chemical reaction under certain conditions; reactive substances can burn, explode, or release toxic vapor if exposed to other chemicals, air or water.

- Explosive - an explosive is a substance that undergoes a very rapid chemical change producing large amounts of gas and heat; explosions can also occur as a result of reactions between chemicals not ordinarily considered explosive.

The National Fire Protection Association (NFPA) has classified four general types of fires, based on the combustible materials involved and the kind of extinguisher needed to put them out. The four fire classifications are A, B, C and D.

- Class A. This type of fire is the most common. The combustible materials are wood, cloth, paper, rubber and plastics. The common extinguisher agent is water, but dry chemicals are also effective. Carbon dioxide extinguishers and those using sodium or potassium bicarbonate chemicals are not to be used on this type of fire.

- Class B. Flammable liquids, gases and greases create class B fires. The extinguishers to use are foam, carbon dioxide and dry chemical. Also, water fog and vaporizing liquid extinguishers can be used.

- Class C. Class C fires are electrical fires and a non-conducting agent must be used. Carbon dioxide and dry chemical extinguishers are to be used. Never use foam or water-type extinguishers on these fires.

- Class D. Combustible metals, such as magnesium, titanium, zirconium and sodium fires are class D. These fires require specialized techniques to extinguish them. None of the common extinguishers should be used since they can increase the intensity of the fire by adding an additional chemical reaction.

There are only two dry chemical extinguishers that can be used on A, B, and C fires, and those are multi-purpose ABC extinguishers, either stored pressure or cartridge operated. Multi-purpose extinguishers (ABC) will handle all A, B, and C fires. All fire extinguishers are labeled with either ABC, or A, or B, or C.

It is important to know what type of fire is in progress. If you use a fire extinguisher, be sure to use one only on fires for which that fire extinguisher is designed. Using the wrong agent on a fire may increase the intensity of the fire. Check the label on the fire extinguisher; it should list the fire class(es) it is meant to put out.

Fire Protection Equipment

Fire protection equipment, selected and purchased by Safety Representative, Safety Manager, in use at this company includes the following extinguishers to protect from the various types of fire hazards.

- Type of Fire: A, combustibles like wood, paper, etc.
  Type of Extinguisher: A or ABC, water or dry chemicals

- Type of Fire: B, flammable liquids, gases and greases
  Type of Extinguisher: B or ABC, foam, carbon dioxide, dry chemicals

- Type of Fire: C, electrical fires
  Type of Extinguisher: C or ABC, non-conducting agent such as carbon dioxide and dry chemicals

- Type of Fire: D, combustible metals such as titanium and sodium.
  Type of Extinguisher: This type of fire calls for specialized techniques for which the fire department will be called.

Maintenance of Fire Protection Equipment

Once hazards are evaluated and equipment is installed to control them, that equipment must be monitored on a regular basis to make sure it continues to function properly. The following personnel are responsible for maintaining equipment and systems installed to prevent or control fires:

Only Properly Trained Employees or Vendors are to inspect and recharge Fire Extinguishers.

These individuals follow strict guidelines for maintaining the equipment. Fire extinguishers are inspected on a monthly basis with each receiving an annual hydrostatic test.

Housekeeping Procedures

Our company controls accumulations of flammable and combustible waste materials and residues so that they do not contribute to a fire.

The following procedures have been developed to eliminate or minimize the risk of fire due to improperly stored or disposed of materials.

1. All aisles, emergency exits, fire extinguishers, eye wash stations, etc., will be kept clear (a minimum of three feet in front of and to either side) of product storage, material storage, fork trucks and pallet jacks at all times.
2. Storage areas will be maintained orderly at all times. When supplies are received, the supplies will be stored properly.
3. Spills will be cleaned-up immediately and wastes disposed of properly.
4. All process leaks will be reported to supervision and maintenance for immediate repair and clean-up.
5. All refuse and waste materials will be placed in the recognized waste containers for disposal keeping floor free of paper or saw dust, storing oily rags in specially designed containers, storing all flammables in fire cabinets when not in use
6. At the end of the business day, turn off all office equipment (area heaters, lamps, coffee-maker, PCs, etc.) and lights to save energy and prevent fires. All space heaters be un-plugged at the end of the day to assure they have been turned-off.

Training

At the time of a fire, employees should know what type of evacuation is necessary and what their role is in carrying out the plan. In cases where the fire is large, total and immediate evacuation of all employees is necessary. In smaller fires, a partial evacuation of nonessential employees with a delayed evacuation of others may be necessary for continued plant operation. We must be sure that employees know what is expected of them during a fire to assure their safety.

This document is not one for which casual reading is intended or will suffice in getting the message across. If passed out as a statement to be read to oneself, some employees will choose not to read it, or will not understand the plan's importance. In addition, training on the plan's content is required by OSHA.

A better method of communicating the fire prevention plan is to give all employees a thorough briefing and demonstration. Romer Utility Services has chosen to train employees through presentation followed by a drill. Our local fire department requires one or more fire drill(s) each year, so we cover related FPP information at that time.

A better method of communicating the fire prevention plan is to give all employees a thorough briefing and demonstration. Safety Representative has all managers and supervisors present the plan to their staffs in small meetings.

Training, conducted on initial assignment, includes:

- What to do if employee discovers a fire
- Demonstration of alarm, if more than one type exists
- How to recognize fire exits
- Evacuation routes
- Assisting employees with disabilities
- Measures to contain fire (e.g., closing office doors, windows, etc. in immediate vicinity)
- Head count procedures (see EAP for details)
- Return to building after the "all-clear" signal

The employer must inform employees of the fire hazards of the materials and processes to which they are exposed.

The employer shall review with each employee upon initial assignment those parts of the fire prevention plan which the employee must know to protect the employee in the event of an emergency.

The written plan shall be kept in the workplace and made available for employee review. For those employers with 10 or fewer employees, the plan may be communicated orally to employees and the employer need not maintain a written plan.

If the Safety Manager has reason to believe an employee does not have the understanding required, the employee must be retrained. The Safety Manager certifies in writing that the employee has received and understands the fire prevention plan training.

Because failure to comply with company policy concerning fire prevention can result in OSHA citations and fines as well as employee injury, an employee who does not comply with this program will be disciplined.

Fire Prevention Equipment

The Safety Manager/supervisor provides training for each employee who is required to use fire prevention equipment. Employees shall not use fire prevention equipment without appropriate training. Training, before an individual is assigned responsibility to fight a fire, includes:

- Types of fires
- Types of fire prevention equipment
- Location of fire prevention equipment
- How to use fire prevention equipment
- Limitations of fire prevention equipment
- Proper care and maintenance of assigned fire prevention equipment and

Employees must demonstrate an understanding of the training and the ability to use the equipment properly before they are allowed to perform work requiring the use of the equipment.

If the Safety Manager has reason to believe an employee does not have the understanding or skill required, the employee must be retrained. The Safety Manager certifies in writing that the employee has received and understands the fire prevention equipment training. Employees will be retrained annually on fire safety, including the use of fire extinguishers.

First Aid Program

Purpose

Romer Utility Services is dedicated to the protection of its employees from on-the-job injuries and illnesses. However, when injuries or illnesses do occur, we are prepared to see that the needs of the injured or ill are met.

This written First Aid Program is intended to ensure that Romer Utility Services meets the requirements of 29 CFR 1910.151, Medical Services and First Aid.

Administrative Duties

Safety Representative, our First Aid Program Administrator, is responsible for establishing and implementing the written First Aid Program. This person has full authority to make necessary decisions to ensure the success of this program. Copies of this written program may be obtained from Safety Manager in his office. If after reading this program, you find that improvements can be made, please contact Safety Representative, we encourage all suggestions because we are committed to the success of this written program.

Company Policy

In the absence of an infirmary, clinic, or hospital in near proximity to the workplace which is used for the treatment of all injured employees, a person or persons are adequately trained to render first aid and adequate first aid supplies are readily available.

The Company provides a First Aid Kit on the premises. It is there for employee's use in the treatment of minor scratches, burns, headaches, nausea, etc. All employees shall know the location of the First Aid Kit and shall notify their supervisor if they need to use the First Aid Kit.

If an employee has a work-related injury or illnesses that requires professional medical assistance, they shall notify their supervisor and let him/her know before they receive this assistance. If they fail to notify their supervisor, they may be ineligible for Worker's Compensation, benefits to pay for doctor's bills, and/or lost wages.

The Safety Manager shall inspect First Aid Kits before the kits are sent out to each area, and on a weekly basis to insure that they are filled and complete

In all cases requiring emergency medical treatment, immediately call, or have a co-worker call, to request emergency medical assistance.

Refer to the "Emergency Medical Treatment" section of this program for a list of Romer Utility Services personnel who are trained in CPR and First Aid.

Minor First Aid Treatment

First aid kits are stored in the main office building and in each company vehicle. If an employee sustains an injury or are involved in an accident requiring minor first aid treatment, they shall:

- Inform their supervisor.
- Administer first aid treatment to the injury or wound.
- If a first aid kit is used, indicate usage on the accident investigation report.
- Access to a first aid kit is not intended to be a substitute for medical attention.
- Provide details for the completion of the accident investigation report.

Non-Emergency Medical Treatment

For non-emergency work-related injuries requiring professional medical assistance, management must first authorize treatment. If an employee sustains an injury requiring treatment other than first aid, they shall:

- Inform your supervisor.
- Proceed to the posted medical facility. Your supervisor will assist with transportation, if necessary.
- Provide details for the completion of the accident investigation report.

Portable eye wash stations shall be used in the event an employee accidentally spills or splashes injurious chemicals or liquids on their clothing or body. Employees shall notify their supervisor if they use an eye wash station.

Emergency Medical Treatment

If an employee sustains a severe injury requiring emergency treatment:

- Call for help.
  Fixed line telephones and mobile or cellular phones are available to contact emergency medical service.

- Use the emergency telephone numbers and instructions posted next to the telephone in your work area to request assistance and transportation to the local hospital emergency room.

- Provide details for the completion of the accident investigation report.

The nearest hospital, clinic, Concentra Medical Center, is located at

That means that Concentra Medical Center is considered in near proximity because it is within three to four minutes away. When hazards or locations change, the following personnel have been trained in CPR and First Aid should the injured/ill employee ***not*** be in "near proximity" to a hospital or clinic. First Aid providers are required to have a valid first aid certificate from appropriate agency. All Roemer Utility employees are trained annually on first aid and CPR.
Refer to the company's Emergency Action Plan for a complete list of emergency telephone numbers.

First Aid Supplies and Equipment

It is important that our first aid supplies and equipment meet the specific needs of our worksite. Safety Representative, Safety Manager has ensured that adequate first aid supplies are readily available, including:

- Variety of bandages, compresses, and gauze pads
- Antiseptic swabs
- Burn treatments
- Adhesive tape
- Latex or similar gloves
- Eye dressing
- Eyewash solution
- Instant cold packs
- Antibiotic cream
- Ammonia inhalants

The contents of the first aid kit shall be placed in a weatherproof container with individual sealed packages for each type of item. They are located in designated areas and each company vehicle.

Safety Representative, checks the first aid supplies. The contents of the first-aid kit shall be checked by the employer before being sent out on each area and at least weekly on each job to ensure that the expended items are replaced. Supplies are replaced promptly when expended.

Program Evaluation

By having Safety Representative, thoroughly evaluate and, as necessary, revise our program, we ensure our program's effectiveness and prevent or eliminate any problems. Program evaluation is performed annually.

Fit For Duty

A. Policy Statement

Roemer Utility Services is committed to providing a safe workplace for the benefit of all Roemer Utility Services employees. In order to provide a safe work environment, employees must be able to perform their job duties in a safe, secure, productive, and effective manner, and remain able to do so throughout the entire time they are working. Employees who are not fit for duty may present a safety hazard to themselves, to other employees.

B. Scope

This policy applies to all Roemer Utility Services employees.

C. Purpose

The purpose of this policy is to establish procedures by which the Roemer Utility Services will evaluate an employee's fitness for duty when an employee is:

1. Policy is reviewed at the time of orientation

2. Having observable difficulty performing work duties in a manner that is safe for the employee, for the employee's co-workers, for the Company, as determined by the supervisor; or

3. Posing an imminent and serious safety threat to self or others.

D. Definitions

Fit for duty *means able to perform the duties of the job in a safe, secure, productive, and effective manner.*

Health service provider *is a doctor of medicine or osteopathy, dentist, podiatrist, clinical psychologist, optometrist, nurse practitioner, nurse-midwife, or a licensed clinical social worker that is authorized to practice in the state of Michigan or in the state the person resides for persons who reside outside the state of Michigan.*

Supervisor *means the person to whom they report to on a daily basis.*

E. Employee Responsibilities

1. Employees are responsible for managing their health in a manner that allows them to safely perform and Physically capable to perform their job responsibilities.

2. Employees must come to work fit for duty and must perform their job responsibilities in a safe, secure, productive, and effective manner during the entire time they are working.

3. Employees are responsible for notifying their supervisors when they are not fit for duty and if they are taking prescriptions or over the counter medication that may impair their ability to work safely.

4. Employee must notify their supervisor if they are feeling fatigued to the point of not being able to perform their duties safely.

5. Employees are prohibited from entering the workplace while under the influence of drugs or alcohol. Alcohol screening for pre-employment, post-accidents, or random as prescribes by the host facility.

6. Employees are responsible for notifying the supervisor when they observe a coworker acting in a manner that indicates the coworker may be unfit for duty. If the supervisor's behavior is the focus of concern, an employee may inform the upper level manager or may call the on-site safety representative. If needed the Employee Assistance Program (EAP) will be contacted for further guidance.

F. Employer Responsibilities

1. Supervisors are responsible for observing and monitoring unsafe behaviors the attendance, performance and possible removal from jobsite of the employees they supervise.

2. Supervisors/managers are responsible for following this policy's procedures when presented with circumstances or knowledge that indicate that an employee may be unfit for duty.

3. Confidentiality of medical records

Any document containing medical information about an employee is considered a medical record and is regarded as confidential. The Employee Assistance Program will maintain medical records in a file separate from all other employee records.

G. Procedures

1. The supervisor who receives reliable information that an employee may be unfit for duty, or through personal observation believes an employee to be unfit for duty, will validate and document the information or observations as soon as is practicable. Actions that may trigger the need to evaluate an employee's fitness for duty include, but are not limited to, problems with dexterity, coordination, concentration, memory, alertness, vision, speech, inappropriate interactions with coworkers or supervisors, inappropriate reactions to criticism, or suicidal or threatening statements.

2. The supervisor will present the information or observations to the employee at the earliest possible time in order to validate them; and will allow the employee to explain his or her actions, or to correct any mistakes of fact contained in the description of those actions. The supervisor will then determine whether the employee should leave the workplace immediately for safety reasons.

3. In situations where there is a basis to think that a crime may have been committed and/or the employee is making threats to harm himself or herself or others, or is acting in a manner that is immediately dangerous to himself or herself or others, the supervisor shall contact the EAP regarding the fitness for duty procedure after the immediate safety issue has been addressed.

4. In all other circumstances the supervisor shall take appropriate action, including contacting the main office during the 8:00 a.m. to 5:00 p.m. workday, as soon as possible after he or she receives reports and validates or personally observes an employee's unfit behavior. (For situations arising outside the 8:00 a.m. to 5:00 p.m. workday, the supervisor/manager will make a determination of whether the employee should leave the workplace immediately for safety reasons. The main office should then be contacted at the beginning of the next business day.)

5. Based on the descriptions provided by the supervisor, The Main office or their representative will determine whether a fitness for duty evaluation is required and, if so, the type of evaluation needed and the type of health service provider to make the evaluation.

6. The designated health service provider will certify whether the employee is fit to return to work. The health service provider form will include a behavioral description of the circumstances leading to the request for evaluation, and a list of the employee's relevant duties.

7. In most cases, the employee will be responsible for the cost of the fitness for duty evaluation not covered by the employee's health plan.

8. Based on information provided by the health service provider, Health Care provider will advise the supervisor whether the employee should return to work and, if so, the conditions of return, including whether the employee must attend a reentry conference with the supervisor and Health Care Professional, and whether additional follow-up meetings are necessary. The final decision on whether a provider's certification will be accepted lies with the employee's departmental management. A second independent health service provider certification may be requested in some cases.

9. The employee must comply with all aspects of the fitness for duty and evaluation procedures, including furnishing necessary consent and release forms to the health service provider. Noncompliance may be grounds for disciplinary action up to and including termination. Information will be requested from the health service provider regarding work restrictions that may be required upon the employee's return to work

10. Application of this policy is not intended as a substitute for other Roemer Utility Services policies or procedures related to performance; nor are it intended as a substitute for discipline. Situations involving violations of Roemer Utility Services policies or practices may result in disciplinary action being taken.

Forklift Program: Inspection & Safe Operation

It's hard to imagine any tool more important to materials handling than the powered industrial truck-the forklift. Like many companies, Romer Utility Services relies on these versatile vehicles to load, unload, and move stock and other materials.

This written Forklift Operation Program establishes guidelines to be followed whenever any of our employees work with powered industrial trucks at this company. The rules established are to be followed to:

- Provide a safe working environment,
- Govern operator use of powered industrial trucks, and
- Ensure proper care and maintenance of powered industrial trucks.

The procedures here establish uniform requirements designed to ensure that powered industrial truck safety training, operation, and maintenance practices are communicated to and understood by the affected employees. These requirements also are designed to ensure that procedures are in place to safeguard the health and safety of all employees.

It is our intent to comply with the requirements of OSHA's 29 CFR 1926.600, 1926.602(c), and 1926.441 for construction activities. These regulations have requirements for powered industrial truck operations, including that for battery care and charging. We also comply with applicable requirements of design, construction, stability, inspection, testing, maintenance, and operation of ASME/ANSI B56.1-1969, Safety Standard for Low Lift and High Lift Trucks. However, the powered industrial trucks we operate in our storage and maintenance yards and warehouses comply with 29 CFR 1910.176 and 1910.178.

Administrative Duties

Safety Representative, is our Forklift Operation Program Coordinator, who has overall responsibility for the plan. Copies of this written program may be obtained from the Safety Manager's office.

Training

The Safety Manager will identify all new employees in the employee orientation program and make arrangements with department management to schedule training.

Before we begin training a new employee, our Forklift Operation Program Administrator, Safety Representative and/or the Area Supervisor, determines if the potential powered industrial truck operator is capable of performing the duties necessary to be a competent and safe driver. This is based upon his/her physical and mental abilities to perform job functions that are essential to the operation of the vehicle.

These capabilities include the level at which the operator must:

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

Once our Administrator determines that a potential operator is capable of performing powered industrial truck duties, the following person(s) will conduct initial training and evaluation: Safety Manager and/or Area Supervisors. These instructor(s) have the necessary knowledge, training, and experience to train new powered industrial truck operators.

Initial Training

During an operator's initial training, the instructor(s) combine(s) both classroom instruction and practical training.

Our classroom instruction includes the following formats:

- Lecture
- Discussion
- Video
- Handouts

Classroom instruction, itself, covers the following topics:

TRUCK-RELATED:

- Operating instructions, warnings, and precautions for the types of trucks the operator will be authorized to operate;
- Differences between the truck and automobiles;
- Truck controls and instrumentation: where they are located, what they do, and how they work;
- Engine or motor operation;
- Steering and maneuvering;
- Visibility (including restrictions due to loading);
- Fork and attachment adaptation, operation, and use limitations;
- Vehicle capacity;
- Vehicle stability;

- Any vehicle inspection and maintenance that the operator will be required to perform;
- Refueling and/or charging and recharging of batteries;
- Operating limitations;
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.

WORKPLACE-RELATED:

- Surface conditions where the vehicle will be operated;
- Composition of loads to be carried and load stability;
- Load manipulation, stacking, and unstacking;
- Pedestrian traffic in areas where the vehicle will be operated;
- Narrow aisles and other restricted places where the vehicle will be operated;
- Hazardous locations where the vehicle will be operated;
- Ramps and other sloped surfaces that could affect the vehicle's stability.
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation.

Our practical training includes these formats:

TRUCK-RELATED:

- Operating instructions, warnings, and precautions for the types of trucks the operator will be authorized to operate;
- Differences between the truck and automobiles;
- Truck controls and instrumentation: where they are located, what they do, and how they work;
- Engine or motor operation;
- Steering and maneuvering;
- Visibility (including restrictions due to loading);
- Fork and attachment adaptation, operation, and use limitations;
- Vehicle capacity;
- Vehicle stability;
- Any vehicle inspection and maintenance that the operator will be required to perform;
- Refueling and/or charging and recharging of batteries;
- Operating limitations;
- Any other operating instructions, warnings, or precautions listed in the operator's manual for the types of vehicle that the employee is being trained to operate.

WORKPLACE-RELATED:

- Surface conditions where the vehicle will be operated;
- Composition of loads to be carried and load stability;
- Load manipulation, stacking, and unstacking;
- Pedestrian traffic in areas where the vehicle will be operated;
- Narrow aisles and other restricted places where the vehicle will be operated;
- Hazardous locations where the vehicle will be operated;
- Ramps and other sloped surfaces that could affect the vehicle's stability.
- Closed environments and other areas where insufficient ventilation or poor vehicle maintenance could cause a buildup of carbon monoxide or diesel exhaust;
- Other unique or potentially hazardous environmental conditions in the workplace that could affect safe operation. All powered industrial truck operators are trained and tested on the equipment they will be driving before they begin their job.

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

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

If each potential operator has received training in any of the elements of our training program, and is evaluated to be competent, they need not be retrained in those elements before initial assignment in our workplace. The training must be specific for the types of trucks that employee will be authorized to operate and for the type of workplace in which the trucks will be operated.

Training Certification

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

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

Performance Evaluation

Each certified powered industrial truck operator is evaluated at least once every 3 years to verify that the operator has retained and uses the knowledge and skills needed to drive safely. This evaluation is done by Safety Manager and/or Area Supervisor. If the evaluation shows that the operator is lacking the appropriate skills and knowledge, the operator is retrained by our instructor(s).

Refresher Training

Refresher training is triggered by any of the following situations:

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

Current Certified Truck Operators

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

Pre-Operational Inspection Procedures

The company requires operators to perform pre-operational equipment checks on powered industrial trucks prior to the beginning of each shift in which those trucks will be utilized to ensure the safe operating condition of the vehicle. The pre-operational check is performed by completing a daily truck inspection checklist. See an attached sample form. A supply of these forms is provided in each charging and parking area within user areas.

No blank spaces are allowed on the form. If an item does not apply, we use the code N/A. We also require that operators fill out the comment section thoroughly and accurately if there are any operational or visual defects. That way our Maintenance Department can pinpoint and repair the problem before the truck becomes unsafe to operate.

Our pre-operational inspection procedures used by operators include:

- If a completed checklist form is not present on the powered industrial truck, then the truck may not be operated until a checklist is completed.

- If the powered industrial truck is safe to operate, the operator must:

- Place the completed checklist form in the holder provided on the vehicle. The checklist must remain in the vehicle's holder for the duration of the shift. This serves as a visual notice to all area operators that this piece of equipment was inspected at the beginning of the shift and may be used during the shift without another inspection.

- At the end of the shift, operators must turn the checklist in to the department/area manager or supervisor. The manager or supervisor is responsible for reviewing the checklists for accuracy, completeness, and any noted defects.

If the powered industrial truck is unsafe to operate, the operator is to:

- Remove the key from the powered industrial truck;
- Place a DANGER DO NOT OPERATE tag on the steering wheel or control lever of the powered industrial truck;
- Report the problem to his/her immediate supervisor;
- Not use the truck until the problem has been identified and fixed. No one else may use the truck until the problem has been identified and fixed.

Appropriate disciplinary action will be enforced for anyone violating this policy. Area Supervisor is responsible for retaining all daily truck inspection checklist forms for each vehicle for 6 months.

Periodic Inspection Procedures

Periodic inspections are in conjunction with the particular powered industrial truck's maintenance or service schedule. Maintenance schedules are normally expressed in days and operating or running hours. Qualified Maintenance Personnel perform(s) inspection and maintenance monthly. Most manufacturers' operator instruction manuals contain the recommended maintenance schedule. Inspections and maintenance or repair beyond the recommended service schedules are done by authorized workshops and/or service technicians.

See an attached sample of our periodic truck inspection checklist. A supply of these forms is provided in each charging and parking area within user departments. Maintenance Department is responsible for retaining all periodic truck inspection checklist forms for each vehicle.

Operating Procedures

Powered industrial trucks can create certain hazards that only safe operation can prevent. That's why we have created sets of operating procedures. Our operating procedures follow.

Driving

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

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

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

Although structurally different than cars, powered industrial trucks, like cars, can collide with property and people. Therefore, it is our policy for all operators to follow these driving procedures:

- Use only powered industrial trucks approved for the location of use.
- Only start/operate a powered industrial truck from the designated operating location.

- Observe all traffic regulations, including plant speed limits and keeping to the right.
- Yield the right of way to pedestrians and emergency vehicles.
- Maintain safe distances from powered industrial trucks ahead (typically three truck lengths).
- Travel at speeds that will permit vehicles to stop safely at all times, under all road and weather conditions.
- Avoid quick starts/changes of direction.
- Turns must be negotiated by reducing speed and turning the steering wheel with a smooth, sweeping motion.
- Maintain forks in proper position.
- Drive properly in reverse.
- Cross railroad tracks at an angle, never a right angle.
- Do not engage in stunt driving and horseplay.
- Drive slowly over wet or slippery floors.
- When the forks are empty, travel with the forks at a negative pitch as low to the floor as practical. Adjust the height of the forks to a safe level when the operating terrain warrants.
- When operating a narrow aisle reach truck that is unloaded, do not travel until the forks are fully retracted and positioned at a negative pitch as low to the floor as practical.
- Approach elevators slowly and squarely. Once on an elevator, neutralize controls, shut off power, and set the brakes.
- Direct motorized hand trucks into elevators with loads facing forward.

- Do not run over loose objects on roadway surfaces.

- Slow down and sound the horn and look at intersections, corners, and other locations where vision is obstructed.

- Do not pass other trucks traveling in the same direction at intersections, blind spots, or other dangerous locations.

- Maintain a clear view of the direction of travel at all times. Look in direction of travel.

- Keep unauthorized personnel from riding on powered trucks, and provide a safe place to ride where riding on trucks is authorized.

- Keep all body parts within truck.

- Do not allow anyone to place their arms or legs between the uprights of the mast or outside the running lines of the truck.

- Do not drive trucks up to anyone standing in front of a bench or other fixed object.

- A vehicle is considered "unattended" when an operator is 25 feet or more away from a vehicle which remains in view, or whenever an operator leaves a vehicle and it is not in view. Unattended trucks must be secured by:

  - Fully lowering forks or other attachments (when unloaded, tilt the forks forward first and then lower them to the ground until the tips of the forks come in contact with the ground;
  - Neutralizing controls;
  - Shutting off power; and
  - Setting brakes.
  - Secure trucks when dismounted operators are within 25 feet of a vehicle still in view by:

- Fully lowering the load;
- Neutralizing controls; and
- Setting brakes.

– Be aware of headroom under overhead installations, lights, pipes, door beams, and sprinkler systems.

– Do not block access to fire or emergency exits, stairways, fire equipment, or electrical panels.

– Sound the horn or other audible warning device at all intersections and corners to warn pedestrians.

– Maintain safe distances from the edges of ramps or platforms while on any elevated dock, platform, or freight car.

– Duckboards and bridge plates must be secured before vehicles cross over them. Be sure they do not exceed rated weight limits.

– When ascending or descending a grade or incline:

– Proceed slowly and with caution;

– Tilt or raise the forks and attachments only as far as necessary to clear the road surface; and

– Sound the horn before ascending or descending.

– Do not park on inclines, ramps, or dock plates. If you must park on an incline, block the wheels.

– Do not use powered industrial trucks for any purpose other than what they were designed.

– Clean up all fluid leaks (oil, hydraulic, transmission, etc.) from the floor.

- Do not operate a powered industrial truck with a leak in the fuel system until the leak has been corrected.

- If the warning device (like a warning lamp or sound-producing device) comes on, stop the truck as soon as possible.

- Follow manufacturer's recommended emergency procedures for fire or tip over and be familiar with manufacturer's emergency equipment.

- Do not modify a powered industrial truck.

- Report all powered industrial truck accidents involving employees, building structures, and equipment to department management.

Load Lifting and Carrying

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

- Handle loads only within the capacity rating of the truck.

- Use a forking system which suits the load.

- Do not allow anyone to stand or pass under the elevated portion of any truck whether empty or loaded.

- Do not start a powered industrial truck or operate any of its functions or attachments from any position other than from the designated operator's position.

- Keep a clear view of the path of travel and look for other traffic, personnel and safe clearances. If the load being carried obstructs forward view, travel with the load trailing.

- When traveling with a load on the forks, travel with the load as low to the floor as practical with the load tilted back slightly for improved stability.

- When ascending or descending a grade or incline:

    - Drive with the load positioned upgrade or uphill when the truck is loaded.

- When unloading or loading semi-trailers:

    - Engage dock lock mechanism and light before entering the trailer.
    - Check condition of dock leveler plate and trailer floor before entering.
    - Set the brakes of the semi-tractor.
    - Chock the rear wheels of the trailer prior to loading or unloading.

- When unloading or loading the 28-foot trailers:

    - Engage dock lock mechanism and light before entering the trailer.
    - Check condition of dock leveler plate and trailer floor before entering.
    - Be sure the semi-tractor is coupled to the trailer, or the fixed jack on the front of the trailer is lowered to the ground to prevent these two trailers from tipping forward.
    - Set the brakes of the semi-tractor.
    - Chock the rear wheels of the trailer.

- Use the following backup procedure and sequence:
    - Pivot at the waist and inspect the area of operation in the rear of the fork truck, watching for obstructions and pedestrians.
    - Blow the horn to alert any pedestrians that may or may not be visible.
    - Engage the directional lever to the reverse position.
    - Concentrate on the removal of the forks from the load to avoid any load disturbance, as you back the fork truck out of the load.
    - Stop the fork truck 18” to 24” away from the load’s resting location and lower the forks to the proper travel height and angle.
- During load placement:
    - Square the fork truck with the load resting location.
    - Stop the fork truck 18” to 24” away from the load resting location.
    - Raise the load to proper entry height.
    - Drive forward with the load and position the load over its resting location.
    - Lower the load to a height of 4” if possible.
    - Tilt the load forward to a level position.
    - Lower the load to its resting platform.
    - Back up the unit using proper back up procedures and sequence.
- Do not attempt to move loads with broken pallets.
- During load retrieving:

- Tie together unstable loads.
- Square the fork truck with the load resting location.
- Stop the fork truck 18" to 24" away from the load resting location.
- Raise the forks to eye level and level the forks to a horizontal position.
- Raise the forks to the proper entry height.
- Slide the forks into the load and maintain the clearance around the forks to avoid load disturbance. Be sure to place the heaviest part of the load closest to the backrest.
- Raise the load so it is completely suspended from its resting platform. Be sure to support and center the load so that it will not fall forward or sideways.
- Tilt the load back.
- Visually inspect the rear area of the fork truck to ensure no pedestrians are behind or around the unit.
- Back up the unit using proper back up procedures and sequence.
- Back up the fork truck 18" to 24" and stop.

– Know the load limits of elevators.

– Whenever a truck is equipped with vertical only, or vertical and horizontal controls elevatable with the lifting carriage or forks for lifting personnel, use these precautions:
  - Use a safety platform that is firmly secured to the lifting carriage and/or forks.
  - Provide a way for the person on the platform to shut off power to the truck.

- Provide protection from falling objects.

Fuel Handling and Storage

Some of our powered industrial trucks operate with highly flammable and combustible fuels.

The storage and handling of liquid fuels, including gasoline and diesel fuel are done in accordance with NFPA Flammable and Combustible Liquids Code (NFPA 30-1969).

The storage and handling of liquefied petroleum gas fuel is done in accordance with NFPA Storage and Handling of Liquefied Petroleum Gases (NFPA 58-1969). All employees who handle or use flammable liquids are instructed by Safety Manager and/or Area Supervisors in their safe handling and use and made aware of the specific OSHA requirements for what they are doing with the liquids. More specifically, employees are instructed in the following procedures:

- The storage and handling of liquid fuels such as gasoline and diesel fuel shall be in accordance with NFPA Flammable and Combustible Liquids Code (NFPA No. 30-1969), which is incorporated by reference as specified in 29 CFR 1910.6.
- The storage and handling of liquefied petroleum gas fuel shall be in accordance with NFPA Storage and Handling of Liquefied Petroleum Gases (NFPA No. 58-1969), which is incorporated by reference as specified in 29 CFR 1910.6. General industry employers may also find more information under 29 CFR 1910.106 and 1910.110.

Construction employers may find more information under 29 CFR 1926.152 and 1926.153.

If your employees are required to handle or use flammable liquids they must be instructed in their safe handling and use and be made aware of the specific OSHA requirements for the tasks they perform with the liquids. Here are some good fuel

storage and handling procedures you can use:

- Never smoke in fueling areas.
- Prevent open flames, sparks, or electric arcs while fueling.
- Never fuel a powered industrial truck while the engine is running.
- Keep solvent waste, oily rags, and flammable liquids (liquids having a flashpoint below 140 deg. F and capable of being easily ignited, burning intensely, or having a rapid rate of flame spread) in fire resistant covered containers until removed from the workplace.
- To change an liquid petroleum (LP) gas tank:
  - Put on leather work gloves and goggles.
  - Disconnect powered industrial truck valve from the empty LP cylinder.
  - Replace with full cylinder.

    NOTE: The pin on the lift truck must fit into the cut-out hole(s) provided on the LP cylinder. This is required by law.
  - Strap in the cylinder and re-connect the truck valve securely to the cylinder outlet.
  - Open cylinder valve and listen for leaks.
  - If leaking, close cylinder valve and slowly uncouple the fuel valve. Try to re-connect. If still leaking, try a different cylinder and notify department management of faulty cylinder.
  - If no leaks are present, lift truck may be utilized.

Battery Charging and Changing

Batteries present a hazard because they contain corrosive chemical solutions, either acid or alkali. During recharging, a worker may be exposed not only to the acid solution but also to hydrogen gas that is produced during the recharging process. Because of the hazards involved in battery charging and changing, only personnel who have been trained in the appropriate procedures, understand the dangers involved, and know the appropriate precautions to take may be allowed to perform this work.

We have an area in our facility specifically for charging or changing batteries. This area is separate from the main aisles.

Good housekeeping procedures are essential. We keep the area clean and free of any combustible materials. We also maintain a moderate temperature range suitable for battery maintenance.

Romer Utility Services has installed the following safety features:

- An eyewash station for workers.
- A hose and floor drain for flushing and neutralizing spilled electrolyte.
- The charging apparatus is protected to prevent damage from vehicles.
- Because we use on-board chargers, our designated charging area meets the electrical requirements of the charger and facility for fire protection.

Smoking is prohibited in charging areas. Battery charging generates hydrogen gas that may present an explosion hazard. This precaution also applies to open flames, sparks, or electric arcs. An effective means of fire protection must be provided in the area.

Electric lift trucks are an excellent choice for moving materials inside a facility. They are much cleaner and quieter than trucks propelled by liquid fuels and they do not create a carbon monoxide hazard. This type of vehicle, however does have potentially dangerous situations associated with it—hazards that occur during battery recharging or changing.

There are two types of batteries that are commonly used in electric lift trucks: lead and nickel-iron. These batteries present a hazard because they contain corrosive chemical solutions, either acid or alkali.
If battery acid is splashed on a person, it will burn the skin; if splashed in the eyes, it can cause blindness; and if it gets on clothing, it will eat holes in it. During recharging, a worker may be exposed not only to the acid solution, but to hydrogen gas which is produced during the recharging process. Hydrogen gas may present an explosive hazard. Therefore, smoking, open flames, sparks, and electric arcs are prohibited in charging areas. An effective means of fire protection must be provided in the area. Because of the hazards involved in battery charging and changing, only personnel who have been trained in the appropriate procedures, understand the dangers involved, and know the appropriate precautions to take should be allowed to perform this work.

Due to the hazards above, it is necessary for the company to:

- Provide battery charging installations located in areas designated for that purpose.
- Provide fire protection, in the form of a fire extinguisher or standpipe system.
- Provide for quick drenching of the eyes and body within 25 feet of battery handling areas.
- Provide facilities for flushing and neutralizing spilled electrolyte.
- Provide a means of protecting charging apparatus from damage by trucks.

- Ventilate the battery charging area to prevent the build-up of hydrogen gas.

- Treat racks and trays to make them resistant to electrolyte in the battery handling area.

- Provide acid resistant floors in the battery handling area unless protected from acid accumulations.

- Provide a conveyor, overhead hoist, or equivalent material handling equipment for handling batteries.

- Provide appropriate personal protective equipment like eye and face protection, gloves, protective footwear, long-sleeved shirts, and aprons.

- Provide an easily accessible first aid kit in the charging/changing area.

Here are some good battery charging/changing procedures:

- When removing battery covers to add or inspect electrolyte levels, wear proper goggles, face shield, rubber gloves, and an apron. Protective equipment is not required when filling batteries equipped with an automatic filler.

- Wear appropriate foot protection where there is the risk of foot injury.

- If the powered industrial truck is not put on a charge during off shifts or weekends, disconnect the battery plug from the truck plug. NOTE: During normal production operation, the powered industrial truck may remain plugged into the battery when left unattended.

- Do not smoke in the battery charging area.

- Wear hearing protection in the battery charging area if necessary.

- Prevent open flames, sparks, and electric arcs in the battery charging area.

- Keep tools and other metallic objects away from the tops of uncovered batteries.
- Keep the charging area clean.
- Keep the charging area work surface dry and slip-resistant.
- When batteries are being charged, keep the vent caps in place to avoid electrolyte spray.
- Take care to assure that vent caps are functioning. The battery (or compartment) cover(s) must be open to dissipate heat.
- When charging batteries, acid must be poured into water; water must not be poured into acid.
- Provide carboy tilter or siphon for handling electrolyte.
- Clean up spilled materials or liquids in the charging area immediately.
- Test all non-supervised fire alarm systems near battery charging/changing areas bimonthly.
- Test all supervised fire alarm systems (ones that have a device to indicate a system malfunction) yearly.
- Always use a battery replacement that is within the weight range specified on the nameplate of the truck in order to maintain vehicle stability.
- Properly position and secure reinstalled batteries to the truck.
- Securely position and set the brakes of a truck before attempting to change or charge the battery.
- Ensure that all workers in the immediate area of the changing area stay clear when the battery is moved.

- Know where the eyewash station is located.
- Know where the first aid kit is located.

Carbon Monoxide Awareness

Powered industrial trucks with internal combustion engines produce carbon monoxide (CO), an odorless, colorless, and deadly gas produced by the incomplete burning of any material that contains carbon. These materials include gasoline, natural gas, propane, coal, and wood. The most common source of CO is the internal combustion engine. Trucks, cars, forklifts, floor polishers, pressure washers, or any other machine powered by fossil fuels generates CO.
If inhaled, CO restricts the ability of your blood system to carry oxygen to the body tissues that need it. Overexposure combined with less oxygen results in carbon monoxide poisoning. Mild poisoning can result in headaches, tightness in the chest, dizziness, drowsiness, inattention, fatigue, flushed face, or nausea. If you continue exposure lack of coordination, confusion, weakness, or loss of consciousness may result. A heart condition, smoking, taking drugs or alcohol, and pregnancy can aggravate CO poisoning. Physical activity, too, can make a situation worse. That's because your body needs more oxygen to exert itself. Severe poisoning can kill you within minutes, sometimes without warning symptoms. The more CO there is in the air and the longer the exposure, the greater the danger.

We use these procedures to spread carbon monoxide awareness, reduce CO levels, and prevent CO illness:

DEFINITION OF CO: an odorless, colorless, and deadly gas common in many workplaces and produced by the incomplete burning of any material that contains carbon. These materials include gasoline, natural gas, propane, coal, and wood. The most common source of CO is the internal combustion engine. Trucks, cars, forklifts, floor polishers, pressure washers, or any other machine powered by fossil fuels generates CO.

SYMPTOMS OF CO POISONING

If inhaled, CO restricts the ability of your blood system to carry oxygen to the body tissues which need it. Overexposure combined with less oxygen results in carbon monoxide poisoning. Mild poisoning can result in headaches, tightness in the chest, dizziness, drowsiness, inattention, fatigue, flushed face, or nausea. If you continue exposure lack of coordination, confusion, weakness, or loss of consciousness may result.

A heart condition, smoking, taking drugs or alcohol, and pregnancy can aggravate CO poisoning. Physical activity, too, can make a situation worse. That's because your body needs more oxygen to exert itself. Severe poisoning can kill you within minutes, sometimes without warning symptoms. The more CO there is in the air and the longer the exposure, the greater the danger.

Romer Utility Services will make every attempt to prevent CO poisoning. When feasible and practical the company will:

- Install an effective ventilation system in place if powered industrial trucks are used indoors;
- Purchase trucks which comply with national safety standards;
- Ensure that powered industrial trucks are maintained in good order. Be sure to address the carburetor, air cleaner, and ignition timing;
- Only allow qualified persons to modify powered industrial trucks but only if approved by the manufacturer;
- Use original parts instead of replacement parts when a new part is needed;
- Switch from fossil fuel-powered to battery-powered trucks where possible;
- Use fuels with high octane levels so that fuels will burn slower and more efficiently;
- Try a CO emissions controller to be added to the fuel system to control the mixture of fuel and air. CO controller parts include a computer

control box, a warning light, an oxygen sensor, and a solenoid air valve;

- Add a catalytic converter to truck exhaust systems, but only if trucks are used continually during the shift (if converter temperature does not rise above operating temperature, the converter will fail);

- Install CO monitors and regularly test air levels;

- Provides initial and periodic medical exams for exposed workers and instructs workers in the hazards of CO.

WHAT OUR EMPLOYEES CAN DO ABOUT CO

There are a number of approaches employees can take to prevent CO poisoning:

- Inform your safety director of any condition (such as ventilation problems or enclosed areas) that may lead to the formulation or accumulation of carbon monoxide;

- Report complaints immediately;

- Be aware that physical activity can increase the danger of CO poisoning;

- If someone is exposed to CO, take them to fresh air, loosen clothing, give artificial respiration if necessary, contact a doctor, administer oxygen if necessary, and let the victim rest to prevent cardiac or respiratory problems;

- If you become ill, let your doctor know about the possibility of CO poisoning;

- Consider reducing or eliminating any smoking habit (burning tobacco also produces CO resulting in a higher CO level before going to work).

Personal Protective Equipment (PPE)

We have assessed our workplace and determined that the hazards which threaten our operators include:

- Injurious gases, vapors, and liquids;
- Dusts or powders, fumes, and mists;
- Flying objects or particles;
- Foot compression or puncture;
- Slipping;
- Extreme heat or cold;
- Hand cuts, punctures, abrasions, and crushing;

- Electricity;
- Materials handling;
- Falling objects;
- Bumping head or other body part against fixed object;
- Noise;
- Falling from an elevated platform attached to the powered industrial truck;
- Falling out of the powered industrial truck;
- Being crushed by a tipped over powered industrial truck.

For this reason, we require that our powered industrial truck operators wear at least the following PPE and equipment:

- Hard Cap
- Steel-Toed Shoes
- Gloves for Material Handling
- Ear Plugs are required when noise levels exceed the db threshold listed in our Hearing Conservation Program

NOTE: According to a letter of interpretation dated 1/18/94 about ASME/ANSI B56.1-1988, if a powered industrial truck is equipped with a seat belt or other restraining device, the operator must use these devices. This will reduce the risk of entrapment of the head and torso between the truck and the ground.

All operators required to wear this equipment are trained:

- When PPE is necessary;
- What PPE is necessary;
- How to properly put on, take off, adjust, and wear PPE;
- Limitations of the PPE; and

- Proper care, maintenance, useful life, and disposal of PPE.

See the Written Personal Protective Equipment Program for more details.

Pedestrians

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

All powered industrial truck operators must:

- Yield the right of way to pedestrians and emergency vehicles.
- Sound the horn or other audible warning device at all intersections and corners to warn pedestrians.
- When backing up pivot at the waist and inspect the area of operation to the rear of the powered industrial truck, watching for obstructions and pedestrians and blow the horn to alert any pedestrians that may or may not be visible.
- When retrieving a load and before backing up, visually inspect the rear area of the powered industrial truck to ensure no pedestrians are behind or around the unit.
- Never allow riders on any powered industrial truck.
- Never engage in horseplay.
- Do not allow pedestrians to walk under loads.

- Do not allow anyone to place their arms or legs between the uprights of the mast or outside the running lines of the truck.

- Do not drive trucks up to anyone standing in front of a bench or other fixed object.

All pedestrians must:

- Use designated pedestrian walkways.
- Look out for powered industrial trucks and give them the right of way.
- Listen for horns and other warning devices.
- Use any provided mirrors to assist with vision around corners.
- Do not walk in front of, behind, or beside a powered industrial truck.
- Never walk or stand under a raised load.
- Do not hitch a ride on a powered industrial truck.

Maintenance

Investing time and effort into the proper upkeep of our equipment results in day-to-day reliability. Keeping up with the manufacturer's recommended maintenance and lubrication schedules, and completing the proper records, will also increase our trucks' longevity and enhance its resale value.

The Maintenance Department complete(s) a receiving or delivery inspection whenever our company purchases powered industrial trucks, and they perform the recommended "breaking in" inspections and maintenance.

Area Supervisors or the Forklift Operator follow(s) the manufacturer's operator instruction manual for daily or weekly maintenance.

Periodic maintenance (those completed monthly, every 6 months, or annually) is done by a factory-trained expert or a dealer. Maintenance Department retains all maintenance records.

Appendices

The following documents have been attached to this written program:

- Daily Inspection Checklist
- Monthly Inspection Checklist
- Forklift Operator's Initial Certification
- Forklift Operator's Re-Evaluation Certification

Romer Utility Services

Forklift Operator's
Daily Forklift Inspection Report

Operator's Name: _____ **Date:** _____

Unit #: _____ **Model:** _____ **Serial #:** _____

Hour Meter Reading (Start of 1st Shift): _____ **Special Attachments:** _____

IMPORTANT!!! This check must be made by the forklift operator daily at the start of each shift.

✓ **Check each safe item** X **each defect** NA-**not applicable**

Inspection Checklist	1st Shift	2nd Shift	3rd Shift	COMMENTS
1. Engine Oil: Check level (When oil must be added, show number of quarts in "comments" column.)				
2. Fuel System: Check for leaks & report any immediately.				
3. Radiator: Check coolant level (caution).				
4. Tires: Check for foreign particles, gouges and cuts; check pneumatic tire pressure.				
5. Mast, Carriage, Fork, or Attachment: Check for loose or missing bolts & damage; check chain; check adjustment & operation.				
6. Oil & Water: Check for leaks.				
7. Truck Damage: Explain in comments.				
8. Operator's Compartment: Inspect for cleanliness.				
9. Engine Oil Gauge: Check pressure & report any abnormal pressure reading.				
10. Fuel: Check level.				
11. Ammeter: Check charging rate & report unusual readings.				
12. Safety Equipment (Rotating lights, back-up alarms, etc.): Check operation.				
13. Steering: Check operation.				
14. Brakes: Check brake pedal travel & parking brake adjustment.				
15. Truck Operation: Report any unusual operation or noises.				

1st Shift Operator's Signature: _____

2nd Shift Operator's Signature: _____

3rd Shift Operator's Signature: _____

Romer Utility Services

Maintenance Department

Monthly Forklift Inspection Record

Inspector's Name: _____ Month _____ 20 _____

Unit #: _____ Model: _____ Serial #: _____

Hour Meter Reading (Start of Week): _____ Special Attachments: _____

✓ Check each safe item X each defect NA-not applicable

Inspection Checklist		COMMENTS
Engine Off: Check oil level. When oil must be added & show number of qts in comments.		
Fuel System: Check for leaks. Report any leaks immediately.		
Radiator: Check coolant level (caution).		
Tires: Check for foreign particles, gouges and cuts; check pneumatic tire pressure.		
Mast, Carriage, Fork, or Attachment: Check for loose or missing bolts & damage; check chain; check adjustment & operation.		
Oil & Water: Check for leaks.		
Truck Damage: Explain in comments.		
Operator's Compartment: Inspect for cleanliness.		
Engine Oil Gauge: Check pressure & report any abnormal pressure reading.		
Fuel: Check level.		
Ammeter: Check charging rate & report unusual readings.		
Safety Equipment (Rotating lights, back-up alarms, etc.): Check operation.		
Steering: Check operation.		
Brakes: Check brake pedal travel & parking brake adjustment.		

Truck Operation: Report any unusual operation or noises.		
Additional Items to Inspect Clean Air Cleaner		
Hydraulic Oil Level		
Clutch Oil Level		
Transmission Oil Level		
Oil Lines for Leaks		
Battery Compartment & Electrolyte Level		
Power Steering Oil Level		
Lift Chain Adjustment		

Inspector's Signature: _____ Date: _____

Initial Forklift License Certification

Name _____ Clock No. _____

Selection Criteria

I certify that I meet all of the following physical qualifications and that if any changes to my physical condition develops or if I no longer possess a valid State Driver's License, I will inform my supervisor within 24 hours.

No adverse vision problems that are not corrected by glasses or contacts

No adverse hearing problems that are not corrected by hearing aids

No physical disorders that would impair safe operation

No medication is being taken that will affect perception, vision, or physical abilities

Employee Signature: _____

Classroom Training	
Review of OSHA Standard 1910.178	Safe Operating Procedures
Load Handling & Vehicle Inspections	Refueling / Recharge Procedure
Special Environments	Stability & Control
Fuel Spill / Battery Acid Spill Procedure	Safety around pedestrians
Trainer Signature:	Date:

Hands On Training & Evaluation: Rating: 1=Poor 2=Fair 3=Good 4=Excellent			
Grade	Area of Evaluation	Grade	Area of Evaluation
	Familiarity w/ controls		Travel w/ load at proper height
	Slows at intersections		Lowers load smoothly & slow
	Sounds horn at intersections		Load properly balanced
	Obeys Signs		Smooth start & stop
	Plans route, checks doorways		Moves forks properly
	Proper cornering & turning		Dock plate inspection

	Proper Refueling		Yields to pedestrians
	Places-stacks load square & even		Drives forward under control
	Drives backward under control		Parks properly-neutralizes controls
	Proper approach to loads		Maneuvers w/ load properly
	Lifts load properly		Properly changes & charges battery
	Maintains clear view		Drives on ramps
Additional training is required for all areas graded as *Fair* or below			
Evaluator Signature		Date:	
Certification			
Written Exam Grade / Date		/	
Qualified - Safety Manager Signature			

Re-Evaluation Forklift License Certification

Type of Re-Evaluation Certification:

_____ 3 Year _____ Other If Other, Explain: _____

Name _____ Clock No. _____

Selection Criteria

I certify that I meet all of the following physical qualifications and that if any changes to my physical condition develops or if I no longer possess a valid State Driver's License, I will inform my supervisor within 24 hours.

No adverse vision problems that are not corrected by glasses or contacts

No adverse hearing problems that are not corrected by hearing aids

No physical disorders that would impair safe operation

No medication is being taken that will affect perception, vision, or physical abilities

Employee Signature: _____

Hands On Training & Evaluation			
Rating: 1=Poor 2=Fair 3=Good 4=Excellent			
Grade	Area of Evaluation	Grade	Area of Evaluation
	Familiarity w/ controls		Travel w/ load at proper height
	Slows at intersections		Lowers load smoothly & slow
	Sounds horn at intersections		Load properly balanced

	Obeys Signs		Smooth start & stop
	Plans route, checks doorways		Moves forks properly
	Proper cornering & turning		Dock plate inspection
	Proper Refueling		Yields to pedestrians
	Places-stacks load square & even		Drives forward under control
	Drives backward under control		Parks properly-neutralizes controls
	Proper approach to loads		Maneuvers w/ load properly
	Lifts load properly		Properly changes & charges battery
	Maintains clear view		Drives on ramps
Additional training is required for all areas graded as *Fair* or below			
Evaluator Signature		Date:	
Certification			
Qualified - Safety Manager Signature			

General Waste Management Program

INTRODUCTION

This section outlines administrative and procedural requirements for construction waste management activities on our construction site projects. Romer Utility Services Construction estimates the waste that will be generated prior to work being performed so that the need for containers and waste removal, if necessary, can be determined. Typically, on our projects the same wastes or scrap materials are generated for every project.

DEFINITIONS

Construction, Demolition, and Land clearing (CDL) Waste: Includes all non-hazardous solid wastes resulting from construction, remodeling, alterations, repair, demolition and land clearing. Includes material that is recycled, reused, salvaged or disposed as garbage.
Salvage: Recovery of materials for on-site reuse or donation to a third party.
Reuse: Making use of a material without altering its form. Materials can be reused on-site or reused on other projects off-site. Examples include, but are not limited to the following: Grinding of concrete for use as sub base material. Chipping of land clearing debris for use as mulch.
Recycling: The process of sorting, cleaning, treating, and reconstituting materials for the purpose of using the material in the manufacture of a new product.
Source-Separated CDL Recycling: The process of separating recyclable materials in separate containers as they are generated on the job-site. The separated materials are hauled directly to a recycling facility or transfer station.
Co-mingled CDL Recycling: The process of collecting mixed recyclable materials in one container on-site. The container is taken to a material recovery facility where materials are separated for recycling.
Approved Recycling Facility: Any of the following: A facility that can legally accept CDL waste materials for the purpose of processing the materials into an altered form for the manufacture of a new product.
Material Recovery Facility: A general term used to describe a waste-sorting facility. Mechanical, hand-separation, or a combination of both procedures, are used to recover recyclable materials. Romer Utility Services Construction
Romer Utility Services General Waste Program

CONSTRUCTION WASTE MANAGEMENT, GENERAL

Waste materials should be properly stored and handled to minimize the potential for a spill or impact to the environment. During outdoor activities, receptacles must be covered to prevent dispersion of waste materials and to control the potential for run-off.
Provide containers for CDL waste that is to be recycled clearly labeled as such with a list of acceptable and unacceptable materials. The list of acceptable materials must be the same as the materials recycled at the receiving material recovery facility or recycling processor.
Provide containers for CDL waste that is disposed in a landfill clearly labeled as such. If possible, include in material purchasing agreements a waste reduction provision requesting that materials and equipment be delivered in packaging made of recyclable material, that they reduce the amount of packaging, that packaging be taken back for reuse or recycling, and to take back all unused product. Ensure that subcontractors require the same provisions in their purchase agreements.
Conduct regular visual inspections of dumpsters and recycling bins to remove contaminants.

CDL waste materials that can be salvaged, reused or recycled include, but are not limited to, the following:

Acoustical ceiling tiles
Asphalt
Asphalt shingles
Cardboard packaging
Carpet and carpet pad
Concrete
Drywall
Fluorescent lights and ballasts
Land clearing debris (vegetation, stumpage, dirt)
Metals
Paint (through hazardous waste outlets)
Wood
Plastic film (sheeting, shrink wrap, packaging)
Window glass
Wood
Field office waste, including office paper, aluminum cans, glass, plastic, and office cardboard. Romer Utility Services Construction
Romer Utility Services General Waste Program

Employees will be instructed on the proper disposal method for wastes. This may include general instruction on disposal of non-hazardous wastes, trash, or scrap materials. If wastes generated are classified as hazardous, employees must be trained to ensure proper disposal. The RSO, Replace with Safety Person's Name, or designated representative will determine what level of HazWoper (hazardous waste operations) training is required.

SOURCE SEPARATION

General: Romer Utility Services Construction encourages proper segregation of waste materials to ensure opportunities for reuse or recycling. Separate recyclable materials from CDL waste to the maximum extent possible. Separate recyclable materials by type.

Provide containers, clearly labeled, by type of separated materials or provide other storage method for managing recyclable materials until they are removed from Project site.

Stockpile processed materials on-site without intermixing with other materials. Place, grade, and shape stockpiles to drain surface water. Cover to prevent windblown dust.

Stockpile materials away from demolition area. Do not store within drip line of remaining trees.

Store components off the ground and protect from weather.

CO-MINGLED RECYCLING

General: Do not put CDL waste that will be disposed in a landfill into a co-mingled CDL waste recycling container.

REMOVAL OF CONSTRUCTION WASTE MATERIALS

Remove CDL waste materials from project site on a regular basis. Do not allow CDL waste to accumulate on-site.
Transport CDL waste materials off Owner's property and legally dispose of them.
Burning of CDL waste is not permitted unless specifically authorized by the site owner and complies with all laws.

Hand and Portable Powered Tools Safety

Tools are such a common part of our lives that it is difficult to remember that they may pose hazards. All tools are manufactured with safety in mind, but a serious accident often occurs before steps are taken to search out and avoid or eliminate tool-related hazards. Workers must learn to recognize the hazard associated with the different tools they use and the safety precautions necessary to prevent those hazards

The misuse of hand tools and power tools is a source of injury to workers. In many cases injury results because it is assumed that the worker knows how to use the tool or the worker does not pay attention to hazards associated with operating the tool(s) improperly

General Safety Rules

General safety rules apply to both stationary and portable power tools. The following safety rules apply to many of the tools which you use:

The Work Area

- ✓ · Your work area shall be kept clean! Oily rags, dust, and paper are fire hazards and can damage your tools. Place scrap materials in appropriate containers.

- ✓ · Keep your work area well lit. If you can't see your work, then you can't see a hazard.

- ✓ · Keep your area dry. Wet floors and work surfaces can cause slips. Water serves as an excellent electric conductor between the ground, you, and your tool!

- ✓ · Before working with tools that can produce sparks, make sure that the surrounding area is free from ignitable materials.

- ✓ · Know the locations of fire extinguishers. They shall be the correct type (e.g., A, B, C, D) for the potential fires which could occur. Also, know where the fire alarm is located and the proper exit route(s) for your work area.

Personal Protective Equipment

- ✓ · Use protective equipment when necessary. Safety glasses and safety shoes, other PPE includes gloves, hard hats, hearing protection, respiratory protection, special protective clothing, and welding masks.

- ✓ · Discuss proper safety equipment with your supervisor and the Company Safety Department.

- ✓ · When operating the overhead crane, hardhats, gloves, safety shoes, and safety glasses must be worn.

- ✓ · Noise produced by power tools can drown out other sounds... like a person shouting "STOP!" or "HELP!" Stay alert to your surroundings.

- ✓ · When cutting certain materials like plastics or epoxies, fumes can be released. Dust is produced when using most every shop tool. To address these potential hazards, discuss the appropriate controls and respiratory protection with your supervisor or Safety Department.

Clothing

- ✓ · Never wear loose clothing or jewelry that can entangle in power tools. Hand jewelry can serve as a conductor of electricity.

- ✓ · Tie back long hair.

- ✓ · Do not wear neckties while working around machinery.

Tools

- ✓ · Always use the right tool for the job! Forcing a small tool to do a big job causes the tool to strain. A strained tool can kickback or break, causing injury.

- ✓ · Never use a tool that you are unfamiliar with. Get proper training from your supervisor, the Safety Department, or the tool manufacturer. Read the tool manual for proper use procedures and safety precautions.

- ✓ · Before each use, inspect your tools. Check the alignment of moving parts, breakage of parts, and cracks.

- ✓ · When you're tired, your attention span is reduced. Attention to your work is very important when working in the shop. Make sure you're fit to do the job!

- ✓ · Disconnect the power source when performing maintenance, cleaning, or changing blades and bits.

- ✓ · Be wary of dropping tools. Don't rest a tool on the edge of the workstation. Secure tools when working at heights.

- ✓ · When using both portable and stationary tools, grip the tool or material being worked-on firmly. Hold tools only by insulated grasping surfaces. The material being worked-on should be well secured.

- ✓ · Make sure that you are well balanced when operating a tool. Sometimes, a "kickback" from a tool can throw the operator off balance, causing injury.

- ✓ · Don't work in an awkward position. You may not have complete control of the tool or the material you are working on.

- ✓ · Never lock a tool in the ON position if you are working under conditions that require you to stop the tool quickly.

- ✓ · Guarding is one of the best ways to minimize a hazard. Make sure that machine guards are in place on large and small equipment.

- ✓ · When cutting materials, try to cut along the grain. This will reduce the chance of kickback or shattering of the material.

Maintaining and Repairing Tools

- ✓ · Install or repair equipment only if you are qualified. A faulty job could cause serious injuries from mechanical failure, fire, or shock.

- ✓ · Maintain tools in proper working condition. Regularly inspect tools, cords and accessories. Repair or replace problem equipment immediately. Keep tools sharp, well-oiled and stored in a dry place.

- ✓ · Never alter a tool in a manner that reduces its effectiveness or safety.

Hand Tools

Hand tools are non-powered. They include anything from screwdrivers to wrenches. The greatest hazards posed by hand tools result from misuse and improper maintenance. The employer is responsible for the safe condition of tools and equipment used by employees, but employees have the responsibility for properly using and maintaining tools.

When you are using hand tools, such as hammers, chisels, wrenches, etc., there are individual practices that apply to particular tools. References on hand tools and manufacturer publications give particular practices. Below are some general user and safety practices you should be aware of:

- Select the right tool for the job. Every hand tool has a purpose and proper selection will prevent misuse.
- Do not wear jewelry.

Some general user and safety practices you should be aware of:

- Know the hazards of the tool. For example, the tip of a screwdriver is hardened, and when it is used for chiseling or prying, it can fragment easily, whereas the struck end of a chisel is intentionally soft so that it will not fragment easily.
- Use tools correctly. Always wear eye protection when using any manual or powered tool. Leather work gloves may also be appropriate.
- Maintain tools. Inspect tools regularly to be sure that they are in good condition and repair or discard broken, worn or damaged tools. Broken handles on hammers may cause the head to fly off and hit someone.

Injuries from hand tools are often caused by misuse. Workers often assume that they know how to use a common hand tool. Like all tools, hand tools must be maintained properly for effective use and safety. This section describes general safety guidelines for the three major categories of hand tools: cutting tools, torsion tools, and impact tools.

Cutting Tools

The main hazard associated with cutting tools is tool slippage. A dull tool or poor tool technique can cause a slip, which can redirect the cutting part of the tool toward the body. In addition, a sudden release or change in the force applied to a tool can throw the user off balance, possibly falling into another object which may cause injury. To prevent slippage, tools shall be kept sharp and handled in such a way that, if a slip occurs, the direction of force will be away from the body. In addition, cutting along the grain of a material can help prevent changes in the pressure applied to the tool, thereby preventing slippage.

Torsion Tools

Torsion tools are used to grip, fasten, and turn. These include wrenches, pliers, screwdrivers, vises, and clamps. There are a variety of each type of these tools. Selection is very important.

· **Wrenches**

should always be pulled and not pushed. Pushing a wrench can cause a loss of control if there is a sudden release of pressure. A short, steady pull should be used rather than quick, jerky motions. Where available, use a socket wrench instead of an adjustable or open-ended wrench. Socket wrenches are generally easier to control, are more convenient, and are less likely to damage a bolt or nut. When using an adjustable wrench, the pressure should be applied to the fixed jaw.

· **Pipe wrenches**

can easily slip on pipes or fittings, causing injury. To prevent slipping, make sure that the pipe or fitting is clean and the wrench jaws are sharp and kept clean of oil and debris.

· **Pliers**

should never be substituted for a wrench. They do not have the same gripping power and can easily slip on a tight object. When using cutting pliers, the object being cut can fly off and cause injury. Wear safety glasses when cutting with pliers.

· **Screwdrivers**

are often misused. They should not be used for prying, as punches, or wedges. These misuses can damage the head of the screwdriver. A dull tip can cause the screwdriver to slip. The tip must be flat at the tip and tapered for a snug fit on the screw.

Impact Tools (Hammers)

Impact tools include various types of hammers like riveting hammers, carpenter's claw hammers, and sledge hammers. The main hazard associated with all these tools is damage to the hands and arms. The following safety procedures should be employed when using hammers:

- ✓ · The handle shall be securely fitted and suited for the type of job and type of hammer head. The striking face of the hammer shall be kept well-dressed according to the application.

- ✓ · The handle shall be smooth and free of oil to prevent slippage.

- ✓ · Safety goggles shall be worn at all times when hammering to protect from flying nails, wood chips, and metal or plastic fragments.

- ✓ · To properly drive a nail, hold the hammer near the end of the handle and start off with a light blow. Increase power after the nail is set.

- ✓ · To avoid chipping or spalling of the hammer head, use the lightest swing possible, hammer straight and not on an angle. Inspect the head of the hammer for potential chipping and spalling.

General Hand Tool Safety

Always keep your tools clean. Oil can cause the tool to slip off an object or out of your hands. Dirt and grime can impair the movement of the tool, requiring more pressure. This can lead to injury. In addition, wherever possible clamp the object you are working on rather than holding it in your hand. Many worker's hands have been injured from slippage of tools.

Hazard Communication Program

This Hazard Communication Program has been developed in accordance with the Occupational Safety and Health Administration (OSHA) regulations 29 CFR 1910.1200. It provides detailed safety guidelines and instructions for receipt, use and storage of chemicals at our facility by employees and contractors.

Administrative Duties
Safety Representative has overall responsibility for coordinating safety and health programs in this company. He/she is the person having overall responsibility for the Hazard Communication Program. Safety Representative will review and update the program, as necessary. Copies of the written program may be obtained in the Safety Manager's office.

General Program Information

This written Hazard Communication Plan (HAZCOM) has been developed based on OSHA's Hazard Communication Standard and consists of the following elements:
Identification of Hazardous Materials
Product Warning Labels
Safety Data Sheets (SDS)
Written Hazard Communication Program
Effective Employee Training

Some chemicals are explosive, corrosive, flammable, or toxic. Other chemicals are relatively safe to use and store but may become dangerous when they interact with other substances. To avoid injury and/or property damage, persons who handle chemicals in any area of the Company must understand the hazardous properties of the chemicals. Before using a specific chemical, safe handling methods and health hazards must always be reviewed. Supervisors are responsible for ensuring that the equipment needed to work safely with chemicals is accessible and maintained for all employees on all shifts.

Employee Training

Romer Utility Services will communicate hazard communications to non-English speaking employees by have training and communication materials in the employee's language and/or through the use of an interpreter.

Initial Orientation Training

All new employees shall receive safety orientation training covering the elements of the HAZCOM and Right to Know Program. This training will consist of general training covering:

1. Location and availability of the written Hazard Communication Program

2. Location and availability of the List of Chemicals used in the workplace

3. Methods and observation used to detect the presence or release of a hazardous chemical in the workplace.

4. The specific physical and health hazard of all chemicals in the workplace

5. Specific control measures for protection from physical or health hazards

6. Explanation of the chemical labeling system

7. Location and use of SDS

Job Specific Training

Employees will receive on the job training from their supervisor. This training will cover the proper use, inspection and storage of necessary personal protective equipment and chemical safety training for the specific chemicals they will be using or will be working around.

Annual Refresher Training

Annual Hazard Communication refresher training will be conducted as part of the company's continuing safety training program.

Immediate On-the-Spot Training

This training will be conducted by supervisors for any employee that requests additional information or exhibits a lack of understanding of the safety requirements.

Romer Utility Services will communicate hazard communications to non-English speaking employees by have training and communication materials in the employee's language and/or through the use of an interpreter.

Non-Routine Tasks

Non-routine tasks are defined as working on, near, or with unlabeled piping, unlabeled containers of an unknown substance, confined space entry where a hazardous substance may be present and/or a one-time task using a hazardous substance differently than intended (example: using a solvent to remove stains from tile floors).

Steps for Non-Routine Tasks

Step 1: Hazard Determination
Step 2: Determine Precautions
Step 3: Specific Training & Documentation
Step 4: Perform Task

All non-routine tasks will be evaluated by the Area Supervisor and Safety Manager before the task commences, to determine all hazards present. This determination will be conducted with quantitative/qualitative analysis (air sampling, substance identification/analysis, etc., as applicable).
Once the hazard determination is made, the Department Supervisor and Safety Department will determine the necessary precautions needed to either remove the hazard, change to a non-hazard, or protect from the hazard (use of personal protective equipment) to safeguard the Employees present. In addition, the Department Supervisor or Safety Department will provide specific safety training for Employees present or affected and will document the training.

Off-Site Use or Transportation of Chemicals

An SDS will be provided to employees for each chemical and each occurrence of use or transport away from the company facilities. All State and Federal DOT Regulations will be followed including use of certified containers, labeling & marking, securing of containers and employee training.

General Chemical Safety

Assume All Chemicals Are Hazardous
The number of hazardous chemicals and the number of reactions between them is so large that prior knowledge of all potential hazards cannot be assumed. Use chemicals in as small quantities as possible to minimize exposure and reduce possible harmful effects.

General Safety Rules

Read and understand the Safety Data Sheets.
Keep the work area clean and orderly.
Use the necessary safety equipment.
Carefully label every container with the identity of its contents and appropriate hazard warnings.
Store incompatible chemicals in separate areas.
Substitute fewer toxic materials whenever possible.

Limit the volume of volatile or flammable material to the minimum needed for short operation periods. Provide means of containing the material if equipment or containers should break or spill their contents.

Task Evaluation

Each task that requires the use of chemicals should be evaluated to determine the potential hazards associated with the work. This hazard evaluation must include the chemical or combination of chemicals that will be used in the work, as well as other materials that will be used near the work. If a malfunction during the operation has the potential to cause serious injury or property damage, a Safe Operational Procedure (SOP) should be prepared and followed. Operations must be planned to minimize the generation of hazardous wastes.

Chemical Storage

The separation of chemicals (solids or liquids) during storage is necessary to reduce the possibility of unwanted chemical reactions caused by accidental mixing. Explosives should be stored separately outdoors. Use either distance or barriers (e.g., trays) to isolate chemicals into the following groups:
Flammable Liquids: store in approved flammable storage lockers.
Acids: treat as flammable liquids
Bases: do not store bases with acids or any other material
Other liquids: ensure other liquids are not incompatible with any other chemical in the same storage location.
Lips, strips, or bars are to be installed across the width of storage shelves to restrain the chemicals in case of earthquake.

Chemicals will not be stored in the same refrigerator used for food storage. Refrigerators used for storing chemicals must be appropriately identified by a label on the door.

Container Labels

It is extremely important that all containers of chemicals are properly labeled. This includes every type of container from a 5000-gallon storage tank to a spray bottle of degreaser. The following requirements apply:
All containers will have the appropriate label, tag or marking prominently displayed that indicates the identity, safety and health hazards.

Portable containers which contain a small amount of chemical need not be labeled if they are used immediately that shift, but must be under the strict control of the employee using the product.

All warning labels, tags, etc., must be maintained in a legible condition and not be defaced. Facility weekly supervisor inspections will check for compliance of this rule.

Incoming chemicals are to be checked for proper labeling.

Emergencies and Spills

In case of an emergency, implement the proper Emergency Action & Response Plan.

1. Evacuate people from the area.
2. Isolate the area.
3. If the material is flammable, turn off ignition and heat sources.
4. Only personnel specifically trained in emergency response are permitted to participate in chemical emergency procedures beyond those required to evacuate the area.
5. Call for Emergency Response Team assistance if required.

Housekeeping

Maintain the smallest possible inventory of chemicals to meet immediate needs. Periodically review stock of chemicals on hand.

Ensure that storage areas, or equipment containing large quantities of chemicals, are secure from accidental spills.
Rinse emptied bottles that contain acids or inflammable solvents before disposal.
Recycle unused laboratory chemicals wherever possible.

DO NOT Place hazardous chemicals in salvage or garbage receptacles.

DO NOT Pour chemicals onto the ground.

DO NOT Dispose of chemicals through the storm drain system.

DO NOT Dispose of highly toxic, malodorous chemicals down sinks or sewer drains.

Contractors

All outside contractors working inside Company Facilities are required to follow the requirements of this program. The Company will provide Contractors information concerning:
Location of SDS
Precautions to be taken to protect contractor employees
Potential exposure to hazardous substances
Chemicals used in or stored in areas where they will be working
Location and availability of Safety Data Sheets
Recommended Personal Protective Equipment
Labeling system for chemicals

Definitions

Chemical: any element, chemical compound or mixture of elements and/or compounds.

Combustible liquid: means any liquid having a flash point at or above 100 deg. F (37.8 deg. C), but below 200 deg. F (93.3 deg. C), except any mixture having components with flash points of 200 deg. F (93.3 deg. C), or higher, the total volume of which make up 99 percent or more of the total volume of the mixture.

Compressed gas: any compound that exhibits:
A gas or mixture of gases having, in a container, an absolute pressure exceeding 40 psi at 70 deg. F
A gas or mixture of gases having, in a container, an absolute pressure exceeding 104 psi at 130 deg. F. regardless of the pressure at 70 deg. F.
A liquid having a vapor pressure exceeding 40 psi at 100 deg. F.

Container: any bag, barrel, bottle, box, can, cylinder, drum, reaction vessel, storage tank, or the like that contains a hazardous chemical. For purposes of this section, pipes or piping systems, and engines, fuel tanks, or other operating systems in a vehicle, are not considered to be containers.

Employee: a worker who may be exposed to hazardous chemicals under normal operating conditions or in foreseeable emergencies. Workers such as office workers or bank tellers who encounter hazardous chemicals only in non-routine, isolated instances are not covered.

Employer: a person engaged in a business where chemicals are either used, distributed, or are produced for use or distribution, including a contractor or subcontractor.

Explosive: a chemical that causes a sudden, almost instantaneous release of pressure, gas, and heat when subjected to sudden shock, pressure, or high temperature.

Exposure or exposed: an employee is subjected in the course of employment to a chemical that is a physical or health hazard, and includes potential (e.g. accidental or possible) exposure. Subjected in terms of health hazards includes any route of entry (e.g. inhalation, ingestion, skin contact or absorption.)

Flammable: a chemical that falls into one of the following categories:
"Aerosol, flammable" means an aerosol that yields a flame projection exceeding 18 inches at full valve opening, or a flashback (a flame extending back to the valve) at any degree of valve opening;
"Gas, flammable" means a gas that, at ambient temperature and pressure, forms a flammable mixture with air at a concentration of thirteen (13) percent by volume or less; or

A gas that, at ambient temperature and pressure, forms a range of flammable mixtures with air wider than twelve (12) percent by volume, regardless of the lower limit;
"Liquid, flammable" means any liquid having a flash point below 100 deg. F., except any mixture having components with flash points of 100 deg. F. or higher, the total of which make up 99 percent or more of the total volume of the mixture.
"Solid, flammable" means a solid, other than a blasting agent or explosive as defined in 1910.109(a), that is liable to cause fire through friction, absorption of moisture, spontaneous chemical change, or retained heat from manufacturing or processing, or which can be ignited readily and when ignited burns so vigorously and persistently as to create a serious hazard. A chemical shall be considered to be a flammable solid if it ignites and burns with a self-sustained flame at a rate greater than one-tenth of an inch per second along its major axis.

Flash point: the minimum temperature at which a liquid gives off a vapor in sufficient concentration to ignite.

Hazardous chemical: any chemical, which is a physical hazard or a health hazard.

Hazard warning: any words, pictures, symbols, or combination appearing on a label or other appropriate form of warning which convey the specific physical and health hazard(s), including target organ effects, of the chemical(s) in the container(s). (See the definitions for "physical hazard" and "health hazard" to determine the hazards which must be covered.)

Health hazard: a chemical for which there is evidence 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.

Identity: any chemical or common name, which is indicated on the material safety data sheet (SDS) for the chemical. The identity used shall permit cross-references to be made among the required list of hazardous chemicals, the label and the SDS.

Immediate use: the hazardous chemical will be under the control of and used only by the person who transfers it from a labeled container and only within the work shift in which it is transferred.

Label: any written, printed, or graphic material displayed on or affixed to containers of hazardous chemicals.

Material safety data sheet (SDS): written or printed material concerning a hazardous chemical, which is prepared in accordance with OSHA Standard 1910.1200 requirements.

Mixture: any combination of two or more chemicals if the combination is not, in whole or in part, the result of a chemical reaction.

Oxidizer: means a chemical other than a blasting agent or explosive as defined in 1910.109(a), that initiates or promotes combustion in other materials, thereby causing fire either of itself or through the release of oxygen or other gases.

Physical hazard: a chemical that it is a combustible liquid, a compressed gas, explosive, flammable, an organic peroxide, an oxidizer, pyrophoric, unstable (reactive) or water-reactive.

Pyrophoric: a chemical that will ignite spontaneously in air at a temperature of 130 deg. F. or below.

Specific chemical identity: the chemical name, Chemical Abstracts Service (CAS) Registry Number, or any other information that reveals the precise chemical designation of the substance.

Unstable (reactive): a chemical which in the pure state, or as produced or transported, will vigorously polymerize, decompose, condense, or will become self-reactive under conditions of shocks, pressure or temperature.
Use: to package, handle, react, emit, extract, generate as a byproduct, or transfer.

Water-reactive: a chemical that reacts with water to release a gas that is either flammable or presents a health hazard.

Work area: a room or defined space in a workplace where hazardous chemicals are produced or used, and where employees are present.

Workplace: an establishment, job site, or project, at one geographical location containing one or more work areas.

SDS Information

Safety Data Sheets are provided by the chemical manufacturer to provide additional information concerning safe use of the product. Each SDS provides:
Common Name and Chemical Name of the material
Name, address and phone number of the manufacturer
Emergency phone numbers for immediate hazard information
Date the SDS was last updated
Listing of hazardous ingredients
Chemical hazards of the material
Information for identification of chemical and physical properties

Contact your supervisor to obtain an SDS on any hazardous chemical in our workplace.

Information Chemical Users must know

Fire and/or Explosion Information

Material Flash Point, auto-ignition temperature and upper/lower flammability limits

Proper fire extinguishing agents to be used

Firefighting techniques

Any unusual fire or explosive hazards

Chemical Reaction Information

Stability of Chemical

Conditions and other materials which can cause reactions with the chemical

Dangerous substances that can be produced when the chemical reacts

Control Measures

Engineering Controls required for safe product use

Personal protective equipment required for use of product

Safe storage requirements and guidelines

Safe handling procedures

Health Hazards

Permissible Exposure Limit (PEL) and Threshold Limit Value (TLV)

Acute or Chronic symptoms of exposure

Main routes of entry into the body

Medical conditions that can be made worse by exposure

Cancer causing properties if any

Emergency and First Aid treatments

Clean up techniques

Personal Protective Equipment to be used during cleanup

Disposal of waste & cleanup material

Employee Use of SDS

For SDS use to be effective, employees must:

Know the location of the SDS

Understand the major points for each chemical

Check SDS when more information is needed or questions arise

Be able to quickly locate the emergency information on the SDS

Follow the safety practices provided on the SDS

Responsibilities

Management

Ensure compliance with this program

Conduct immediate corrective action for deficiencies found in the program

Maintain an effective Hazard Communication training program

Make this plan available to employees or their designated representative

Shipping & Receiving Manager

Ensure all received containers are properly labeled and that labels are not removed or defaced

Ensure all shipped containers are properly labeled

Ensure shipping department employees are properly trained in spill response

Ensure received Safety Data Sheets (SDS) are properly distributed

Safety Manager

Maintain a list of hazardous chemicals using the identity that is referenced on the SDS
Monitor the effectiveness of the program
Conduct annual audit of the program
Monitor employee training to ensure effectiveness
Keep management informed of necessary changes
Ensure SDSs are available as required
Monitor facility for proper use, storage and labeling of chemicals
Ensure SDS are available for emergency medical personnel when treating exposed employees
Provide information, as requested, concerning health effects and exposure symptoms listed on SDSs

Supervisors

Comply with all specific requirements of the program
Provide specific chemical safety training for assigned employees
Ensure chemicals are properly used stored & labeled
Ensure only the minimum amount necessary is kept at work stations
Ensure up to date SDS are readily accessible to all employees on all shifts

Employees

Comply with chemical safety requirements of this program
Report any problems with storage or use of chemicals
Immediately report spills of suspected spills of chemicals
Use only those chemicals for which they have been trained
Use chemicals only for specific assigned tasks in the proper manner

Contractors

Comply will all aspects of this program
Coordinate information with the Safety Manager
Ensure Contractor employees are properly trained
Notify the Safety Manager before bringing any chemicals into company property or facilities
Monitor and ensure proper storage and use of chemicals by Contractor employees

Heat Illness Prevention

1 Purpose

The primary purpose of this procedure is to define temperature extreme disorders or conditions and to provide the guidance necessary for protection of Roemer Utility Services employees and contractors from the occurrence of temperature extreme related disorders or conditions. The program shall address jobs, tasks or employees who are at risk for cold exposure. Supervisors should be trained in the employer's heat illness procedures to prevent heat illness and procedures to follow when an employee exhibits symptom consistent with possible heat illness, including emergency response procedures.

2 Responsibilities

Part 1: It is the responsibility of the Project Superintendent to ensure that all employees are continually aware of possible temperature extreme symptoms so that appropriate action can be taken before it becomes a medical emergency. Supervisors must receive training in the prevention of heat related illnesses prior to supervising employees working in heat.

3 Policy Content

3.1 GENERAL INFORMATION

Disorders or conditions associated with work conducted in temperature extreme conditions can be controlled through proper planning and effective monitoring of personnel. The added burden of PPE required for hazardous waste operations in a temperature extreme condition increases the potential for worker disorders or conditions that can result in injury or illness. Factors that could affect a worker's ability to function in extreme temperatures include, but are not limited to:

- Physical fitness
- Acclimatization
- Age
- Obesity
- Alcohol consumption
- Drug use
- Infections
- Disease

The Site-Specific Health and Safety Plan should contain whether extreme temperature condition exists. The use of the medical surveillance program can identify those employees with pre-existing health conditions that could be adversely affected during extreme temperatures. Workers should be pre-screened prior to beginning operations. Once baseline values are obtained, they can be used to effectively assess the health of workers during and immediately after operations (e.g., pulse, blood pressure, body temperature, body weight). Personnel who are not required to wear PPE are not immune to the potential hazards of heat-related disorders or conditions and should be included in the monitoring program.

3.2 HEAT STRESS

Increased physical demands on workers occur as a result of increased air temperature and humidity. Wearing PPE also increases the demands on workers, due to:

- Added weight of the equipment
- Reduced visibility
- Reduced mobility
- Loss of the body's natural cooling processes
- Increased energy consumption by the body
- Lack of sufficient fluid replenishment

Other factors that influence the occurrence of heat related disorders or conditions include environmental conditions, clothing, workload, and the individual characteristics of workers.

Assessing Heat Stress Conditions

The guidance for workers wearing permeable clothing is specified in the current version of the American Conference of Governmental Industrial Hygienists' (ACGIH) Threshold Limit Values for Heat Stress. If actual clothing differs from the ACGIH standard ensemble in insulation value and/or wind and vapor permeability, changes should be made to the monitoring requirements and work rest period to account for these differences. The Table below provides the suggested frequency of physiological monitoring for fit and acclimatized workers. The ACGIH TLV guide contains a separate table for workers wearing semipermeable and impermeable encapsulating clothing. In these situations, refer to Table

TABLE I
Suggested Frequency of Physiological Monitoring for Fit and Acclimatized Workers

Adjusted Temperature Calculation	Normal Work Clothing	Impermeable Clothing
90 F (32.2 C) or Above	After each 45 minutes of work of work	After each 15 minutes
87.5 - 90.0 F (30.8 - 32.2 C)	After each 60 minutes of work of work	After each 30 minutes
82.5 - 87.5 F (28.1 - 30.8 C)	After each 90 minutes of work of work	After each 60 minutes
77.5 - 82.5 F (25.3 - 28.1 C)	After each 120 minutes of work of work	After each 90 minutes
72.5 - 77.5 F (22.5 - 25.3 C)	After each 150 minutes of work of work	After each 120 minutes

PHYSIOLOGICAL MONITORING OF WORKERS

The following physiological readings should be taken to assess employees and to determine the work-rest cycle:

Heart rate - Count the radial pulse as early as possible in the rest period to ensure a more accurate reading. If the heart rate exceeds 110 beats per minute at the beginning of the rest period, shorten the next work cycle by one-third and keep the rest period at the same length. If, at the end of the following work period, the heart rate still exceeds 110 beats per minute, shorten the work period again by one-third.

Oral Temperature - The utilization of oral temperature applies to the time immediately after the worker leaves the contamination reduction zone. Using a clinical thermometer, take the temperature for three minutes. If the oral temperature exceeds 99.6 F (37.6 C), shorten the next work cycle by one-third, without a change to the rest period. If the oral temperature still exceeds 99.6 F (37.6 C) at the end of the following work period, shorten the next work cycle by one-third. **Do not permit a worker to perform duties requiring a semipermeable or impermeable garment if the oral temperature exceeds 100.6 F (38.1C).**

Ear Canal Readings - Ear canal readings are a valid method to monitor the temperature of

Body Water Loss - Measure body weight to see if enough fluids are being consumed to prevent dehydration.

TRAINING OF WORKERS

Worker training is an essential element of an effective temperature extreme program. Workers who are able to identify the symptoms of early heat stress will be able to prevent heat related disorders or conditions and possible death to themselves and their fellow workers. Workers should be trained initially and continually reminded during safety meetings to identify the following symptoms of heat stress. Workers also will have access to shaded areas on jobsite. Procedures must be in place to control the effects of environmental factors that can contribute to heat related illness. The most common environmental factors are air temperature, humidity, radiant heat sources and air circulation.

Heat Rash - Caused by continuous exposure to heat or humid air. Can be recognized by the occurrence of small red pimples on the skin. Typically found in sensitive areas of the body where the potential for rubbing can occur (e.g., underarm, groin area).

Heat Cramps - Caused by heavy sweating and inadequate electrolyte replacement. Signs to look for include muscle spasms and pain in the extremities, such as hands and feet, and in the abdomen.

Heat Exhaustion - Caused by increased stress on various parts of the body, including inadequate blood circulation due to cardiovascular insufficiency or dehydration. Signs to look for include:

- Pale, cool, moist skin
- Heavy sweating
- Dizziness
- Nausea

  Fainting

Heat Stroke –

This is the most serious of all temperature related disorders or conditions since temperature regulation fails and the body temperature rises to critical levels. Immediate action should be taken to cool the body before serious injury or death occurs. Competent medical help should be obtained. Signs to look for include:

- Red, hot, usually dry skin
- Lack of or reduced perspiration
- Nausea
- Dizziness and confusion
- In extreme situations, coma

3.3 COLD STRESS

Extreme low temperatures may not be the only element necessary to create the potential for cold exposure disorders or conditions; strong wind accompanied by cold temperatures can lead to these types of disorders or conditions.

ASSESSING COLD STRESS CONDITIONS

The windchill factor is the cooling effect of any combination of temperature and wind velocity or air movement. The windchill index (Table II) should be consulted when planning for exposure to low temperatures and wind. The windchill index does not consider the specific part of the body exposed to cold, the level of activity, which affects body heat production, or the amount of clothing being worn.

TABLE II: Windchill Index
ACTUAL THERMOMETER READING (F)

Wind Speed

in mph	50	40	30	20	10	0	-10	-20	-30	-40
EQUIVALENT TEMPERATURE (F)										
calm	50	40	30	20	10	0	-10	-20	-30	-40
5	48	37	27	16	6	-5	-15	-26	-36	-47
10	40	28	16	4	-9	-21	-33	-46	-58	-70
15	36	22	9	-5	-18	-36	-45	-58	-72	-85
20	32	18	4	-10	-25	-39	-53	-67	-82	-96
25	30	16	0	-15	-29	-44	-59	-74	-88	-104
30	28	13	-2	-18	-33	-48	-63	-79	-94	-109
35	27	11	-4	-20	-35	-49	-67	-82	-98	-113
40	26	10	-6	-21	-37	-53	-69	-85	-100	-116
Over 40 (little added effect)	LITTLE DANGER (for properly clothed person)		INCREASING DANGER		GREAT DANGER (Danger from freezing of exposed flesh)					

The human body senses "cold" as a result of both the air temperature and the wind velocity. Cooling of exposed flesh increases rapidly as the wind velocity goes up. Frostbite can occur at relatively mild temperatures if wind penetrates the body insulation.
The generally recognized cold disorders or conditions are frostbite and hypothermia. Contributing factors to these disorders or conditions are:

- Exposure to humidity
- High winds
- Contact with wetness
- Inadequate clothing
- Poor worker health

The physical conditions that effect cold exposure disorders or conditions are the same as those associated with heat disorders or conditions, such as physical fitness, alcohol or drug use, and disease.

The presence of dead air space between the warm body and clothing and the outside air is essential. Many layers of relatively light clothing with an outer shell of windproof material maintains body temperature much better than a single heavy outer garment worn over ordinary indoor clothing. The more air cells each clothing layer has, the more efficient it insulates against body heat loss. Clothing also needs to allow some venting of perspiration. In addition to adequate clothing, whenever possible, full use should be made of windbreaks and heat tents.

TABLE III
Maximum Daily Time Limits for Exposure at Low Temperatures

Temperature Range		Maximum Daily Exposure
Celsius	**Fahrenheit**	
0 to -18	30 to 0	No limit, providing that the person is properly clothed.
-18 to -34	0 to -30	Total work time: 4 hours. Alternate 1hour in and 1 hour out of the low-temperature area.
-34 to -57	-30 to -70	Two periods of 30 minutes each at least 4 hours apart. Total low temperature work time allowed is 1 hour.
-57 to -73	-70 to -100	Maximum permissible work time is 5 minutes during an 8-hour working day. At these extreme temperatures, completely enclosed headgear, equipped with a breathing tube running under the clothing and down the leg to preheat the air, is recommended.

TRAINING OF WORKERS

Early recognition of the symptoms of cold exposure stress is essential in preventing serious or permanent disorders or conditions. Workers and managers involved in cold weather operations should be adequately trained to recognize the following conditions and related symptoms to provide first aid treatment. All first aid supplies for cold weather-related illness will be inspected before each shift work begins and be replaced when necessary.

Hypothermia –

The first symptoms of this condition are uncontrollable shivering and the sensation of cold, irregular heartbeat, weakened pulse, and change in blood pressure. Severe shaking of rigid muscles may be caused by a burst of body energy and changes in the body's chemistry. Vague or slow and slurred speech, memory lapses, incoherence, and drowsiness are some of the additional symptoms. Symptoms noticed before complete
collapse are cool skin, slow and irregular breathing, low blood pressure, apparent exhaustion, and fatigue even after rest.
As the core body temperature drops, the victim may become listless and confused, and may make little or no attempt to keep warm. Pain in the extremities can be the first warning of dangerous exposure to cold. If the body core temperature drops to about 85ø F, a significant and dangerous drop in the blood pressure, pulse rate, and respiration can occur. In extreme cases, death will occur.

Frostbite –

Frostbite can occur, in absence of hypothermia, when the extremities do not receive sufficient heat from central body stores. This can occur because of inadequate circulation and/or insulation. Frostbite occurs when there is freezing of fluids around the cells of the body tissues due to extremely low temperatures. Damage may result, including loss of tissue around the areas of the nose, cheeks, ears, fingers, and toes. This damage can be serious enough to require amputation or result in permanent loss of movement.
The potential for both heat and cold related disorders or conditions can occur in many common situations. Cold early morning temperatures can give way to warm daily temperatures, resulting in heavy perspiration within protective clothing. As temperatures cool again in the evening, the potential for cold related disorders or conditions can occur. Managers should be aware of the potential for this occurrence and should monitor
workers accordingly.

3.4 PREVENTION MEASURES FOR HEAT AND COLD STRESS

Preventive measures are the best approach to avoiding the types of disorders or conditions associated with temperature extreme conditions. Many of the measures are similar for both heat and cold extremes. Proper annual training and preventive measures are critical in temperature extreme conditions to avert illness, injury and potential loss of worker productivity.

The following steps should be followed in order to ensure workers involved in temperature extreme conditions are properly protected:

1) Closely monitor and modify/adjust work-rest work schedules

2) Maintain proper worker body fluids in both cold and hot weather by:
- Maintaining Potable drinking water temperature at 50 to 60 F (10 to15.6 C),
- Urging workers to drink 16 ounces of fluid before beginning work, and urging workers to drink at least 4 ounces of water every 15 to 20 minutes at each monitoring break (1 to 1.6 gallons of water a day is recommended);

Employees shall have access to potable drinking water. Where it is not plumbed or otherwise continuously supplied, it shall be provided in sufficient quantity throughout the work shift.

3) Weigh workers before and after each work session to determine if fluid intake and replenishment is adequate.

4) Encourage workers to maintain an optimal level of physical fitness

5) Encourage workers to maintain normal/constant weight (significant weight loss can be a strong indication of physical problems).

6) Advise workers that heavy alcohol intake may significantly increase their risk of heat stroke (i.e., dehydration) and drinking alcohol on Roemer Utility Services jobsites is prohibited.

7) Use cooling/heating devices that aid in natural body heat exchange, such as heating or cooling tents, showers or hoses, and cooling vests, jackets, or suits.

10) Wear proper cold weather Protection in cold, wet, and windy conditions.

11) Always keep walkways and travel ways clear and sanded, salted, and cleared of snow and ice.

12) Employees shall be informed of dangers of unstable snow and ice build ups.

13) Implement a "Buddy System" to ensure that no employee is working alone in cold work environments.

ACCLIMIZATION OF WORKERS

Site Supervisors need to be aware of the importance of acclimatizing workers before they can be added to a regular work schedule. Although the phenomenon of acclimatization is an important consideration for heat stress, it has not been recognized for cold stress. The added burden of PPE may increase the time to acclimatize workers. The worker's ability to physiologically adjust to work under temperature extreme conditions affects his/her ability to perform work. Acclimatized workers have lower heart rates and body temperatures, sweat more profusely than unacclimated workers, and are, therefore, better able to function in these specific working conditions.

Acclimatization can occur within a few days. NIOSH recommends a progressive, 6-day acclimatization period for workers before allowing them to perform a full work load. Under this regimen, the first day of work should be conducted using only 50% of the anticipated workload and exposure time. This level should be increased 10% each day for the following 5 days.

Workers can lose their acclimatization so the work regimen will need to be adjusted to accommodate these

Hazard Identification & JSA Program

Purpose

- To provide guidelines for identifying, assessing and controlling workplace hazards;
- To ensure the potential hazards of new processes and materials are identified before they are introduced into the workplace;
- To identify the jobs/tasks which require risk assessment

Key Responsibilities

As specified within this program.

Romer Utility Services must assess a work site and identify existing or potential hazards before work begins at the work site or prior to the construction of a new work site

Hazard and Risk Identification

The hazard identification process is used for routine and non-routine activities as well as new processes, changes in operation, products or services as applicable.

The Safety Manager shall conduct a baseline worksite hazard assessment which is a formal process in place to identify the various tasks that are to be performed and the accompanying identified potential hazards. The results are included in a report of the results of the hazard assessment and the methods used to control or eliminate the hazards identified. The hazard assessment report must be signed and have the date on it.

Inputs into the baseline hazard identification include, but are not limited to:

- Scope of work;
- Legal and other requirements;
- Previous incidents and non-conformances;
- Sources of energy, contaminants and other environmental conditions that can cause injury;
- Walk through of work environment;

Hazards identifications (as examples) are to include:

- Working Alone
- Thermal Exposure
- Isolation of Energy
- Hearing Protection
- Musculoskeletal Disorders
- Blood borne Pathogens
- Confined Spaces
- Driving
- General Safety Precautions
- And any other established policy or procedure by ROMER UTILITY SERVICES
- Any other site-specific work scope

Romer Utility Services has a formal process for identifying potential hazards. Processes are in place to identify potential hazards by the use of JSA's, JHA's, facility wide or area specific analysis/inspections.

All identified hazards are assessed for risk and risk controls are assigned within the worksite hazard assessment for that specific hazard.

Employees and/or sub-contractors are actively involved in the hazard identification process. The Romer Utility Services program provides processes to ensure employees and/or sub-contractors are actively involved in the hazard identification process and hazards are reviewed with all employees concerned.

Employees are trained in the hazard identification process. Employees will be trained in the hazard identification process including the use and care of proper PPE.

Unsafe hazards must be reported immediately and addressed by the supervisor. The supervisor discusses the worksite hazard assessment with employees at the respective work location during the employee's documented orientation.

Review of Hazard Assessment

Existing worksite hazard identifications are formally reviewed annually or repeated at reasonably practicable intervals to prevent the development of unsafe and unhealthy working conditions and specifically updated when new tasks are to be performed that have not been risk assessed, when a work process or operation changes, before the construction of a new site or when significant additions or alterations to a job site are made.

The respective supervisor or project manager advises the Safety Manager when additional hazards are introduced into the work place in order to revise planning and assessment needs.

Risk Assessment

Hazards are classified and ranked based on severity. The program identifies hazards are classified/prioritized and addressed based on the risk associated with the task. (See the risk analysis matrix outlining severity and probability).

COMPANY RISK ASSESSMENT MATRIX

CONSEQUENCE					PROBABILITY				
					A	B	C	D	E
Severity	People	Assets	Environment	Reputation	Not Done	Rarely	Once a week	Several Times in a Week	Multiple Times in a Day
0	No health effect	No damage	No effect	No impact					
1	Slight health effect	Slight damage	Slight effect	Slight impact					
2	Minor health effect	Minor damage	Minor effect	Limited impact					
3	Major health effect	Localized damage	Localized effect	Considerable impact					
4	Single fatality	Major damage	Major effect	National impact					
5	Multiple fatalities	Extensive damage	Massive effect	Global impact					

Key	Manage for continuous improvement (Low)	Incorporate risk reduction measures (Medium)	Intolerable (High)

Risk Controls/Methods to Ensure Identified Hazards Are Addressed and Mitigated

The following describes how identified hazards are addressed and mitigated:

- Risk assessed hazards are compiled with and addressed and mitigated through dedicated assignment, appropriate documentation of completion, and implemented controls methods including engineering or administrative controls and PPE required into the worksite hazard assessment of the site specific HSE plan. No work will begin before the worksite assessment is completed. Additionally, no risk assessed as High (Intolerable) shall be performed.

If an existing or potential hazard to workers is identified during a hazard assessment Romer Utility Services must take measures to eliminate the hazard, or if elimination is not reasonably practicable, control the hazard. If reasonably practicable, Romer Utility Services must eliminate or control a hazard through the use of engineering controls. If a hazard cannot be adequately controlled using engineering controls,

Romer Utility Services must use administrative controls that control the hazard to a level as low as reasonably achievable. If the hazard cannot be adequately controlled using engineering and/or administrative controls, Romer Utility Services must ensure that the appropriate personal protective equipment (PPE) is used by workers affected by the hazard. Romer Utility Services may use a combination of engineering controls, administrative controls, and personal protective equipment if there is a greater level of worker safety because a combination is used.

Emergency Control of Hazards

Only those employees competent in correcting emergency controls of hazards may be exposed to the hazard and only the minimum number of competent employees may be exposed during hazard emergency control. An example is a gas leak in a building. Only those personnel with training on fire safety, gas supply shut off and other related controls will attempt to resolve the emergency control of a hazard Romer Utility Services will make every possible effort to control the hazard while the condition is being corrected or under the supervision of client emergency response personnel in every emergency.
effort to control the hazard while the condition is being corrected or under the supervision of client emergency response personnel in every emergency.

Certification of Hazard Assessment

The Safety Manager completes and signs the certification of hazard assessment for the worksite hazard assessment (also see PPE Program) and includes it within the site specific HSE plan. Hazard assessments are reviewed annually and updated when new tasks are to be performed that has not been risk assessed.

Job Safety Analysis (JSA)

JSA used onsite by individual work crew shall address specific tasks.

For those jobs were work not clearly identified as low-risk For Low-risk, other hazards identification methods could be used such as unwritten hazard analysis, job site discussion, Personal hazard Assessment, or other undocumented hazard analysis method.

For those jobs with the highest injury or illness rates, jobs that are new to our operation, jobs that have undergone major changes in processes and procedures or jobs complex enough to require written instructions will have a Job Safety Analysis performed. Completed JSAs are available from the Safety Manager.

JSA must be communicated to the work team and other affected parties immediately prior to beginning work. Language must be appropriate for the work team so that they clearly understand the task hazards, control measures and actions required to conduct work safely.

Site Specific HSE Plan (SSSP)

Each work location has a site specific HSE plan. Each individual work crew reporting to a location shall receive a documented orientation from an ROMER Utility Services supervisor that includes the SSSP for that site. The SSSP contains the companies Health and Safety Policy, site specific safety requirements as well as a PPE matrix and a signed site-specific worksite hazard assessment for that location, which Romer Utility Services has a responsibility to provide.

Completion of a written JSA form with the following elements

- Title and summary description of the task (s) to be performed
- The name of the person leading the work, the work location, permit # (s) and date
- A list of the steps required to accomplish the task(s)
- A list of potential hazards associated with each step
- A list of controls or mitigations for each potential hazard
- Acknowledgement of understanding by each member of the work team through signature on the form

Review Process

To ensure that the work team is aware of the hazards and control requirements an Onsite Briefing /Toolbox talk must be conducted prior to commencing work. The onsite pre-job briefing should be carried out by the work team leader and include the following.

- Reviewing the JSA with the work team and other potentially affected persons
- Assessing any additional hazards at the worksite
- Ensure the appropriate control measures are in place
- Assign responsibility to ensure control measures are in place
- Emphasize the use of Stop Work Authority (SWA), and identify and discuss examples of actions or conditions which might lead to use of SWA during job.
- Confirm work-party understanding
- Obtain the signatures of all work-party on the JSA Documentation

The hazard assessment program will be reviewed to ensure no new hazards derived from the corrective measures. The review shall include a management of change consideration as well.

The safety committee shall be involved in the review process as well.

- Job scope changes significantly
- New personnel are added to the work party
- Site conditions change beyond those originally identified
- A near miss, incident, or other work stoppage occurs
- A concern is raised has the result of Personal Hazard Assessment

Note: All JSA Must Be Turned into the Safety Department for Review and Must Be Kept For At Least One (1) Year

WORKSITE HAZARD ASSESSMENT FORM

CERTIFICATE OF HAZARD ASSESSMENT STATEMENT FOR _*form shall be signed*_ SITE

I certify a worksite hazard assessment was performed for this facility on *date* by the Safety Manager. *(Signature on File)*

Task: Indicate Task Group (Additional Tasks shall be listed in each site specific HSE plan)

TASKS	RISK LEVEL	HAZARDS	ENGINEERING OR ADMINISTRATIVE CONTROLS	PPE (Refer to PPE Matrix)
List individual task	***Use Risk Matrix***	***Identify hazards associated with task***	• ***List procedures that apply*** • ***List appropriate engineering controls*** • ***List procedures or other administrative controls***	***List appropriate PPE***
Example: Washing Parts	MED	Chemical Exposure (Skin, Eyes, Body)	• COMPANY PPE Procedure • No smoking;	Chemical gloves, splash proof goggles chemical apron
			•	
			•	
			•	
			•	
			•	
			•	

JOB SAFETY ANALYSIS FORM

Location / Dept.:		Date:	New? ☐	Revision ☐	JSA NO:
Task			Supervisor:		
			Analysis By:		
Team Members			Reviewed By:		
			Approved By:		

Specific rules and procedures to be followed (Safe Work Practice Number ____):

Sequence of Basic Job Steps	Potential Injury or Hazards	Recommendations to Eliminate or Reduce Potential Hazards.

CHECK ITEMS REQUIRED TO DO THIS JOB:

Safety Glasses	☐	Leather Gloves	☐	Face Shield	☐	Fire Extinguisher	☐	Atmospheric Testing	☐
Hard Hats	☐	Work Vest	☐	Goggles (type?)	☐	Lockout/Tag out	☐	Traffic Control	☐
Safety Shoes	☐	Fall Harness	☐	Flame Resistant Clothing	☐	Warning signs	☐	Other	☐

INSTRUCTIONS FOR COMPLETING THE JOB SAFETY ANALYSIS FORM

Select an employee to help you with the JSA: someone who is experienced in the job, willing to help and a good communicator. The employees play an important role in helping you identify job steps and hazards. In summary, to complete this form you should consider the purpose of the job, the activities it involves, and the hazards it presents. In addition, observing an employee performing the job, or "walking through" the operation step by step may give additional insight into potential hazards. Here's how to do each of the three parts of a Job Safety Analysis:

SEQUENCE OF BASIC JOB STEPS

Examining a specific job by breaking it down into a series of steps or tasks, will enable you to discover potential hazards employees may encounter.

Each job or operation will consist of a set of steps or tasks. For example, the job might be to move a box from a conveyor in the receiving area to a shelf in the storage area. To determine where a step begins or ends, look for a change of activity, change in direction or movement.

Picking up the box from the conveyor and placing it on a hand truck is one step. The next step might be to push the loaded hand truck to the storage area (a change in activity). Moving the boxes from the truck and placing them on the shelf is another step. The final step might be returning the hand truck to the receiving area.

Be sure to list all the steps needed to perform the job. Some steps may not be performed each time; an example could be checking the casters on the hand truck. However, if that step is generally part of the job it should be listed.

POTENTIAL HAZARDS

A hazard is a potential danger. The purpose of the Job Safety Analysis is to identify ALL hazards – both those produced by the environment or conditions and those connected with the job procedure. To identify hazards, ask yourself these questions about each step:

Is there a danger of the employee striking against, being struck by, or otherwise making injurious contact with an object?

Can the employee be caught in, by or between objects? Is there a potential for slipping, tripping, or falling?

Could the employee suffer strains from pushing, pulling, lifting, bending, or twisting?

Is the environment hazardous to safety and/or health (toxic gas, vapor, mist, fumes, dust, heat, or radiation)?

Close observation and knowledge of the job is important. Examine each step carefully to find and identify hazards – the actions, conditions, and possibilities that could lead to an accident. Compiling an accurate and complete list of potential hazards will allow you to develop the recommended safe job procedures needed to prevent accidents.

RECOMMENDED ACTION OR PROCEDURE

Using the first two columns as a guide, decide what actions or procedures are necessary to eliminate or minimize the hazards that could lead to an accident, injury or occupational illness.

Begin by trying to: (1) engineer the hazard out; (2) provide guards, safety devices, etc.; (3) provide personal protective equipment; (4) provide job instruction training; (5) maintain good housekeeping; (6) ensure good ergonomics (positioning the person in relation to the machine or other elements).

List the required or recommended personal protective equipment necessary to perform each step of the job.

Give a recommended action or procedure for each hazard.

Serious hazards should be corrected immediately. The JSA should then be changed to reflect the new conditions.

Finally, review your input on all three columns for accuracy and completeness with affected employees. Determine if the recommended actions or procedures have been put in place. Re-evaluate the job safety analysis as necessary.

Hearing Conservation

I. PURPOSE

To establish guidelines to be followed by all Larson Construction Co. Inc. employees and sub-contractors in conjunction with OSHA's occupational noise standard and to protect the hearing of those employees exposed to noise levels in excess of 85 dBA. All employees exposed to an 8-hour time-weighted average exposure at or above 85 dBA must be included in a hearing conservation program. It shall be noted that the Company currently complies with a Hearing Protection program as employees are not subject to noise levels exceeding the 85dBA TWA.

Such a program will include:

- Monitoring
- Audiometric testing
- Training
- Hearing protective devices
- Recordkeeping

II. MONITORING

A. Monitoring of noise exposure levels shall be conducted to accurately identify employees who are exposed to noise levels at or above 85 dBA.

B. Monitoring shall be repeated whenever a change in the process, equipment or controls is suspected of increasing noise exposures.

C. Employees are entitled to observe the monitoring procedures and must be notified of the monitoring results in writing.

III. AUDIOMETRIC TESTING

A. Audiometric testing monitors the sharpness or acuity of an employee's hearing over time and provides an opportunity for employers to educate employees about their hearing and the need to protect it.

B. Audiometric testing must be made available to all employees who have exposure levels of 85 dBA or greater for an 8-hour period.

C. A professional audiologist (specialist dealing with hearing), otolaryngologist (physician specializing in the diagnosis and treatment of disorders of the ear, nose and throat) or physician must be responsible for the program. Professionals and trained technicians may conduct audiometric testing. The professional does not have to be present when a qualified

technician is conducting the testing.
The professional's responsibilities include overseeing the program and the work of the technicians, reviewing audiograms and determining whether referral is necessary.

D. There are two audiograms required for a hearing conservation program: baseline and annual audiogram. The first being no longer than 6 months from employee's first exposure.

1. The baseline audiogram is the reference audiogram against which future audiograms are compared. They must be obtained during the employment medical evaluation.

2. The annual audiogram must be conducted within one year of the baseline. It is important to test hearing on an annual basis in order to identify changes in hearing ability. The annual audiogram must be routinely compared to the baseline audiogram to determine whether the audiogram is accurate and to determine whether the employee has a change in hearing ability (that is, a standard threshold shift (STS) has occurred). A STS is defined as an average shift in either ear of 10 dB or more at 2,000, 3,000, and 4,000 Hz. An averaging method of determining a STS was chosen because it diminishes the number of persons falsely identified as having a STS who are later shown not to have had a change in hearing ability. Annual audiograms must be preceded by 14 hours without exposure to workplace noise; however, hearing protectors may be used as a substitute for this requirement.

E. Employees must be notified in writing within 21 days from the time the determination is made that their audiometric test results showed a STS. Some employees with a STS may need to be referred for further testing if the professional determines that their test results are questionable or if they have an ear problem of a medical nature which is thought to be caused or aggravated by wearing hearing protectors. If the suspected medical problem is not thought to be related to wearing hearing protectors, the affected employees must be informed that they should see a physician.

F. Follow-up procedures must include fitting or refitting of STS-identified employees with adequate hearing protectors. They must be shown how to use hearing protectors and are required to wear hearing protectors.

G. A subsequent audiogram may be substituted for the original baseline audiogram if the professional supervising the program determines that the employee's STS is persistent. This substitution will ensure that the same shift is not repeatedly identified. The professional may also decide to revise the baseline audiogram if an improvement in hearing has occurred. This will ensure that the baseline reflects actual hearing thresholds to the extent possible.

IV. TRAINING

Training is provided at least annually for employees exposed to 85 dBA (8-hourTWA) or greater. Training consists of: the effects of noise; the purpose, advantages, disadvantages, attenuation (amount of noise reduction) of various types of hearing protectors; the selection, fitting, and care of protectors; and the purpose and procedures for audiometric testing.

V. HEARING PROTECTORS

A. Hearing protective devices (HPD) shall be readily available to all employees exposed to an 8-hour time-weighted average of 85 dBA or greater at no cost to employee.

B. HPD's are required to be worn by:

1. All employees exposed to an 8-hour TWA of 85 dBA or greater
2. Any individual entering an area in which hearing protection is required.

C. All employees have an opportunity to select their HPDs from at least three suitable styles. (ear muffs, canal caps, foam plugs)

D. HPDs must be evaluated to ensure that they attenuate noise level exposures to less than 85 dBA. When using the noise reduction rating to assess hearing protection adequacy, use the appropriate method for estimating the adequacy of hearing protection attenuation as given in Appendix B of 1910.95. Following is the OSHA method for estimating the A-weighted time weighted average:

Estimated dBA = Actual dBA sound level - ((NRR-7)/2)

VI. RECORDKEEPING

Noise exposure measurement records are kept for five years. Audiometric test results are maintained for 30 years after employment ceases. Audiometric test results must include:

A. The employee's name and job classification.

B. His/her most recent noise exposure measurement.

C. The date and the examiner's name.

D. The date of acoustic or exhaustive calibration.

F. Measurements of background sound pressure levels in audiometric test rooms.

VII. RECORDING HEARING SHIFTS

Work-related hearing shifts of an average of 10 dB or more at 2,000, 3,000, and 4,000 hertz in either ear shall be recorded on the OSHA 300 Log in the illness column.

VIII. AUDIOMETER CALIBRATION

The functional operation of the audiometer should be checked:

A. Daily, before each day's use by testing a person with known stable hearing thresholds (biological calibration). If there are deviations of 10 dBA or greater, do not test that day and have the unit acoustically-calibrated. The test subject should listen for free and undistorted sounds.

B. Annually, an acoustic calibration shall be conducted. This calibration should be contracted to a qualified agency.

C. Bi-annually, an exhaustive calibration shall be conducted. This calibration should be contracted to a qualified agency.

If a facility has an on-site audiometer, it is important to keep records of the above calibrations. If a mobile audiometric testing service is used, review and maintain a copy of their records. Calibration records should be maintained indefinitely.

IX. EVALUATION

Management is responsible for conducting an annual audit of the hearing conservation program.

X. ENGINEERING CONTROLS

Where feasible, engineering measures (barriers, enclosures, curtains) are preferred to reduce noise exposure over either administrative controls (job rotation, limit exposure times) or the use of personal protective devices.

XI. ACCOUNTABILITY

All employees, visitors, vendors, contractor or subcontractors shall be made aware of this policy and its contents. Any violation of this policy will be subject to discipline up to and including termination.

XII. REFERENCE

OSHA standard: 1910.95: Occupational noise exposure

Heavy Equipment Operation Procedures

Purpose

The written Heavy Equipment Operation Procedures for Construction establish guidelines to be followed whenever any of our employees work with heavy equipment at Romer Utility Services. The rules are established to:

- Provide a safe working environment,
- Govern operator use of heavy equipment, and
- Ensure proper care and maintenance of heavy equipment.

These procedures establish uniform requirements designed to ensure that heavy equipment operation practices are communicated to and understood by the affected employees. These requirements are also designed to ensure that procedures are in place to protect the health and safety of all employees.

It is our intent to comply with the requirements of 29 CFR 1926, Subpart O for construction activities. This regulation has requirements for heavy equipment operations.

We also comply with the applicable requirements of:

Standard or Regulation:	Name:
ANSI B56.1-1969	*Safety Standards for Powered Industrial Trucks*
SAE J166 -1971	*Trucks and Wagons*
SAE J236-1971	*Self-Propelled Graders*
SAE J237-1971	*Front End Loaders and Dozers*
SAE J319b-1971	*Self-Propelled Scrapers*
SAE J386-1969	*Seat Belts for Construction Equipment*
SAE J333a-1970	*Operator Protection for Agricultural and Light Industrial Tractors*
SAE J321a-1970	*Fenders for Pneumatic-Tired Earth moving Haulage Equipment*
29 CFR 1926.20(b)(4)	*General Safety and Health Provisions*
29 CFR 1926.178(l)	*Powered industrial trucks*

ASME Power Boilers (section I)	
ASME Pressure Vessel (section VIII)	

Administrative Duties

Safety Manager is responsible for developing and maintaining the written Heavy Equipment Operation Procedures for Construction. These procedures are kept in the Safety Manager's Office

Heavy Equipment at Our Worksite

Our company uses these types of heavy equipment:

Make, model, and serial number:	Type:	Quantity:	Purpose and location:

Heavy Equipment Training

It is the policy of Romer Utility Services to permit only those employees qualified by training or experience to operate heavy equipment. The Safety Manager will identify new employees in the employee orientation program who need heavy equipment training.

Our company trains our own employees in heavy equipment operation. The Safety Manager and/or a qualified Supervisor have the job duty to train employees on heavy equipment operation.

Safety Manager is responsible for keeping heavy equipment training certification records.

Inspections

Heavy Equipment Competent Person

A competent person is someone who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or

dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.

Pre-shift

The company performs a pre-shift inspection to assure that parts, equipment, and accessories are in safe operating condition and free of apparent damage.

Cab Inspections

Our company performs equipment and vehicle cab inspections.

Periodic Inspections

We perform periodic equipment and vehicle inspections.

Operating Procedures

Heavy equipment can create certain hazards that only safe operation can prevent. Here are the heavy equipment safe operating procedures that have been implemented:

- Driving
- Load Lifting and Handling
- Fuel Handling and Storage
- Battery Charging and Changing
- Carbon Monoxide
- Overhead Obstacles
- Other Operating Procedures

Maintenance

Any deficiencies found in our heavy equipment are repaired, or defective parts replaced, before continued use. However, no modifications or additions that affect the capacity or safe operation of the equipment may be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction

plates, tags, or decals must be changed accordingly. In no case may the original safety factor of the equipment be reduced.

A qualified Company mechanic are responsible for ensuring the heavy equipment is capable of safe and reliable operation after any major repair or design modification.
While defective parts may be found, we prefer to invest time and effort into the proper upkeep of our equipment, which results in day-to-day reliability. Keeping up with the manufacturer's recommended maintenance schedules, and completing the proper records, will also increase our heavy equipment's' longevity and enhance resale value.

A qualified Company mechanic completes a receiving or delivery inspection whenever our company purchases heavy equipment, and performs the recommended "breaking in" inspections and maintenance.

A qualified Company mechanic follow(s) the manufacturer's operator instruction manual for daily maintenance. In addition, our company does periodic maintenance (those completed monthly or less frequently) in-house.

First Aid and Protective Measures

We supply provisions for rendering first aid and medical assistance in accordance with 29 CFR 1926 Subpart D.

Our employees engaged in site clearing are protected from hazards of irritant and toxic plants and suitably instructed in the first aid treatment available.

While performing marine operations, we ensure that there is in the vicinity of each barge in use at least:

- One U.S. Coast Guard-approved 30-inch life ring with not less than 90 feet of line attached, and

- One portable or permanent ladder which will reach the top of the apron to the surface of the water.

If the above equipment is not available at the pier, we furnish it during the time that employees are working the barge.

We protect employees walking or working on the unguarded decks of barges with U.S. Coast Guard-approved work vests or buoyant vests.

Load Ratings

We comply with the safety requirements, ratios, or limitations applicable to machines or attachment usage covered in Power Crane and Shovel Associations Standards No. 1 and No. 2 of 1968, and No. 3 of 1969.

Our industrial trucks meet the requirements of 29 CFR 1926.600 and the following:

- Lift trucks, stackers, etc., shall have the rated capacity clearly posted on the vehicle so as to be clearly visible to the operator. When auxiliary removable counterweights are provided by the manufacturer, corresponding alternate rated capacities also shall be clearly shown on the vehicle. These ratings shall not be exceeded.

- No modifications or additions which affect the capacity or safe operation of the equipment shall be made without the manufacturer's written approval. If such modifications or changes are made, the capacity, operation, and maintenance instruction plates, tags, or decals shall be changed accordingly. (enter your answer) is the person the keeps the records of these modifications or additions. In no case shall the original safety factor of the equipment be reduced.

- If a load is lifted by two or more trucks working in unison, the proportion of the total load carried by any one truck shall not exceed its capacity.

Recordkeeping

The company mechanic maintains the records related to heavy equipment inspection, maintenance and repair. The Safety Manager maintains all training and qualification records.

Hexavalent Chromium Program

The purpose of this program is to establish requirements for the use and handling of materials that expose employees to cadmium and/or hexavalent chromium.

Scope This program covers all employees.

Key Responsibilities Purpose

Managers/Supervisors

- Shall ensure that all employees are aware of the proper work procedures for cadmium and hexavalent chromium
- Shall ensure that initial training is conducted for all new employees and that retraining is conducted when employee behaviors suggest that retraining is warranted.
- As part of the JSA and other hazard evaluation processes, identifies and evaluates chromium or cadmium hazards and potential exposures during planning and the conduct of work.
- Reviews and approves the Task-Specific Safety Analysis.
- As necessary, quantitatively determines the presence of chromium or cadmium in materials, substrates, and other media. This may involve the collection of samples for analysis by a qualified laboratory or field testing using acceptable test methods.
- Provides results of any chromium or cadmium survey to management/supervision, along with information regarding hazard potential and control measures. As appropriate, makes recommendations to management/supervision to maintain, modify, upgrade, or downgrade controls accordingly.
- Takes prompt corrective measures (or supports any Competent Person in this role) to eliminate hazards; such as recommending to management/supervision to implement or modify engineering, administrative, work practice, and personal protection (including respiratory protection) controls.
- Conducts periodic exposure assessment.
- As appropriate, assists management/supervision in ensuring that workers have the necessary training and medical surveillance based upon the activity and hazard.
- Ensures that medical monitoring is conducted in accordance with 29 CFR 1926.1126 (for chromium) or 29 CFR 1926.1127 (for cadmium) including imposition of work restrictions where appropriate and reviewing results of medical monitoring.
- In evaluating chromium or cadmium hazards and specifying controls for a job, (a) utilizes reliable historical exposure monitoring data generated for other similar operations or activities, (b) utilizes objective data, and/or (c) plans and conducts initial monitoring to determine exposures and assess the effectiveness of hazard controls.
- Conducts initial and periodic exposure monitoring in accordance with National Institute for Occupational Safety and Health (NIOSH)/OSHA methods if lacking historical or objective data.
- Maintains effective records of jobs monitored, so that a historical database can be used to specify controls and eliminate unnecessary and redundant monitoring for future activities.

- Supports project management/supervision in responding to exposures above the PEL when workers were not adequately protected.
- As appropriate, participates in pre-job and daily worker briefings regarding task-specific chromium or cadmium hazards and controls, work practices/plans (such as JSAs), and other applicable information, including any changes that are made to controls or to the work practices or plans.

Employees

- Shall follow all requirements regarding the safe work procedures for cadmium and hexavalent chromium.

Cadmium Procedure

Compliance Program
A written compliance program shall be implemented when the PEL for cadmium is exceeded at a work site.

The following areas shall be addressed within the site compliance program and to ensure emergency plans are in place should a release of cadmium occur:

- Potential exposure determination including a description of each operation where cadmium is omitted, machinery use, material processed, controls in place, crew size, employee job responsibilities and maintenance practices.
- Air monitoring data or developing a justification for not conducting monitoring based on previous monitoring/historical data or objective data.
- Engineering controls including the specific means that will be employed to meet compliance.
- A report of technology considered in meeting the PEL.
- A detailed schedule of implementation.
- Consideration of respiratory protection.
- A documented, written plan for dealing with emergency situations involving a substantial release of cadmium.
- Work practice program.
- Other relevant information such as protective clothing, housekeeping, hygiene areas and practices (including consideration of shower facilities), consideration of medical surveillance, training and recordkeeping.

The written program must be reviewed and updated annually or more often to reflect significant changes in the compliance status for Romer Utility Services.

The program shall be provided for examination and copying upon request of affected employees, their representatives or OSHA officials.

Maintenance procedures while working on ventilation systems and changing of filters will be established. Procedures shall be developed and implemented to minimize employee exposure to cadmium when maintenance of ventilation systems and changing of filters. Examples include: Proper use of PPE, use of HEPA filtered vacuums, wet sweeping or other methods to minimize the likelihood of exposure to chromium. No compressed air shall be used to remove chromium from any surface. Cleaning equipment must be handled in a manner that minimizes the reentry of chromium into the workplace.

Construction work activities that result in exposure to chromium or cadmium may include, but are not limited to, the following:

- Demolition or salvage of structures where chromium or cadmium, or materials containing chromium or cadmium, are present.
- Removal or encapsulation of materials containing chromium or cadmium.
- New construction, alteration, repair, or renovation of structures and substrates that contain chromium or cadmium.
- Installation of products containing chromium or cadmium.
- Working with/around Portland cement (in powder or dust form – chromium only).
- Torch-cutting chromium/cadmium containing paints.
- Transportation, disposal, storage, or containment of chromium or cadmium, or materials containing chromium or cadmium.
- Maintenance operations associated with construction activities.
- Welding, cutting, burning, or grinding stainless steel, chromium-/cadmium-containing alloy steel, and chromium/cadmium containing alloys.

Note!!!Exposure to chromium (especially hexavalent chromium) has also occurred when the welding rod or wire in use contains chromium.

The permissible exposure limit (PEL) for cadmium and hexavalent chromium is five (5) micrograms calculated as an 8-hour time-weighted average over a work shift. The action level (AL) of 2.5 micrograms triggers the following requirements:

- Pre-job planning includes, as needed, a thorough identification of chromium or cadmium materials. Identification may include the product name, a Material Safety Data Sheet (SDS) with the SDS number (if available) or a sample content analysis. Sampling data includes location, sampling method, sampling dates, laboratory identification, and analytical method.
- If documentation is not feasible or has been determined by the project engineer to be unavailable or unreliable, chromium or cadmium content sufficient to exceed the action level for chromium or cadmium is assumed.

Results of bulk sampling, calculations of potential chromium or cadmium exposure, and other data that demonstrate compliance with this practice (as well as the pertinent standards) are attached to the work package.

Where chromium or cadmium exposure above the action level is suspected, and in the absence of monitoring data, interim protective measures are established that are equal to or greater than the assumed exposure level.

Hexavalent Chromium Procedure
Welding, Cutting, and Grinding

Certain welding and cutting activities have been shown to expose the welder/cutter, and potentially helpers, to hexavalent chromium above the action level when exhaust ventilation is not used. The activities have included the following:

- Shielded metal arc welding, Gas metal arc welding
- Flux cored arc welding, Sub arc welding
- Torch cutting through chromate-containing paints, grinding chromium-containing metals.

The types of metal involved have been stainless steel, chromium-containing alloy steel, and chromium-containing nonferrous alloys. Exposure has also occurred when the welding rod or wire in use contains chromium, and exhaust ventilation is not used.
Therefore, exhaust ventilation is always prescribed as a control measure when activities with the materials mentioned above are in use unless historical personal monitoring data performed when similar materials, using similar methods, under similar environmental conditions are used shows conclusively that the welder/cutter and helper (if applicable) are not exposed above the action level without regard to respiratory protection.

Practices and procedures shall ensure that no employee is exposed to hexavalent chromium in excess of the permissible exposure level which is 5 micrograms per cubic meter of air based on an 8-hour Time Weighted Average.

Plasma and Air Arc Cutting and Gouging

Plasma and air arc cutting and gouging operations have been shown to expose the worker and helpers within 10 feet of the work to levels of hexavalent chromium above the permissible exposure limit (PEL) under most circumstances and conditions. Exhaust ventilation and respiratory protection (at least a half-face, tight-fitting respirator with a HEPA filter/cartridge) are always prescribed as control measures when activities with the materials mentioned above are in use; a higher level of respiratory protection may be prescribed, depending on conditions.

Note!!!Each discrete task must begin with ventilation and respiratory protection control measures in place. Respiratory protection may be downgraded only upon conclusive results of breathing zone monitoring of the employee(s) involved in each discrete task showing exposure to be less than 50 percent of the protection factor of the respirator relative to the concentration and PEL of hexavalent chromium.
Respiratory protection may be eliminated only upon conclusive results of breathing-zone monitoring of the employee(s) involved in each discrete task showing exposure to be less than the PEL as an 8-hour time-weighted average.

Additional controls may also be appropriate to be in compliance with 29 CFR 1926.1126, depending on the results of evaluations of the materials to be used, environmental conditions, length of the work process/activity, etc.
Employees who are exposed at or above the action level 30 days or more per year are enrolled in a medical surveillance program.

Personal hygiene is very important while working with chromium or cadmium products. To avoid accidental ingestion of chromium or cadmium, employees wash thoroughly (regardless of other controls) prior to eating, chewing, smoking, or drinking.

Practices
Romer Utility Services Management/supervision supported by safety professional(s), the medical contractor and training providers conducts the following basic steps to control exposure to chromium or cadmium:

- Determine the types of projects, activities, and operations that could involve chromium or cadmium, or chromium or cadmium-containing materials. For those jobs, conduct hazard identification as part of the work design, planning, and control process.
- If chromium or cadmium materials are involved, ensure that project safety (for chromium) or a competent person (for cadmium) conducts a hazard evaluation to determine the potential exposure and to recommend initial controls.
- Develop and implement a Task-Specific Safety when exposure is or is likely to be above the PEL. The JSA (or equal) addresses the scope of work activities; provides initial exposure assessment; and prescribes exposure controls, air-monitoring requirements, work practices, personal protective equipment and additional information as required.
- Incorporate recommendations from project safety for chromium or cadmium hazard control measures into any JSA and work control documents.

Exposure Monitoring
Monitoring or measuring of employee exposure shall be conducted at least every 6 months if the initial monitoring shows employee exposure. Air monitoring will be performed at the beginning of each job task. If exposure monitoring results indicate exposure is above the PEL Romer Utility Services must include in the written notification to employees the corrective action being taken to reduce exposure to or below the PEL.

- Notify each affected employee, in writing, of the results of monitoring within five (5) working days.
- Air monitoring for chromium or cadmium may be waived provided the following conditions are met:
    - Monitoring has been performed in the last 12 months.
    - Data from historical monitoring originates from work operations that closely resemble the planned work operations.

- Workplace and environmental conditions (such as indoors or outdoors, temperature, wind speed, ventilation, and space configuration) are similar to those when the monitoring was performed.
- The processes, types of material, control methods and work practices are similar.
- Justification for waving initial monitoring shall be included in the Task-Specific Safety Analysis or equal. Employees involved are briefed regarding the existence of such data.
-

Surveillance

Medical surveillance shall be provided when an employee experiences signs or symptoms of the adverse health effects of Hexavalent Chromium (dermatitis, asthma, bronchitis, etc.). Medical evaluations will be provided at no cost to employees. Examinations will be performed by or under the supervision of a physician or other licensed health care professional.

Facilities

Romer Utility Services must provide change rooms for decontamination and ensure facilities prevent cross-contamination. Washing facilities shall be readily accessible for removing chromium from the skin. Workers must wash their hands and face or any other potentially exposed skin before eating, drinking or smoking.
Regulated Areas
Regulated areas shall be established when exposure to an employee is or is expected to be in excess of the PEL. Regulated areas shall be marked with warning signs to alert employees and access is restricted to authorized persons only.

Controls
If the exposure level is above the PEL for 30 days or more then engineering controls and work practices shall be provided to reduce exposure to the lowest feasible level. If employees can demonstrate that such controls are not feasible Romer Utility Services shall use engineering and or work controls to reduce employee exposure to the lowest levels achievable and shall supplement them by the use of required respiratory protection.

Recordkeeping
Romer Utility Services is required to maintain and make available an accurate record of all employee exposure monitoring, medical surveillance and training records.

Respiratory Protection & PPE
The appropriate respirator shall be used when engineering controls and work practices cannot reduce employee exposure during work operations where engineering controls and work practices are not feasible and emergencies. Respirators shall be provided in accordance with 1910.134 (Respiratory Protection) (see Romer Utility Services Respiratory Protection Program). Specific requirements contained within 1926.1127 (Cadmium) regarding respiratory protection shall also be followed including:

- Providing employees with full face piece respirators when they experience eye irritation.

- Providing HEPA filters for powered and non-powered air-purifying respirators.
- Providing a powered air-purifying respirator instead of a negative-pressure respirator when an employee entitled to a respirator chooses to use this type of respirator and such a respirator will provide adequate protection to the employee.

PPE will be provided when there is a hazard from skin or eye contact and employees are required to use the PPE. Gloves, aprons, coveralls, goggles, foot covers and other as needed PPE shall be provided at no cost to the employee and will be removed at the end of the work shift. Romer Utility Services must clean, launder and replace all protective clothing as needed.

Housekeeping
All surfaces shall be maintained as free as practicable of chromium. All spills and releases of chromium shall be cleaned promptly with approved procedures including use of HEPA filtered vacuums as the primary method, dry or wet sweeping or other methods to minimize the likelihood of exposure to chromium.

No compressed air shall be used to remove chromium from any surface unless the compressed air is used in conjunction with a ventilation system designed to capture the dust cloud created by the compressed air or no alternative method is feasible.

Cleaning equipment must be handled in a manner that minimizes the reentry of chromium into the workplace.

Training
Romer Utility Services shall provide appropriate types of training for employees who are potentially exposed to chromium or cadmium prior to their initial assignment and annually thereafter. Romer Utility Services will assure employee participation and maintain a record of the training contents. This training includes:

- Hazard communication training for potentially exposed employees.
- Training specified by the applicable chromium or cadmium standard for workers exposed at the action level for any one day, or who are exposed to chromium or cadmium compounds that are skin irritants.
- Respirator training if respirators are to be used.
- Provide information to workers regarding task-specific chromium or cadmium hazards and control methods, the JSA, work practices, medical surveillance and other applicable information, including any changes that are made to these controls.
- Provide training annually, as appropriate, to workers who continue to have exposure to chromium or cadmium at or above the action level on any one day.
- All training will be recorded and include the identity of the employee trained, the signature of the person who conducted the training and the date of the training.
- Training records must be kept for one year.

Hydrogen Sulfide Safety Program

Purpose:

The purpose of this plan is to provide protection for Romer Utility Services personnel, its contractors, subcontractors, and the general public, whenever a potentially dangerous situation may exist from Hydrogen Sulfide (H2S) during the drilling or production operations.

Potential H2S Exposure

H2S may be found during many aspects of the job for all Romer Utility Services employees.
Drilling Operations. A. Recycled Drilling Mud. B. Water from sour crude wells. C. Blowouts
Tank Gauging (tanks at producing, pipeline & refining operations).
Field Maintenance. A. Tank batteries and wells, B. Pipelines.

Policy:

When H2S is encountered, if a third-party Safety Company is not on location to determine H2S concentrations, all activities will cease until the proper safety equipment can be obtained to resume work. Until the equipment arrives. All personnel will be required to move to a safe distance upwind of the release.

Employee Training:

Every ***employee*** who works in an area where H2S is present or has the potential to be present shall receive H2S training prior to entering the site. This training will be confirmed by the employee presenting a certificate of completion in a certified Hydrogen Sulfide training class. In addition, Romer Utility Services will ensure that every contractor and subcontractor's employees are adequately trained in H2S training. In addition to the H2S training, respiratory protection training is required and well.

Site Access:

Access to the well site during drilling and completion operations shall be limited to authorized personnel only. As soon as the effect employees enter the site they need to familiarize themselves with the site specific contingency plan.

Briefing Area:

A briefing area shall be established prior to work has commenced. At a time of emergency, employees on site are to report to this area, and stay until released by the in charge person of the site. It should be located at the entrance to the location on the access road, if upwind of the well. A secondary site should also be selected if the winds are unfavorable for the primary site. Flags and/or streamers shall be used to monitor wind direction, and the briefing areas can be changed if conditions warrant such a change to avoid hazardous situations. A safety meeting should be held prior to each shift. These safety meetings will consist of identifying the briefing areas and evacuation routes for the site.

A concentration of 10 ppm in the area shall be a sufficient H2S concentration to expand the briefing area.

Emergency Equipment:

At a minimum, the following equipment will be required at all well sites that have the potential for H2S concentrations:

<> One (1) 4 head H2S detector system with alarm
<> H2S warning signs on location and at the entrance of the lease road.
<> Four (4) SCBA (Self Contained Breathing Apparatus) with 30minute tanks
<> Two (2) Wind Socks or Flags
<> Two Safe Briefing Area Signs
<> Five, 5-minute Escape Packs
<> One (1) Sensidyne Pump with H2S tubes
<> One (1) Flare Gun Kit with Flares

Automatic monitors with H2S sensors in them and a range of 1-99 ppm should be set to go off at 10 ppm and placed in the following locations.

#1 Near Driller's location on the rig floor
#2 under the rig floor near the Bell Nipple

#3 in the area of the shale shaker
#4 at the end of the mud mixing pits.

Note: For Operations that do not involve drilling or completion, employees working in areas that may contain H2S must carry a properly calibrated single gas H2S monitor with a built-in alarm that will sound at 10 ppm with them at all times. As well as the monitoring equipment, the properly inspected SCBA and 5-minute escape packs must be accessible. Cartridge style respirators are not acceptable.

A residence map of the area shall contain all private dwellings, public buildings and other areas that public personnel might be expected. The map shall also list weather they residence are full time or seasonal. The map shall have a legend that identifies a method of communicating with the residence in the event of an emergency. A copy of this site-specific plan must also be made available to them if they so wish. Attempts should be made to contact all residence adjacent to the location prior to the work process taking place.

Landowner	**Phone #**	**Status**

There are no residents within ¼ mile of proposed well site.

H2S Radius of Exposure:

It is intended that these voluntary recommended practices provide guidelines that will promote and maintain public safety and safe and healthy working conditions for employees engaged in the oil and gas production operations and gas processing plant operations involving Hydrogen Sulfide.

Significant amounts of produced liquid and gaseous hydrocarbons contain hydrogen sulfide in sufficient concentrations to present a potential hazard to personnel and equipment. To successfully produce, gather, treat and transport these hydrocarbons requires that the people manning the operation be trained and equipped to safely perform their duties.

Hydrogen n Sulfide is an extremely toxic gas. In fact, it is almost as toxic as hydrogen cyanide. In oilfield operations, a wide range of hydrogen sulfide concentrations may be found. The effects of these concentrations also range widely from a disagreeable odor or eye irritation at low concentrations to a serious illness or even death at higher concentrations. Personnel working in areas where they may be exposed to hydrogen sulfide should be trained to recognize and understand its hazards and to protect themselves from its harmful effects.

H2S PHYSICAL & CHEMICAL CHARACTERISTICS

Some of the significant physical and chemical characteristics of hydrogen sulfide are:

1. Extreme toxicity (almost as poisonous as hydrogen cyanide)
2. Heavier than air (specific gravity of 1.189)
3. Colorless
4. Has odor of rotten eggs in low concentration, at high concentrations it is odorless.
5. Burns with a blue flame and produces SO2 (sulfur dioxide) which can cause eye and lung irritation.
6. Forms an explosive mixture with the air at concentrations between 4.3% and 46%by volume of air.
7. Soluble in water and oil but becomes less soluble as the fluid temperature increases.

Health Effects/Concentrations in Air

Percent By Volume	Parts per Million By Volume	Grains per 100 standard Cubic Feet	Milligrams Per Cubic Meter	Physiological Effects
0.000013	0.13	0.008	0.18	Obvious and unpleasant odor generally Perceptible at 0.13 ppm and quite Noticeable at 4.6ppm. As the concentration Increase, the sense of small fatigues and the gas can no longer be detected by odor.
0.002	10	1.26	28.83	Acceptable ceiling concentration Permitted by MIOSHA
0.01	100	6.30	144.14	MIOSHA acceptable ceiling
0.02	200	12.59	288.06	Kills sense of smell rapidly. Burns eyes and throat.
0.05	500	31.49	720.49	Dizziness, loss of sense reasoning and Balance. Breathing problems in a few Minutes. Victim needs prompt artificial Artificial resuscitation.

0.07	700	44.08	1008.55	Unconscious quickly. Breathing will Stop and death will result if victim's Are not rescued promptly. Artificial Resuscitation is needed.
0.10+	1000+	62.98+	1440.98+	Unconscious at once. Permanent brain Damage or death may result unless Rescued promptly and given artificial

H2S RADIUS OF EXPOSURE

It is important to determine the concentration of hydrogen sulfide potentially present at the well bore and to calculate the radius of exposure of the gas. The **radius of exposure** is the distance from the potential leak or release of gas required for the hydrogen sulfide concentration in the air to dilute below certain designated levels (normally 100ppm).

There are three levels of compliance (I, II, III), which are applicable to the length of the radius of exposure and the presence of "public areas" within the radius of exposure. As the radius of exposure increases and/or the potential for public exposure grows, the operator's responsibilities and the number of requirements also increase. Each level of compliance builds upon the previous one and mandates additional requirements on the part of the operator.

Level I

The first level of compliance applies to all operators of facilities having hydrogen sulfide concentrations of 100ppm within a radius of exposure of 50 feet. In other words, the concentration of hydrogen sulfide will fall below the 100ppm less than 50 feet of the source of the release. Operators with facilities in this category must train employees in hydrogen sulfide safety. Contract personnel are prohibited from working at these facilities unless they are properly trained in hydrogen sulfide safety.

@ 100ppm radius of exposure less than 50 feet

- Complete H2S concentration test
- Provide training on H2S Safety
- District office notification
- Have warning signs in place

Level II

The second level of compliance affects facilities where the 100ppm exposure radius is greater than 50 feet, but less than 3,000 feet, and contains no "public areas". In addition to the requirements of the first level of compliance, operators must post warning signs on access roads and lock unattended surface facilities equipment and use locked fences or gates to deny access to the public located within one-half mile of the facility.

@ 100ppm Radius of Exposure 50 feet or greater but less than 3000 feet and contains no public area:

- H2S concentration test
- Provide training on H2S Safety
- District office notification
- Safety Materials
- Warning signs and markers
- Provide security
- Monitors on location
- Wind Indicators (Wind socks)
- Protective breathing equipment should be available

Level III

The third level of compliance applies to operations involving hydrogen sulfide when: (**a)** the 100ppm radius of exposure exceeds 50 feet and includes any part of a "public area" except a public road; (b) the 500ppm radius of exposure exceeds 50 feet and includes any part of a public road; or (c) the 100ppm radius of exposure exceeds 3000 feet. A public area is a dwelling, place of business, church, school, hospital, school bus stop, government building, a public road, all or any portion of a park, city, town village, or similar area that may be populated.

@ 100ppm radius of exposure is 50 feet or greater and includes a public area and 500ppm R.O.E. is greater than 50 feet and includes a public road. Also if 100ppm R.O.E. exceeds 3,000 feet.

- H2S concentration test
- Training in H2S safety is required
- District office notification
- Safety materials on location or in the area
- Warning signs and markers
- Security provided
- Contingency plan required
- Monitors
- Wind indicators
- Protective breathing equipment
- Choke manifold
- Flare stacks

In addition to complying with all the requirements listed above, operators falling within this category of compliance must install safety devises to establish procedures designed to prevent undetected continuing escape of hydrogen sulfide. Intentional releases must be flared.

Ionizing Radiation Program

Purpose

The purpose of this program is to protect employees who may encounter ionizing radiation and its hazards while performing work.

Scope

This procedure applies to COMPANY operations where employees may be exposed to ionizing radiation.

This program is to ensure essential information regarding the hazard of ionizing radiation is communicated to our staff to minimize any potential exposure to ionizing radiation. When work is performed on a non-owned or operated site, the operator's or their radiation services contractor's program shall be followed.

Introduction

Exposure/Effects

As a rule, the dangers of radioactive exposure are less visible than those of other hazardous materials, and the presence of dangerous levels of radioactivity is hard to detect; it can only be detected with special monitors. Its effect on the human body may not be evident for days, weeks, or even years after exposure occurs. As ionizing radiation is applied to humans, the effects may include dermatitis, redness of the skin, skin cancer, hair loss, and eye inflammation.

The human body is able to tolerate a certain level of ionizing radiation; after all, we are continuously exposed to ionizing radiation from natural sources, such as cosmic radiation from outer space, and from radioactive materials in the earth. The degree of injury that is inflicted on a person by radiation exposure depends on several factors, such as the amount of the radiation dose, the duration of the dose, the rate at which the dose was received, the type of radiation received, and the body parts receiving the dose.
Requirements

The Occupational Safety and Health Administration regulates ionizing radiation at 29 CFR 1910.1096.

The annual permissible dose for total body exposure is five rem per year, with three rem permitted within a 13-week period. (Rem is a measure of the dose of any ionizing radiation to body tissue in terms of its estimated biological effect relative to a dose of one roentgen of X–rays).

No part of the body should be directly exposed to radiation. If there is a danger of exposing a body part, appropriate protection must be used. Lead aprons, gloves, and goggles should be worn by workers located in the direct field or in areas where radiation levels from scattering are high. All protective equipment should

be checked annually for cracks in the lead and other signs of deterioration. For consistently elevated exposure, a thyroid shield and leaded glasses are recommended.

Definitions

"Dose" means the quantity of ionizing radiation absorbed, per unit of mass, by the body or by any portion of the body. When the provisions in this section specify a dose during a period of time, the dose is the total quantity of radiation absorbed, per unit of mass, by the body or by any portion of the body during such period of time.

“High radiation area” means any area, accessible to personnel, in which there exists radiation at such levels that a major portion of the body could receive in any one hour a dose in excess of 100 millirem.

"Rad" means a measure of the dose of any ionizing radiation to body tissues in terms of the energy absorbed per unit of mass of the tissue. One rad is the dose corresponding to the absorption of 100 ergs per gram of tissue (1 millirad (mrad) = 0.001 rad).

"Radiation" includes alpha rays, beta rays, gamma rays, X-rays, neutrons, high-speed electrons, high-speed protons, and other atomic particles; but such term does not include sound or radio waves, or visible light, or infrared or ultraviolet light.

“Radiation area” means any area, accessible to personnel, in which there exists radiation at such levels that a major portion of the body could receive in any 1 hour a dose in excess of 5 millirem, or in any 5 consecutive days a dose in excess of 100 millirem; and

"Radioactive material" means any material which emits, by spontaneous nuclear disintegration, corpuscular or electromagnetic emanations.

"Restricted area" means any area access to which is controlled by the Romer Utility Services for purposes of protection of individuals from exposure to radiation or radioactive materials.

"Rem" means a measure of the dose of any ionizing radiation to body tissue in terms of its estimated biological effect relative to a dose of 1 roentgen (r) of X-rays (1 millirem (mrem) = 0.001 rem). The relation of the rem to other dose units depends upon the biological effect under consideration and upon the conditions for irradiation.

Each of the following is considered to be equivalent to a dose of 1 rem:

- A dose of 1 roentgen due to X- or gamma radiation;
- A dose of 1 rad due to X-, gamma, or beta radiation;
- A dose of 0.1 rad due to neutrons or high energy protons;

- A dose of 0.05 rad due to particles heavier than protons and with sufficient energy to reach the lens of the eye;

"Unrestricted area" means any area access to which is not controlled by Romer Utility Services for purposes of protection of individuals from exposure to radiation or radioactive materials.

Procedure

Romer Utility Services shall not possess, use, or transfer sources of ionizing radiation in such a manner as to cause any individual in a restricted area to receive in any period of one calendar quarter from sources in the employer's possession or control a dose in excess of the limits specified below:

TABLE G-18	Rems per calendar quarter
Whole body: Head and trunk; active blood-forming organs; lens of eyes; or gonads	1 1/4
Hands and forearms; feet and ankles	18 3/4
Skin of whole body	7 1/2

No allowance shall be made for the use of protective clothing or equipment or particle size.
ROEMER UTILITY SERVICES
Precautionary Procedures and Personal Monitoring

Survey

Romer Utility Services shall ensure that survey of the area has been taken and appropriate restricted areas established at the client worksite prior to beginning work. Survey means an evaluation of the radiation hazards incident to the production, use, release, disposal, or presence of radioactive materials or other sources of radiation under a specific set of conditions. When appropriate, such evaluation includes a physical survey of the location of materials and equipment, and measurements of levels of radiation or concentrations of radioactive material present.

Monitoring

COMPANY shall ensure the supply of appropriate personnel monitoring equipment, such as film badges, pocket chambers, pocket dosimeters, or film rings, and shall require the use of such equipment by each employee who enters a restricted area. All shall be calibrated as required.
Signs and Emergency Signals

Signs

Symbols shall use the conventional radiation caution colors of magenta or purple on yellow background. The symbol prescribed by this paragraph is the conventional three-bladed design.

Each radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words: CAUTION RADIATION AREA.

Each high radiation area shall be conspicuously posted with a sign or signs bearing the radiation caution symbol and the words: CAUTION HIGH RADIATION AREA.

Each area or room in which radioactive materials in regulated amounts are stored shall post a sign or sings bearing the radiation caution symbol and the words: CAUTION RADIOACTIVE MATERIAL.

Emergency Signal

Each high radiation area shall be equipped with a control device which shall either cause the level of radiation to be reduced below that at which an individual might receive a dose of 100 millirems in 1 hour upon entry into the area or shall energize a conspicuous visible or audible alarm signal in such a manner that the individual entering and the employer or a supervisor of the activity are made aware of the entry.

The signal generator shall not be less than 75 decibels at every location where an individual may be present whose immediate, rapid, and complete evacuation is essential.

A sufficient number of signal units shall be installed at every location where an individual may be present whose immediate, rapid, and complete evacuation is essential.

The signal shall be unique in the plant or facility in which it is installed.

The minimum duration of the signal shall be sufficient to ensure that all affected persons hear the signal.

The signal-generating system shall respond automatically to an initiating event without requiring any human action to sound the signal.

Once the system has been placed in service, periodic tests, inspections, and checks shall be made to minimize the possibility of malfunction.

In addition to the initial startup and operating tests, periodic scheduled performance tests and status checks must be made to ensure that the system is at all times operating within design limits and capable of the required response. Specific periodic tests or checks or both shall include:

All employees whose work may necessitate their presence in an area covered by the signal shall be made familiar with the actual sound of the signal-preferably as it sounds at their work location. Before placing the system into operation, all employees normally working in the area shall be made acquainted with the signal by actual demonstration at their work locations.

Training

All individuals working in or frequenting any portion of a radiation area shall be informed on:

- The occurrence of radioactive materials or of radiation in such portions of the radiation area,
- The safety problems associated with exposure to such materials or radiation and in precautions or devices to minimize exposure, including but not limited to time, distance, shielding and methods of keeping exposure limits as low as reasonably achievable (ALARA).
- The applicable provisions of 1910.1096 for the protection of employees from exposure to radiation or radioactive materials, and
- Shall be advised of reports of radiation exposure which employees may request a copy of.
  Recordkeeping

Romer Utility Services shall post a current copy of the applicable regulations and a copy of the operating procedures applicable to the work conspicuously in such locations as to insure that employees working in or frequenting radiation areas will observe these documents on the way to and from their place of employment or shall keep such documents available for examination of employees upon request.

Romer Utility Services shall maintain records of the radiation exposure of all employees for whom personnel monitoring is required and advise each of his employees in writing of his individual exposure on at least an annual basis.

Job Competency Program

Purpose

The purpose of this program is to establish general job competency requirements.

Scope

This procedure applies to all Romer Utility Services operations.

Responsibilities

Romer Utility Services

Identifies, updates and monitors minimum qualification requirements, job titles and training documentation Supplies training reports to clients and management.

Site Manager and Supervisors

Shall ensure all employees assigned to their project meet job competency requirements and complete training identified in the training matrix.

Shall ensure that any work that may endanger an employee must be completed by an employee who is competent to do the work.

Shall ensure all employees have sufficient experience to safely perform work without supervision or with only a minimal degree of supervision.

Employees

Attend and follow requirements of safety and health management training.

General

Competence is a combination of knowledge, understanding and skill, and the appropriate level of competence cannot be acquired simply by attending a training session. The understanding and skill are acquired by experience. For individuals involved in exposure to HSE hazards and risks experience and training are essential. The following components are to be considered for each worksite's delivery team for competency assurance:

Experience Level of Knowledge Capability to Perform

At Romer Utility Services our view of competency assurance involves the continuous assessment of training and development needs against a person's responsibilities, abilities and critical activities. This process enables the continuous improvement loop that feeds back into training and development activities that ensure competency assurance is an ongoing career cycle process.

1. Job Description Identified → Candidate Selection and Hiring Process (Reference and Background Check, Drug Screen, Physical Assessment) → Person Assessed and Hired for Open Position

2. Experience, Qualifications Assessed for Initial Training ↔ Initial Induction Training Completion

3. Further Training Required? If no → Ready for Work → On the Job Training → Competency Continually Assessed

4. Annual Performance Appraisal → Ready to Promote? → Employee Promoted → Further Training Required?

Competency is verified before employees are permitted to perform tasks independently. A competent person (supervisor, lead hand, instructor, etc.) must verify that an employee is competent to perform their roles and responsibilities before being allowed to work independently. If there is a site Short Service Employee (SSE) program established the new or transferred employee will fall under the SSE requirements as well.

Identification of Documentation

Documentation is obtained from employees to demonstrate they meet the qualifications of their job. Based on the job description requirements documentation may include educational, certifications, licenses, prior acceptable training course completion, etc. Documentation is reviewed and confirmed as actual during the employee hiring process.

Identification of Positions

An organizational chart and list of job titles has been established by Romer Utility Services. Based on the positions and their exposure to risk their required training is entered into each worksite's training matrix. Job descriptions are prepared for each job title.

Identification of Qualifications

Minimum qualification requirements for each job title have been established by Romer Utility Services. Qualifications may include a combination of education, certifications and work experience. Safety training completion for the indicated job title is required before full qualifications are met to allow an employee to begin work.

Identification of Training and Competency Needs

Employees (new or transferred) are provided job specific training related to their roles and responsibilities and trained on the tasks they perform on a regular basis. Training is identified in our training matrix which specifies safety and health training needs by job title. Our training matrix is updated based on changing risks.

Training Records

All training records are maintained on site either by the Romer Utility Services or senior representative of management or their designee.

Delivery of Induction, Transfer & Refresher Training

Employees receive initial induction training. No work by any employee is allowed to begin until the orientation is completed.

Training requirements are tracked by the Romer Utility Services and formal training sessions are conducted either on or off site by the Safety Manager or competent/qualified instructor for the required subject matter.

Supervisor Safety Management Training

Supervisors and managers receive annual, documented safety management system training.

Training Documentation

All training must be documented with: date; employee name, employee signature; instructor name; instructor signature and title of course.

Each new employee shall receive an orientation prior to beginning any work.

Ladder Safety

Purpose

Romer Utility Services understands that ladders present unique opportunities for unsafe acts and unsafe conditions. Employees who use ladders must be trained in proper selection, inspection, use and storage. Improper use of ladders has caused a large percentage of accidents in the workplace are of accidents. Use caution on ladders. OSHA reference: (29 CFR 1910.25, 1910.26, and 1910.27).

Hazards

Falls from ladders can result in broken bones, crippling injuries and death. It is important to only use ladders for the purpose they were designed for. Ladder safety is taken very seriously by our company. Ladder hazards include:

- Ladders with missing or broken parts.
- Using a ladder with too low a weight rating
- Using a ladder that is too short for purpose.
- Using metal ladders near electrical wires.
- Using ladders as a working platform
- Objects falling from ladders

Inspections

- Inspect ladders before each use.
- All rungs and steps are free of oil, grease, dirt, etc.
- All fittings are tight.
- Spreaders or other locking devices are in place.
- Non-skid safety feet are in place.
- No structural defects, all support braces intact.
- Do not use broken ladders. Most ladders cannot be repaired to manufacturer specifications. Throw away all broken ladders.

Storage

Store ladders on sturdy hooks in areas where they cannot be damaged. Store to prevent warping or sagging. Do not hang anything on ladders that are in a stored condition.

Ratings & Limits

Ladder weight ratings

- I-A 300 pounds (heavy duty)
- I 250 pounds (heavy duty)
- II 225 pounds (medium duty)
- III 200 pounds (light duty).

Limits on ladder Height.

- A stepladder should be no more than 20 feet high.
- A one-section ladder should be no more than 30 feet.
- An extension ladder can go to 60 feet, but the sections must overlap.

Ladder Setup

The following procedure must be followed to prevent ladder accidents:

1. Place ladder on a clean slip free level surface.
2. Extend the ladder to have about 4 feet above the top support or work area.
3. Anchor the top and bottom of the ladder.
4. Place the ladder base 1/4 the height, of the ladder, from the wall when using an extension ladder.
5. Never allow more than one person on a ladder.
6. Use carriers and tool belts to carry objects up a ladder.
7. Do not lean out from the ladder in any direction.

8. If you have a fear of heights - don't climb a ladder.

9. Do not allow other to work under a ladder in use.

10. Never use latter in horizontal position

11. Do not use as scaffolding

12. Do not place ladders on top of boxes, barrels, etc.

Maintenance

- Keep ladders clean.
- Never replace broken parts unless provided by the original manufacturer.
- Do not attempt to repair broken side rails.
- Keep all threaded fasteners properly adjusted.
- Replace worn steps with parts from manufacturer.

Lead Exposure Protection Program

INTRODUCTION

The purpose of this program is to protect Romer Utility Services employees from lead exposure. Additionally, this program is designed to assure that Romer Utility Services is in compliance with the Occupational Safety and Health Administration (OR OSHA) rules 1910.1025 for lead.

SCOPE

The following program will apply to any potential exposure to lead, including but not limited to, the removal of paints or other lead based material by Romer Utility Services employees unless testing has shown that the surface does not contain lead. Potential lead exposure from sources other than lead-based paint will also cover employees. This written program will be available to any employee upon request. It is expected that any contractor working for Romer Utility Services will be in compliance with the OSHA program and perform work in a manner to minimize exposure to all employees. All employees must follow and signs/labels indicating the presence of lead containing material. This program ensures Roemer Utility employees follow work practices to ensure lead containing material is not disturbed.

RESPONSIBILITES

Program Administrator - Safety Representative will be responsible for carrying out the Lead Exposure Protection Program in accordance with this written program, including associated expenses of air and medical monitoring.

Employees - Employees will be responsible for complying with procedures established by their supervisors to minimize potential lead exposure and inform their supervisor if they have health concerns that may be pertinent to lead exposure so the supervisor can arrange for appropriate consultations for the issue.

Environmental Health and Safety (EHS) Consultants - Will be responsible for administrating and managing the lead exposure program, assisting Romer Utility Services in evaluating potential lead exposures, reviewing medical history of employees with potential lead exposure, consulting with the contract Occupational Health Physician, coordinating necessary environmental testing and conducting periodic workplace inspections to insure the program is working effectively.

Supervisor - Supervisors will be responsible for identifying potential employee exposures to lead, developing standard operating procedures for routine work to comply with Romer Utility Services s written program, scheduling air monitoring with EHS Consultants, scheduling employees for necessary medical testing and informing EHS Consultants of employee health concerns with potential exposures to lead. **T**he Program Administrator is responsible for conducting or arranging medical examinations of employees when necessary and advising EHS of the health of employees evaluated for potential lead exposure.

METHODS OF COMPLIANCE:

1. **Allowable Airborne Exposure Levels** - No Romer Utility Services employee shall be exposed to airborne lead concentrations greater than 50 micrograms per cubic meter of air (50 ug/m3) averaged over an 8-hour workday. If an employee is exposed to lead for more than 8 hours in any workday, the allowable exposure level shall be reduced for that day as follows: allowable exposure level in ug/m3 equals 400 divided by the hours worked that day. For example, a 10-hour shift would have an allowable exposure of 400/10 = 40 ug/m3. These levels are established regardless of whether an employee is wearing a respirator.

OSHA has established 50 ug/m3 as the permissible exposure limit (PEL) and 30 ug/m3 as the action level (AL). Exposures at or above the PEL mandates additional precautions to be taken to protect the worker. Exposures at or above the AL but below the PEL require the supervisor to take measures to avoid reaching the PEL. If a project/job will create airborne lead levels exceeding 50 ug/m3, the work will be contracted out to a firm experienced in removing lead-based paint.

2. **Exposure Monitoring** - Supervisors will identify jobs that will create airborne lead levels and contact the program administrator to arrange air monitoring for the purpose of determining initial exposure and developing future criteria for this written program. Monitoring will include documentation of the job, weather conditions, temperature, air movement and note as much information as possible regarding engineering controls, work practices, type of coating, and removal process. Data will be collected until an adequate amount is acquired to make a determination of the type of exposure, if any, which is occurring with specific jobs. Employees involved in the monitoring will be required to comply with these guidelines.

Results from the monitoring will be shared with the involved employees. If a job is found to exceed the Permissible Exposure Level (PEL), that job type will be suspended until controls (engineering and/or administrative) have been put into place to reduce the exposure level below the PEL. Post-job dust sampling may be done to assure adequate cleaning of area or to determine potential hazards.

These results will determine if additional monitoring is necessary.

3. **Engineering Controls -** In all cases, engineering controls will be viewed as the preferred method of controlling the potential hazard. The work environment will be separated from the rest of the building environment when necessary. This will vary from project to project and may include protections such as shutting off ventilation systems, creating barriers to separate the work or working during shifts when the building is not normally occupied.

Engineering controls will also be considered in terms of how to minimize the exposure to workers to a level as low as possible and preferably below the action level. This should be accomplished by analyzing each task to determine what feasible controls are available and notifying the program administrator of those controls that could be incorporated into this written program.

4. **Work Practices -** Each job should be evaluated to determine the method, which will create the least amount of potential exposure. Standard operating procedures will be prepared by the department or supervisor that describe work practices to minimize airborne dust for the specific hazard. Certain practices may be prohibited when air monitoring suggests the PEL will be exceeded.

5. **Respiratory Protection -** Respirators will be used when a potential for lead exposure exists. Prior to issuance of a respirator the employee must be entered in Romer Utility Services s Respiratory Protection program. In almost all cases, half-mask, PAPR respirators with high efficiency filters will be issued. Qualitative fit tests will be performed at the time of initial fitting and annually thereafter.

All employees using respirators will have gone through Romer Utility Services s respiratory training program and will follow Romer Utility Services written Respirator Protection Program.

6. **Protective Clothing** - the department will provide protective clothing for employees with the potential for lead exposure at or above the allowable, or where a possibility for eye or skin irritation exists. Protective clothing shall include, coveralls or equivalent, and may include gloves; hats and disposable shoe coverlets as well as any other necessary protective clothing to perform the necessary job. Workers must remove contaminated clothing prior to leaving the worksite.

Disposable clothing will be disposed of as frequently as necessary but used for no period greater than one week. Non-disposable clothing shall be laundered by the University on a basis no greater than weekly. Contaminated clothing will be put in plastic bags to be stored in a closed container labeled as follows:

CAUTION: CLOTHING CONTAMINATED WITH LEAD. DO NOT REMOVE DUST BY BLOWING OR SHAKING. DISPOSE OF LEAD CONTAMINATED WASH WATER IN ACCORDANCE WITH APPLICABLE LOCAL, STATE OR FEDERAL REGULATIONS.

Notification that the clothing was potentially contaminated with lead will be made to the person or company responsible for the laundry when non-disposable clothing is used. This notification will be done by the person arranging for the laundry. Copies of the notification must be kept on file for review.

Employees will be instructed to remove contaminated clothing before leaving the worksite.

Disposable clothing shall be disposed of properly.

7. **Housekeeping -** In jobs creating dust, such as paint removal by sanding, workers will be required to clean the workspace once the sanding is completed. This will include a minimum of vacuuming surfaces with a HEPA vac to the point where no visible dust remains. HEPA filters will be replaced according to standard operating procedures that minimize the creation of airborne dust. Damp mopping shall also be used to minimize dust.

In non-painting jobs, all surfaces will be maintained as free from lead accumulation as possible.

8. **Hygiene Practices** - Food and tobacco products will not be allowed to be present or consumed in the lead work areas. Cosmetics may not be applied in the lead work area.

   Employees shall wash their hands after working on a lead exposure project and shower if necessary. These locations will be constructed in areas suitable for such decontamination.

9. **Medical Surveillance** – Romer Utility Services will institute a medical surveillance program for all employees who are or may have been exposed to lead at or above 30 ug/m3 (the OR-OSHA Action Level) for more than 30 days per year. Medical surveillance will include offering the employees biological monitoring in the form of blood sampling and analysis for lead and zinc protoporphyrin at least every 6 months; medical consultations for employees whose blood lead tests exceed 40 ug/100g, and employees who seek advice on reproduction concerns. Employees whose blood lead levels exceed 40 ug/100g will be offered more frequent testing.

   Employees will be notified of biological monitoring results within five working days after the receipt of the results. Those employees with blood lead levels exceeding 40 ug/dL, require medical removal with medical removal protection benefits.

The selected Health Center will be used for medical examinations and consultations regarding possible exposures. Blood testing will be done through an agreed upon Medical Labs. The Health Center will be provided with a copy of the OSHA regulations regarding lead.

Employees hired into positions which will require potential exposure to airborne lead for 30 days per year or more, will be offered a medical examination prior to their initial assignment.

10. **Medical Removal** - In the event an employee's blood lead level exceeds the OSHA standards of 40 ug/100 g, the employee will be removed from the lead exposure and other work shall be provided at the same pay rate as their usual position. Blood testing will be conducted on a monthly basis following a removal until the blood lead level drops below

40ug/100g. The employee shall have two consecutive blood samples below 40ug/100g before returning to their regular duties.

11. **Employee Training** - Employees with potential exposure to airborne lead will be informed of the contents of the OSHA Standard relating to lead exposure. It shall be the responsibility of the individual supervisors to notify the program administrator of the employment of a new employee, and it shall be the responsibility of the program administrator to train or delegate the training of the new employee.

Annual retraining is required for those employees subject to exposures at or above the action level or for whom the possibility of skin or eye irritation exists.

12. **Signs** - Signs will be posted on the exterior of worksites where workers may create a potential airborne lead exposure. Worksites, which will not exceed the PEL, will have signs posted stating **AUTHORIZED PERSONNEL ONLY** at the entry to the worksite. Authorized personnel for this purpose will mean workers who are working the actual project, or workers who are not working on the project and have a need to be at the location and have been trained on the OSHA lead standard and are following Romer Utility Services s written program. Final decision of who is considered authorized personnel will rest with Safety Representative.

In worksites where it is anticipated that the PEL will be exceeded, a sign reading WARNING: LEAD WORK AREA, POISON, NO SMOKING OR EATING shall be posted.

13. **Recordkeeping** – Safety Representative will maintain all records related to lead exposures. These forms will include the date, number duration and location of each sample as well as a description of the sampling procedure. They will also include the type of respirator worn, the name, social security number and the job classification of the employee monitored. Any environmental variables that could affect the results will also be noted on these forms. These records will be maintained 40 years or for the duration of employment plus 20 years, whichever is longer.

Medical surveillance records will include the employee's name, social security number and a description of the employee's duties. Any written opinions from the physician will be included as well as any air monitoring results, which were requested by or furnished to the physician. In addition, employee medical complaints will be included.

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If medical removal should be required, records of the employee's name, social security number and dates of removal shall be maintained. A description and statement of the removal will be included.

Records will be made available to OSHA when requested. Medical removal and medical records will remain confidential except where required to be released by federal or state law. Employees may have access to their file upon request.

14. **Environmental Monitoring Observation** - Any employee or their designated representative may observe any monitoring of employee exposure to lead. Employee or their representatives should notify Safety Representative of their interest in observing monitoring and Safety Representative will make arrangements at the earliest opportunity. Any observer will be required to comply with this written program.
15. **Health effects of lead-**
    Long term chronic exposure to lead may result in severe damage to the blood forming, nervous, urinary, and reproductive systems.
    The common symptoms of acute lead poisoning are:
    -loss of appetite
    -nausea
    -Vomiting
    -Stomach cramps
    -Constipation
    -Difficult sleeping and fatigue
    -Moodiness
    -Headache
    -Joint and muscle aches
    -Anemia

Lockout Tagout – Control of Hazardous Energy

Purpose

The following procedure is provided for use in both lockout and tagout programs. This procedure may be used when there are limited number or types of machines or there is a single power source. For more complex systems, a more comprehensive procedure will need to be developed, documented, and utilized.

Lockout is the preferred method of isolating machines or equipment from energy sources. This procedure establishes the minimum requirements for the lockout of energy isolating devices whenever maintenance or servicing is done on machines or equipment. It shall be used to ensure that the machine or equipment is stopped, isolated from all potentially hazardous energy sources, and locked out before employees perform any servicing or maintenance where the unexpected energization or start-up of the machine or equipment or release of stored energy could cause injury such as minor to serious shock, burns (chemical or thermal), cuts, or abrasions.

Administrative Duties

Safety Representative has overall responsibility for coordinating safety and health programs in this company. He is the person having overall responsibility for the Lockout/Tagout Program. Safety Representative will review and update the program, as necessary. Copies of the written program may be obtained in the Safety Manager's office.

All employees are required to comply with the restrictions and limitations imposed upon them during the use of lockout. The authorized employees are required to perform the lockout in accordance with this procedure. Servicing is to be done only by trained, authorized employees. Each new or transferred affected employee and other employees whose work operations are or may be in the area shall be instructed in the purpose and use of the lockout or tagout procedures. All employees, upon observing a machine or piece of equipment which is locked out to perform servicing or maintenance, shall not attempt to start, energize, or use the machine or equipment.

Contractors are required to utilize this company's procedure except when the contractor can demonstrate that their current lockout procedure affords the same level of safety as Romer Utility Services' procedure.

Basic Rules for Using Lockout or Tagout System Procedure

All equipment shall be locked out or tagged out to protect against accidental or inadvertent operations when such operations could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy-isolating device where it is locked or tagged out.

This standard does not apply to work on cord and plug connected to electrical equipment for which exposure to the hazards of unexpected energization or start up the equipment is controlled by the unplugging of the equipment from the energy source and by the plug being under the exclusive control of the employee performing the servicing or maintenance.

In the event a piece of equipment is to be isolated for a period of time exceeding one normal shift and the isolating means is not capable of being locked out, a reasonable effort will be made to affix a device to the isolating means to make capable of being locked out.

Lockout-Tagout protects workers from these energy sources:

- moving machinery (kinetic)
- stored energy (potential)
- electrical
- chemical
- thermal
- hydraulic
- gravitational
- pneumatic

Definitions

Authorized (Qualified) Employees

The only ones certified to lock and tagout equipment or machinery. Whether an employee is considered to be qualified will depend upon various circumstances in the workplace. It is likely for an individual to be considered "qualified" with regard to certain equipment in the workplace, but "unqualified" as to other equipment. An employee who is undergoing on-the-job training and who, in the course of such training, has demonstrated an ability to perform duties safely at his or her level of training and who is under the direct supervision of a qualified person, is considered to be "qualified" for the performance of those duties.

Affected Employees

Those employees who operate machinery or equipment upon which lockout or tagging out is required under this program. Training of these individuals will be less stringent in that it will include the purpose and use of the lockout procedures.

Other Employees

Identified as those that do not fall into the authorized, affected or qualified employee category. Essentially, it will include all other employees. These employees will be provided instruction in what the program is and not to touch any machine or equipment when they see that it has been locked or tagged out.

Machinery and Equipment

Lockout is the preferred method of isolating machines or equipment from energy sources. Tagout is to be performed instead of lockout only when there is no way to lockout a machine.

Routine Maintenance & Machine Adjustments

Lockout/tagout procedures are not required if equipment must be operating for proper adjustment. This rare exception may be used only by trained and authorized Employees when specific procedures have been developed to safely avoid hazards with proper training. All consideration shall be made to prevent the need for an employee to break the plane of a normally guarded area of the equipment by use of tools and other devices.

Locks, Hasps and Tags

All Qualified Maintenance Personnel will be assigned a lock with one key, hasp and tag. All locks will be keyed differently, except when a specific individual is issues a series of locks for complex lockout-tagout tasks. In some cases, more than one lock, hasp and tag are needed to completely de-energize equipment and machinery. Additional locks may be checked out from the Department or Maintenance Supervisor on a shift-by-shift basis. All locks and hasps shall be uniquely identifiable to a specific employee.

Preparation for Lock and Tag Out Procedures

A Lockout/Tagout survey has been conducted to locate and identify all energy sources to verify which switches or valves supply energy to machinery and equipment. Dual or redundant controls have been removed.

A Tagout Schedule has been developed for each piece of equipment and machinery. This schedule describes the energy sources, location of disconnects, type of disconnect, special hazards and special safety procedures. The schedule will be reviewed each time to ensure

employees properly lock and tag out equipment and machinery. If a Tagout Schedule does not exist for a particular piece of equipment, machinery and process, one must be developed prior to conducting a Lockout - Tagout. As repairs and/or renovations of existing electrical systems are made, standardized controls will be used.

Sequence of Lockout System Procedure

1. Lockout locks cannot be used for any purpose other than lockout, and must meet the following provisions.

a. Standardized throughout the plant by color, shape or size.
b. Durable enough to withstand heat, cold, humidity or corrosiveness.
c. Strong enough so that it cannot be removed without heavy force or tools such as bolt cutters.
d. Identified by the name of the employee who installs and removes it.

2. The authorized employee (one who performs maintenance or servicing) shall identify the type and magnitude of the energy that the machine or equipment utilizes, shall understand the hazards of the energy, and shall know the methods to control the energy.

3. The authorized employee is to notify all affected employees that servicing or maintenance is required on a machine or equipment, and that the machine or equipment must be shut down and locked out to perform the servicing or maintenance.

4. If the machine or equipment is operating, shut it down by the normal stopping procedure (depress stop button, open switch, close valve, etc.).

5. De-activate the energy isolating device(s) so that the machine or equipment is isolated from the energy source(s)

6. Stored or residual energy (such as that in capacitors, 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 grounding, repositioning, blocking, bleeding down, etc.

7. Lockout the energy isolating devices with a lock(s).

8. Ensure that the equipment is disconnected from the energy source(s) by first checking that no personnel are exposed, then verify the isolation of the equipment by operating the push button or other normal operating control(s), or by testing to make certain the equipment will not operate.

9. **CAUTION:** *RETURN OPERATING CONTROL(S) TO NEUTRAL OR "OFF" POSITION AFTER VERIFYING THE ISOLATION OF THE EQUIPMENT.*

10. The machine or equipment is now locked out. Maintenance or servicing may be performed.

Sequence of Tagout System Procedure

1. The authorized employee shall use the tagout procedure ***ONLY WHEN THE MACHINE OR EQUIPMENT IS NOT CAPABLE OF BEING LOCKED OUT.***

2. The tagout device shall be standardized throughout the plant, and shall meet the following provisions:

    a. Easy to read and understand, even if used in dirty, corrosive, or damp areas.
    b. Can't be released with less than 50 pounds of pressure.
    c. Can be attached by hand.
    d. Is self-locking.
    e. Shows the identity of the authorized employee.
    f. Can't be reused.

3. The tagout device shall be attached at the same location that the lockout device would have been attached.

4. Authorized employees shall utilize additional means as necessary to provide the equivalent safety available from the use of a lockout device. Additional safety measures that reduce the likelihood of inadvertent energization may include:

    a. The removal of an isolating circuit element;
    b. Blocking of a controlling switch;
    c. Opening of an extra disconnecting device; or
    d. The removal of a valve handle.

Restoring Machines/Equipment to Normal Production Operations

When the servicing is completed and the equipment is ready to return to normal operating condition, the following steps shall be taken:

1. Check the work area to ensure that all employees are a safe distance from the equipment.

2. Check the machine or equipment and the immediate area around the machine or equipment to ensure that nonessential items (such as tools) have been removed, and that the machine or equipment components are operationally intact.

3. Reinstall any machine guards.

4. Verify that the controls are in neutral.

5. Remove the lockout and/or tagout devices and reenergize the machine or equipment.

6. Notify affected employees that the servicing or maintenance is completed and the machine or equipment is ready for use.

   NOTE: The removal of some forms of blocking may require re-energization of the machine before safe removal. When maintenance or service is done, only the same authorized employee who installed the lock may remove it. When the authorized employee is not available to remove the lock, a "Lockout Removal" form must be completed by the employee removing the lock (see attachment Procedure for Lockout & Tagout Removal).

Temporary Removal

Occasionally, lockout/tagout devices must be temporarily removed in order to test the equipment or machine. When this occurs, the following steps should be taken.

1. Clear away any tools from the danger area.
2. Remove any employees from the danger area.
3. Remove the lockout/tagout device(s).
4. Carefully re-energize and proceed with testing.
5. De-energize and reapply lockout/tagout device(s) following the sequence of lockout/tagout procedures listed above.
6. Document the name and title of the individual(s) who performs and verifies this process.

Procedure Involving More Than One Person

In the preceding steps, if more than one individual is required to lockout or tagout equipment, each shall place his or her own personal lockout or tagout device on the energy isolating device(s).

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 multiple locks to secure it. Each employee will then use his or her own lock to secure the box or cabinet. As a person no longer needs to maintain his or her lockout protection, that person will remove his or her lock from the box or cabinet.

If a single authorized employee is given the primary responsibility for a set number of employees working under the protection of a group lockout or tagout device then the following safety measures must be adhered to:

1. Authorized employee must ascertain the exposure status of individual group members.

2. Each employee shall attach a personal lockout/tagout device to the group's device while he/she is working. The device shall be removed when finished.

Stored Energy

Following the application of the lockout or tagout devices to the energy isolating devices, all potential or residual energy will be relieved, disconnected, restrained, and otherwise rendered safe.

Where the re-accumulation of stored energy to a hazardous energy level is possible, verification of isolation will be continued until the maintenance or servicing is complete.

Release stored energy (capacitors, springs, elevated members, rotating fly wheels, and hydraulic/air/gas/steam systems) must be relieved or restrained by grounding, repositioning, blocking and/or bleeding the system.

Extended Lockout/Tagout

Should the shift change before the machinery or equipment can be restored to service, the lock and tag out must remain. If the task is reassigned to the next shift, those Employees must lock and tag out before the previous shift may remove their lock and tag.

Procedure for Electrical Plug-Type Equipment

This procedure covers all Electrical Plug-Type Equipment such as Battery Chargers, some Product Pumps, Office Equipment, Powered Hand Tools, Powered Bench Tools, Lathes, Fans, etc.

When working on, repairing, or adjusting the above equipment, the following procedures must be utilized to prevent accidental or sudden startup:

1. Unplug Electrical Equipment from wall socket or in-line socket.
2. Attach "Do Not Operate" Tag and Plug Box & Lock on end of power cord.

An exception is granted to not lock & tag the plug is the cord & plug remain in the exclusive control of the Employee working on, adjusting or inspecting the equipment.

3. Test Equipment to assure power source has been removed by depressing the "Start" or on" Switch.
4. Perform required operations.
5. Replace all guards removed.
6. Remove Lock & Plug Box and Tag.
7. Inspect power cord and socket before plugging equipment into power source. Any defects must be repaired before placing the equipment back in service.

NOTE: Occasionally used equipment may be unplugged from power source when not in use.

Management's Removal of Lock and Tag Out

Only the Employee that locks and tags out machinery, equipment or processes may remove his/her lock and tag. However, should the Employee leave the facility before removing his/her lock and tag, the Maintenance Manager may remove the lock and tag. The Maintenance Manager must be assured that all tools have been removed, all guards have been replaced and all Employees are free from any hazard before the lock and tag are removed and the machinery, equipment or process are returned to service. Notification of the employee who placed the lock is required prior to lock removal. This process must be properly documented.

Training

Authorized Employees Training

All Maintenance Employees, Department Supervisors and Janitorial employees will be trained to use the Lockout/Tagout Procedures. The training will be conducted by the Maintenance Supervisor or Safety Coordinator at time of initial hire. Retraining shall be held at least annually. The training will consist of the following:

1. Review of General Procedures
2. Review of Specific Procedures for machinery, equipment and processes
3. Location and use of Specific Procedures
4. Procedures when questions arise

Affected Employee Training

1. Only trained and authorized Employees will repair, replace or adjust machinery, equipment or processes
2. Affected Employees may not remove Locks, locking devices or tags from machinery, equipment or circuits.
3. Purpose and use of the lockout procedures.

Other Employee Training

1. Only trained and authorized Employees will repair, replace or adjust machinery or Equipment.
2. Other Employees may not remove Locks, locking devices or tags from machinery, equipment or circuits

Documentation

1. Procedural steps for lockout/tagout for all machines shall be documented on the Lockout/Tagout Schedule form (see attachment). A copy of this form will be given to the authorized employee and will be kept in the Safety Coordinator's office.
2. Documentation of employee training shall be kept on file in each employee's training file.
3. An inspection shall be performed, certified and documented annually, under the direction of the Safety Manager, to assure compliance with the written program. This will be kept in the Safety Manager's office. The purpose is to ensure that the written procedures and the requirements of the standard are being followed, and that employees understand their responsibilities under the procedures.

Affected Employees for Lockout/Tagout

Because people may be moved from one work area to another, it would not be appropriate or practical to generate a list of people identified with a particular area. Therefore, the person who initiates, or terminates, a lockout or tagout procedure will notify those persons in the affected area.

Periodic Inspection

A periodic inspection is done, looking at the energy control procedures performed to ensure that the procedure and requirements of the standard are being followed. This inspection is performed annually (see attachment)

Romer Utility Services

Lockout/Tagout Schedule

Equipment or Process: _____

Location of Equipment: _____

A tag is required on each Isolation Location listed below
The Specific Type of Lock must be applied at the location listed

Date prepared _____ by _____

Type of Energy	Isolation Location	Type of Lockout Device
Electrical		
Potential (Stored)		
Kinetic (in-motion)		
Pneumatic (air - gas pressure)		
Hydraulic		
Thermal		
Chemical		

Special Hazards	Procedure for Control of Special Hazard

Special Procedures

Stored Energy Release Procedure

Notes
Isolation Location shall positively identify the exact breaker, valve, switch or other disconnect or blocking device to be locked and tagged to isolate the source of energy from the work area.
Type of Lockout shall specifically name the exact type of locking device needed to ensure the disconnect or blocking device stays in the isolated condition/position. i.e. Breaker Clip, Valve Handwheel Cover, Blank Flange, etc.
Stored Energy: Following the application of the lockout or tagout devices to the energy isolating devices, all potential or residual energy will be relieved, disconnected, restrained, and otherwise rendered safe.

Romer Utility Services

Procedure for Lockout/Tagout Removal

This form must be completed before removal of any lockout or tagout by a person other than the person placing the lockout or tagout on equipment.

Lockout/Tagout originator has been called and:

_____ was reached and reported back to work to remove lock or tag.

_____ could not be reached.

Equipment Locked/Tagged Out _____ Date _____

Location _____

Reason Locked/Tagged Out _____

_____

_____

Person Locking/Tagging Out _____ Date _____

Reason Removing Lock or Tag _____

_____

_____

Have you checked to ensure safety of removal? ___ Yes ____ No

_____
Employee Signature

Cc: Safety Manager
Supervisor

Periodic – Annual Observation of Lockout Tagout Program

EMPLOYEE BEING OBSERVED	**PLANT #**	**DEPT. #**

BLDG. #	**MACHINE/EQUIPMENT/PROCESS**	**EQUIP. #**

OBSERVATION QUESTION	**YES**	**NO**	**COMMENTS**
1. Has all energy-isolating device been located?			
2. Does the plant provide devices specifically for lockout/tagout procedures?			
3. Are lockout/tagout devices durable enough to withstand plant conditions?			
4. When only tagout devices are used, are attachments non-reusable, attachable by hand, self-locking and non-releasable with minimum unlocking strength of 50 lbs.?			
5. Can the person using a lockout/tagout device be easily identified?			
Authorization: 6. Is an authorized person performing the lockout/tagout?			
Preparation: 7. Are affected employees notified when there is an application or removal of lockout/tagout devices?			
Shutdown: 8. Are normal "shutdown" procedures followed?			
Energy Isolation: 9. Are energy isolating device(s) located and energy source(s) separated from the machine?			
Lockout/Tagout Device Application: 10. Are lockout/tagout devices placed on each energy-isolating device?			
OBSERVATION QUESTION			
Stored Energy: 11. Are potentially hazardous, stored or residual energy relieved, disconnected or restrained?			

Verification of Isolation: 12. Does the authorized employee verify that de-energization of the equipment has been accomplished?			
Inspection: 13. Prior to removing locks/tags, has the work area been inspected, nonessential items removed and the machine components including guards, made operationally intact?			
Employee Notification: 14. Prior to removing locks/tags, have affected employees been notified and the work area inspected to ensure all employees are in a safe position?			
Lockout/Tagout Device Removal: 15. Have Lockout/Tagout devices been removed by the person who applied them?			
COMMENTS:			

OBSERVER INFORMATION

OBSERVER EMPLOYEE #	**OBSERVER SIGNATURE**	**TITLE**	**DEPT.**	**DATE**
EMPLOYEE #	**EMPLOYEE SIGNATURE**	**TITLE**	**DEPT.**	**DATE**

Romer Utility Services

_____ Annual

Lockout - Tagout Administrative Review

Facility _____ Date _____

The Lockout - Tagout procedures for this facility have been reviewed for necessary changes. Each piece of equipment is listed and the required Lockout - Tagout isolation points (valves, breakers, disconnects, etc.) are properly identified.

Responsible Manager _____

The following changes have been made: (if no changes write "None")

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Live Pipe Lines and Utilities

Scope of safe digging of Practice

This scope of safe digging of Practice gives recommendations and practical guidance on how to carry out excavation work safely in the vicinity of underground services. In this context "excavation" means any work that involves penetrating the ground at or below surface level. Excavation carried out in the vicinity of underground services includes work associated with a new or existing building, which may involve the risk of damaging underground services. It encompasses all excavation work carried out on roadways, streets, footpaths and other open areas where there is a likelihood of buried underground services.
The scope of safe digging contains guidance on how to prevent future damage to services that are currently being installed.

Electricity cables

Injuries that result from damage to live electricity cables are usually caused by the explosive effects of arcing current and by any associated fire or flames that may follow when the sheath of a cable and the conductor insulation are penetrated by a sharp object such as the point of a tool, or when a cable is crushed severely enough to cause internal contact between the sheathing and one or more of the conductors.

Typically, this causes severe and potentially fatal burns to the hands, face and body. Some high voltage electricity cables (e.g. 38kV and higher voltage) are filled with oil and, if damaged, the oil may auto-ignite and create an explosion or fire. Direct electric shock is rare but not impossible.

Incidents may also arise from cables that have been damaged, but have not been reported to the relevant service provider, and therefore have not been repaired. In such circumstances nearby services such as plastic gas pipes may be at risk from damaged live electricity cables, which could create explosions or increase fire risk.

Gas pipes

Damage to gas pipes can cause leaks which may lead to fires or explosions. There are two types:

(i) Damage that causes an immediate leak following a pipe rupture.

(ii) Damage that causes a leak sometime after the event. For example, damage

to a pipe wrapping may occur while work is being carried out and this damage may eventually lead to corrosion. Damage may also occur after the work has been carried out. For example, poor reinstatement may leave a pipe inadequately supported or subjected to unequal forces.

In the case of the former type of damage, those most likely to be at risk are personnel who are carrying out the work and others in the immediate vicinity? In the case of the latter type of damage, those most likely to be at risk are members of the public.

Water pipes and sewers

While damaged water pipes are less likely to cause an injury, a jet of water emanating from a high-pressure main could injure people or damage adjacent underground services. In addition, a water leak from an underground pipe could wash away subsoil, thereby reducing support for adjacent services, roads and structures. Additional dangers include the risk of flooding trenches or low-lying areas such as nearby basements.

Sewers are generally gravity fed, but some sewage is pumped at pressure. While the main risk to people associated with damage to sewers is the possibility of contamination, these pipes may also emit gases such as methane: at certain concentrations methane may be flammable.

Telecommunications cables

Although damage to telecommunications cables may be very expensive, there is normally no direct risk of personal injury.

Before you start digging

1. Complete and Review Job Site Safety Plan
2. Ensure you have appropriate Job site maps
3. Look out for other service lines in the area
4. Always use cable locator to trace all service
5. Mark all service lines in the area of digging with chalk, paint or marker
6. Highlight all hazards were lines are present
7. Inspect site location
8. Mark the location of services on the surface before digging

9. Always be alert and assume there will be more service lines in the area
10. Live line tool is to be inspected and wiped clean each day. If defect is found, tool will be removed from service
11. Tools will be removed from service every two years for evaluation, testing, and repairs

Excavating

Once plans and a locator device have been used to determine the position of Underground services, excavation may proceed. This work should be carried out carefully, following recognized safe digging practices. Trial holes should be dug using hand tools to confirm the position of any buried services. Special care should be taken when digging above or close to the assumed lines of any such services. **Hand-held power tools are the main source of danger to personnel, and they should not be used too close to underground services.** (See Appendices (i) and (ii) for advice on appropriate safety margins for electricity and gas respectively).

Hand tools, incorrectly used, are a common cause of accidents. However, if they are used carefully, and if the approximate position of services has been determined through the use of plans and locators, these tools may provide a satisfactory method for exposing underground services. Every effort should be made to excavate alongside the service rather than directly above it. Final exposure of the service by horizontal digging is recommended as the force applied to hand tools may be controlled more effectively.

In particular:

Hand-held power tools and mechanical excavators are the main causes of danger and they should not be used close to underground services.

*If Hand held power tools are being used must be kept a least 24” or 2 feet from The line.
*Spades and shovels should be used rather than other tools.
*They should not be thrown, or spiked into the ground. Rather, they should be eased in with gentle foot pressure; Picks, pins or forks may be used with care to free lumps of stone and other materials, and to break up hard layers; and Picks should not be used in soft clay or other soft soils in areas close to buried services.

Live-line tool rods, tubes, and poles are constructed to withstand:

a. 100,000 volts per foot of length for 5 minutes if the tool is made of fiberglass-reinforced plastic or;
b. 75,000 volts per foot of length for 3 minutes if the tool is made of wood, or;
c. Other tests that can demonstrate equivalently

Pre-Excavation Safety Checklist

Excavation Company Name: _____

Forman/Supervisor: _____

Project Name:_____

Project Location:_____

Description of Planned Excavation Activity: _____
_____
_____

Proposed Start Date: _____ Estimated Completion Date_____

Project duration greater than 30 days? Yes, No If Yes, remember to renew Dig Safe Ticket after 30 days

1. ☐ **Planning documents reviewed.** (excavation and/or boring details, locations, etc.)
Did the planning documents/drawings include actual locations of all existing, abandoned, and out-of-service facilities? Yes ☐ No ☐

2. ☐ **Reviewed all available as-built drawings, plats, plans and records of existing, abandoned, and out of service facilities.**
Name, type, and date of documents obtained/reviewed. (retain a copy for project file)

- _____
- _____
- _____
- _____

3. ☐ **Proposed excavation area marked in white paint with company name or initials.**
Name of person(s) performing pre-mark_____

4. ☐ **Dig Safe Notified.** 48 hours prior to beginning work call **1-888-344-7233 or 811**

Date notification made: _____Ticket #_____

Date ticket expires: _____ Ticket renewal anticipated Yes No

List of Utilities Notified by Dig Safe Utility Company Name | Date/Time of Response | Marked | All Clear

- _____
- _____
- _____
- _____
- _____

Note: Some utilities such as municipal water and sewer lines, irrigation, landscape lighting, and septic systems are not required to be members of the one call center and do not get marked when you call Dig Safe.
The municipal non-member utility directory at the Public Service Department website lists all municipalities who operate utilities.
Non-Member Utilities (not notified by Dig Safe)

Utility Company Name | Date/Time of Response | Marked | All Clear

- _____
- _____
- _____

Note: Private utilities located beyond the utility meter (e.g. electric lines for parking lot lights, lawn sprinkler piping, communication lines for satellite dishes, and in-service lines from propane tank) are not marked under the One Call Notification. For this reason, when working on private property it is necessary to notify the property owner and/or hire a private utility locator.

5. ☐ Property owner notified of excavation activities.
Private utilities such as irrigation/sprinkler systems, landscape lighting, septic systems, power outlets, or propane/fuel lines identified and marked.

Private Utilities Present

Facility Type	Marked	Date Marked

- _____
- _____
- _____

6. ☐ Private utility locator used.
Contact information for private utility locator Name:_____Phone:_____

7. ☐ Pre-excavation meeting held. (a meeting between contractors, utility operators, locators, designers, and

engineers is recommended for large complex jobs or jobs near critical facilities)

8. ☐ Pre-excavation site inspection completed.

A walk around of the site to look for sign of present utilities such as signs or markers, risers poles, pad mounted devices, valve boxes, manhole covers, vent pipes, or pedestals as well as obstacles to excavation such as tree roots, bedrock, frost or pavement.
Date/time of inspection_____

Were there any indicators of utilities that were not marked? Yes No

If yes, specify_____

Follow-up action taken (utility notified, Dig Safe re-notified _____

_____

9. Utilities marked on site. Electric Gas Telecommunication CableTV

Water Sewer Other_____

12. **Marking Documented** (sketches, photographs, video)

13. **Safety information reviewed with employees.**

_____ Safe work practices reviewed.
_____ Specific procedures required to protect underground facilities and maintain the safety of the public,
. personnel and equipment.
_____ Unacceptable habits, behaviors and short cuts that violate safety policies discussed.
_____ Specific hazards, chemicals and materials on site discussed.
_____ All employees know location of safety manuals, SDS, and emergency contact information

14. _____ Employee damage prevention and excavation safety training documented.

13. Level of Risk
(Based upon potential of incurring substantial loss of, or causing damage to. life, health, property, the environment, or essential public services)

____ SEVERE: Intrusive activity required within the tolerance zone of a marked facility
____ MODERATE: Intrusive activity required outside the tolerance zone of a marked utility.
____ MINIMAL: Intrusive activity required in an area with no utilities.

Note: The tolerance zone is 18" from the outside of a marked facility on either side where you must assume a utility is present.

15. Engineering Controls Required

____ None
____ Pot Holing or Verification of Utility
____ Hand Tools/" Soft" Excavation
____ Spotter Used During Use of Mechanized Equipment
____ Exposed Facility Protection
____ Other Specify preventiveactions_____
_____

15. Emergency Contact Information

_____
_____
_____
_____
_____

Mobile Equipment

1.0 Introduction

The Romer Utility Services recognizes the hazards associated with the operation of heavy equipment/mobile equipment. This policy has been developed to establish guidelines to eliminate injuries or fatalities related to this type of equipment.

2.0 Scope

This policy applies to all free moving mobile equipment that may be propelled by gasoline, propane, diesel or electricity. Only competent personnel may operate heavy equipment/mobile equipment. An individual's competency must be demonstrated by successful completion of the training and evaluation process specified in this policy. This policy establishes requirements to work in or around all types of mobile equipment. Romer Utility Services employees are required to comply with the procedures outlined in this document. Individual departments / agencies who have an existing Heavy Equipment/Mobile Equipment Safety Policy or Program in place may continue to use that program if it provides the same degree of protection.

3.0 Definitions

Competent Person – Person who by possession of a recognized degree in an applicable field or a certificate of professional standing, or who by extensive knowledge, training and experience, has successfully demonstrated the ability to solve or resolve problems relating to the subject matter and work.

Free Moving Mobile Equipment – Operator controlled mobile equipment not constrained by Fixed Rails and can include Industrial Fork Trucks, Aerial Lifts, Buggies, Sweepers and Backhoes.

Mobile Equipment – Free moving equipment propelled/powered by gasoline, propane, natural gas, diesel or electricity used to haul, transport, excavate, move, maneuver, or hoist materials, equipment, products or personnel.

Pre-use Inspection – Required inspection of a piece of mobile equipment completed when the facility has not operated the mobile equipment for each shift. (Attachment One –Forklift, Attachment Two – Aerial Lift)

4.0 Responsibilities

4.1 Department Heads will:

Ensure that this policy and all department rules in the equipment training procedure are followed. Ensure a Competent Person is available for heavy equipment/mobile equipment training. Provide a resource for training the operators of heavy equipment/mobile equipment that is needed to operate all equipment safely.

4.2 Departmental Manager/Supervisors will:

Enforce this policy and all departmental rules in the equipment training procedures. Identify and provide the appropriate training for the Competent Person to conduct heavy equipment/mobile equipment training. Ensure that operators of heavy equipment/mobile equipment are trained, evaluated, observed and given skills needed to operate the equipment safely. Document random observations and on the spot corrections or department refresher training. Enforce these safety procedures and rules as related to heavy equipment/mobile equipment such as but not limited to seatbelt use.

4.3 Employees will:

Follow this policy and other safety rules pertaining to the pre-shift inspection of, operation and routine maintenance of heavy equipment/mobile equipment. Perform pre-shift inspections prior to start of work for respective equipment. Report any pre-shift inspection deficiencies with equipment to their immediate supervisor for maintenance or further action prior to operation of the equipment. Obey traffic signs and signals and audible or visual warning devices.

4.4 Competent Person (Equipment Trainer) will:

Train and evaluate equipment operators in classroom, hands-on training process and refreshers. Be knowledgeable and experienced in the particular equipment operation and how-to train. Document evaluations and training.

4.5 Risk Management Safety will:

Provide assistance for compliance with the policy to requesting individual departments/agencies.

5.0 General Operating Requirements

- Operators must wear appropriate PPE (safety glasses, hard hats, steal toe boots, & gloves) if mobile equipment does not have enclosed cab.

- Only Authorized and Qualified employees are allowed to operate mobile equipment

- The location shall determine the vehicle speed limit and post the information.

- All incidents involving mobile equipment shall be formally investigated following the Roemer Utility Services Accident Investigation Guidelines.

- Equipment operators are responsible for keeping the equipment under control at all times.
- All equipment operators must obey traffic signs and signals, and audible or visual warning devices.

- Alteration or modification of equipment is not permitted without prior written consent of the manufacturer and location management.

- When parking equipment, the operator must not block fire aisles, access to stairs, stretcher storage, fire equipment, or other emergency response areas or equipment.

- Stunt driving and horseplay are strictly forbidden.

- All equipment rated capacities shall not be exceeded.

- Equipment operators shall perform a pre-shift inspection on all equipment using the appropriate form in the Attachments.

- Any deficiencies found in the pre-shift inspections shall be reported and the equipment taken out of service until repairs are made and equipment is safe to operate.

- The right of way must be yielded to emergency vehicles.

- Riders are not permitted except for the operator unless approved by location management.

- Operators must keep both hands free such as not eating, reading and drinking while operating.

- More specific procedures and rules in Equipment Operator's Training for heavy equipment/mobile equipment must be followed.

- If governors are in use and are set to a specific speed, they must not be removed or altered in any way.

- Equipment operators must maintain a safe following distance from other equipment or vehicles (three truck lengths or three seconds).

- For intersections with obstructed views, the equipment operator is responsible to slow down, sound the horn and use fixed convex mirrors, where provided to check for cross-traffic.

- Equipment operators must stay within the floor markings and out of the pedestrian lanes.

- Seatbelts must be worn at all times.

- Load backrest extension will not increase the maximum weight, which can be handled and provides overhead protection for operators and helps prevent parts of the load from falling on employees.

- Excess counter-weighting is forbidden.

- Unstable or unsafely arranged loads shall not be picked up and restacked, banded, taped, or shrink-wrapped.

- Transfer loads from broken pallets or containers to sound ones before picking them up and promptly remove these same pallets or containers to void their future use.

- The proper attachments must be used for the respective equipment.

- Be aware of bystanders and pedestrians that may be in the target zone of an unstable load

- Level the top of the forks and do not lift with only one fork.

- Lift from the broadest side of the load and set the forks at the greatest width the pallet allows.

- Fork extensions shall be used for deep loads and can cause a pallet behind the load being lifted to move or fall over.

- Heavy equipment must be wedged; a spotter used; and controls not run from the floor unless made for that type of operation.

- Off-center loads must be strapped if it could become unstable; operate slower; and use controls such as raise and tilt smoothly.

- Center of gravity of the load must be as close to the mast as possible. The stability is greater as the center of gravity of the load is brought closer to the front axle.

- Tilt the mast gently backward to stabilize the load when the load is elevated.

- Loads become less stable when the load is raised, turning, on slopes, tilting the load, and on rough or uneven surfaces.

- Traveling surfaces must be able to support the weight of the equipment and the load.

- Railroad tracks and similar edges shall be crossed at a 45-degree angle, where possible.

- There must be adequate overhead clearance maintained such as from lights, sprinklers and pipes.

- Employees are responsible to report and help correct leaning stacks.

- Equipment operators must maintain a safe distance from edges such as elevated ramps, platforms and docks.

- Transporting an individual in a lift platform is forbidden.

- Equipment operators must not pass forks or attachments over anyone, nor shall anyone pass under them whether the equipment is loaded or empty.

- Equipment operators shall not pass other vehicles moving in the same direction at intersections, blind spots or other dangerous locations.

- Equipment operators shall check that wheels are blocked; brakes are set; and use dock locks before loading a trailer.

- Dock boards or bridge plates must be substantial to hold the equipment and the load; secured; and equipment operators travel slowly on them.

- Condition of the floorboards must be satisfactory and enough overhead clearance prior to boarding a trailer.

- Equipment operators need to look back over both shoulders before changing direction or moving in reverse.

- Equipment operators shall travel with the load as close to the floor as possible (one or two inches at the heel of the forks and four to six inches at the tips, with the load resting against the mast).

- Equipment operators must follow rules for refueling.

- When traveling loaded on ramps greater than 10%, equipment operators shall always have the load upgrade.

- When traveling unloaded on ramps, forks shall be down ramp and mast tilted back.

- When leaving free moving equipment or industrial trucks unattended (greater than 25 feet away is abandoned), the operator shall place the forks on the floor; put the truck in neutral; set the brakes; shut- off the truck; and block the wheels if on a ramp.

- Equipment operators shall keep their bodies within the dimensions of the truck and not between the mast uprights.

- When parking near railroad tracks, equipment operators must park no closer than 25 feet from the center of the railroad tracks.

- Equipment operators shall travel with the load trailing if it obstructs their view.

- Equipment operators must avoid running over loose materials, uneven or soft surfaces and slippery areas including oils slicks. The equipment operator must report and help correct these situations.

- Equipment operators shall slow down for the conditions including wet or slippery floors and weather factors.

- Equipment operators shall avoid running on ice and snow, where possible.

- All free moving mobile equipment shall have back-up alarms.

- Back-up alarms and lighting must be inspected during the pre-shift inspections and any deficiencies corrected.

- Flatbed truck operators shall avoid steering wheels all the way in either direction.

- The load must clear the floor for a flatbed truck before engaging the reverse speed.

- Flatbed truck operators shall pre-examine loads to ensure they do not overload the truck.

- Flatbed truck operators shall not use the reverse direction power for braking.

- Flatbed truck operators shall allow sufficient clearance for lowering loads into storage spaces.

6.0 Equipment Operator Training and Evaluation

6.1 General Training Requirements:

(1) A formal training program that consists of a combination of classroom instruction with competency testing and practical training. (Attachment Three)

(2) Training shall include safety rules, operating procedures, equipment controls and safety work instructions such as, but not limited to, job safety analyses and standard operating procedures.

(3) A competent person who has the requisite mobile equipment knowledge, training and experience to conduct the training and evaluations.

(4) The competent person will evaluate each prospective operator while performing the safe operation of the equipment.

(5) All operators shall exhibit satisfactory operating skills and pass a supervised written exam.

(6) Employee operating equipment shall be certified / re-certified on the specific equipment they operate. The documentation shall be training and evaluation records with the name of the operator, date of training and the competent person performing the training. These records shall be retained for review.

6.2. Safe Operation Topics for Training:

(1) All operating instructions, warnings and precautions for the type of trucks the operator will be authorized to operate.

(2) Differences between the industrial vehicle and an automobile.

(3) Equipment controls and instrumentation location, what they do and how they work.

(4) Engine or motor operation.

(5) Steering and maneuvering.

(6) Visibility (including restrictions due to loading).

(7) Fork and attachment adaptation, operation and use limitation.

(8) Vehicle capacity.

(9) Vehicle stability.

(10) Vehicle inspection and maintenance the equipment operator will be required to perform.

(11) Any other operating instruction, warning or precaution listed in the operator's manual for the type of vehicle that the employee is being trained to operate.

(12) Workplace related topics and operating procedures (i.e., weather, docks, etc).

(13) Surface conditions where the vehicle will be operated.

(14) Composition of probable loads and load stability.

(15) Load manipulation, stacking, un-stacking.

(16) Pedestrian traffic areas where vehicles will be operated.

(17) Narrow aisles and other restricted places of operation where vehicles will be operated.

(18) Hazardous (classified) locations where vehicles will be operated.

(19) Ramps and other sloped surfaces that could affect the stability of the vehicle.

(20) Other unique or potentially hazardous environmental conditions that exists or may exist in the workplace.

(21) Closed environments and other areas where insufficient ventilation could cause a build-up of carbon monoxide or diesel exhaust.

(22) Operating limitations.

(23) Refueling and charging/recharging batteries.

6.3. Evaluation and Refresher Training:

6.3.1 A periodic evaluation and periodic formal documented refresher training based on the evaluation shall be conducted for equipment operators.

6.3.2 A competent person(s) must conduct and document an evaluation of the performance of the operator of heavy equipment/mobile equipment at least initially and where feasible triennially thereafter.

6.3.3 Documented corrective training shall be required when conditions in the workplace change or the equipment operator demonstrates the following:

(1) Observed operating in an unsafe manner;
(2) Involved in an incident;
(3) Evaluated not operating the equipment safely;
(4) Assigned to drive a different piece of equipment; or
(5) Conditions in the workplace have changed and could affect the safe operation of the equipment.

7.0 <u>Mobile Equipment Safety Requirements:</u>

Forklift:

(1) Only certified personnel are permitted to operate mobile equipment.

(2) The operator shall perform pre-shift inspections. The form shall be readily available for review.

(3) Defective equipment must be locked out until repairs are complete.

(4) A preventative maintenance program shall be utilized and documented.

(5) Seat belts shall be required at all times the forklift is being operated.

(6) Make sure there is a clear path before moving loads

(7) Always move at a safe speed.

(8) Always face the direction of travel.

(9) When necessary to travel in reverse, or there is obstruction to vision, have another person guiding.

(10) Always sound horn when coming around blind corners, at intersections or traveling in reverse.

(11) In picking up a load, be sure forks are set squarely and as far as possible under the load. Never raise or lower loads while traveling. Whether loaded or empty forks shall be carried as low as possible.

(12) Never swing or suspend loads over people. No one is permitted to walk or stand under raised material handling equipment.

(13) On inclines, forklifts must be driven with the load on the upgrade side of the driver.

(14) Check to make sure loads are firmly fastened and positioned to prevent tipping or slipping.

(15) Avoid any action that might dump a load.

(16) Moveable or replaceable forks must be firmly in place by use of a proper securing pin.

(17) Never use improvised attachments. Use only those approved by the manufacturer and be certain all attachments are properly secured.

(18) Only the operator is permitted to ride the forklift.

(19) The forklift may not be left unattended unless the load is lowered, controls are in neutral, brakes are set and the lift is turned off.

(20) When the forklift is parked on an incline the wheels shall be chocked.

(21) When trucks are unloaded the wheels of the truck must be chocked and only approved properly stabilized dock boards may be used.

(22) Detached semi-trailers must be properly jacked before being unloaded.

(23) The forklift driver will check the soundness of the dock plate and truck floor before driving the forklift onto either.

(24) The forklift shall be used only for the purpose for which it is designed. Raising personnel on the forks, for example, must be prohibited.

Aerial Lift

(1) Lift controls shall be tested prior to use to ensure safe working conditions. (Attachment Two)

(2) Man-lift must not be used to carry any load that does not completely fit into the basket, or, with the addition of the operator's weight, exceeds the rated capacity of the lift.

(3) An exception to the above rule can be allowed for installation of pipe or conduit. Pipe or conduit less than ten

(4) feet long may be straddled across the top of the man lift provided the total load (operator and materials) is not in excess of the rated capacity of the lift. Operators must abide by safe lifting limits as prescribed in these procedures, and must survey the area for possible contact with electrical conductors.

(4) Only the appropriate departmental personnel shall approve any exceptions to the above.

(5) Operators shall always stand firmly on the floor of the basket and not sit or climb on the edge of the basket or use planks, ladders or other devices for work position.

(6) The brakes must be set and outrigger, when used, shall be positioned on pads or a solid surface. Wheel chocks shall be installed before using an aerial manlift on an incline surface.

(7) The aerial manlift may not be moved when the boom is elevated in a working position with personnel in the basket. The exception is for equipment specifically designed for this type of operation.

(8) If the aerial manlift is to exceed 16 feet inside a facility, all overhead cranes must be locked out and tagged or an observer must be in place to ensure the safety of the personnel.

Maintenance

7.3.1 The location shall follow the manufacturer's recommendations in their equipment preventative maintenance program.

7.3.2 Only designated maintenance personnel shall be authorized to perform service on equipment.

7.3.3 Maintenance shall conduct a pre-release inspection on equipment prior to return to service. Inspections should be reviewed periodically and retained for three (3) months.

Re-Fueling

7.4.1 Operator must be properly trained

7.4.2 Make sure mobile equipment engine is shut off

7.4.3 Appropriate PPE must be worn

7.4.4 No smoking or open flames

Noise and Hearing Conservation

The problem of high intensity noise in construction and industrial operations that expose the employee to excessive noise levels is receiving increased attention. In construction, engineering controls are not feasible as a permanent method of control for excessive noise. The only control available is the use of personal protective devices.

Personal hearing protective devices are designed to protect the employee's hearing from possible excessive noise during construction and industrial operations.

This policy covers the use and requirements of hearing protection for Roemer Utility Services. This information will allow the foremen to select and obtain the appropriate type of hearing protection necessary for the employees in their operating unit.

Hearing protection devices shall be worn by all employees in areas where there is a reasonable probability of excessive noise levels. Hearing protection will be provided by Roemer and employees will have a selection of hearing protection to choose from. The maximum acceptable environmental exposure level of steady noise is 85 dB for eight hours or its dose equivalent. All hearing protection devices purchased shall have a label indicating their noise reduction rating (NRR). Only the highest NRR shall be purchased and issued.

The two hearing protection devices used are as follows:

1. ***The Formable Insert Type* – Designed for a one-time use only and** then discarded. Generally, it fits all ear canals. Commercially available earplugs, if properly fitted and used, generally reduce noise reaching the ear by 25-30 dB. This should provide ample protection against sound levels of 115 to 120 dB.

2. *Muff Type or Earmuff* – Devices that cover the external ear to provide an acoustic barrier. Good quality earmuffs may reduce noise an additional 10 to 15 dB, making them effective against sound levels of 130 to 135 dB. If both earplugs and muffs are used in combination, the protection is increased 3 to 5 dB.

Individual ear canals vary in size; therefore, it is important that the ear plugs fit properly. Plugs must fit properly and remain correctly seated since the slightest leakage will weaken the effectiveness of the plug by as much as 15 dB.
Foremen must instruct their employees in the proper use and wearing of hearing protection devices and the importance of their use. This training will be completed prior to the employee being assigned to a required area. **The Employees will be retrained if he/she shows sign of violating this policy**

APPENDIX D

HEARING CONSERVATION PROGRAM

The purpose of this program is to ensure that hearing protection is provided and used when necessary. This program covers all facility employees whose noise exposure equals or exceeds a 8-hour-time-weighted average sound level (TWA) of 85 decibels measured on the A scale (slow response) or, equivalently, a dose of fifty percent. For purpose of this program, employee noise exposures shall be computed without regard to any attenuation provided by the use of personal protective equipment. Also, for purposes of this program, an 8-hour-time-weighted average of 85 decibels or a dose of fifty percent shall be referred to as the action level.

Monitoring

- Area monitoring shall be utilized to determine if a sound level equal to or exceeding the action level exists.
- If the results of the area monitoring indicate a sound level equaling or exceeding the action level, personal sampling shall be performed on a representative sampling of personnel assigned to the area.
- The results of the personal sampling shall be communicated to each employee exposed at or above the action level.
- Employees assigned to any area in which the sound level equals or exceeds the action level shall be informed when noise measurements will be conducted in that area and shall be permitted to observe the measurements being conducted.

Audiometric Testing Program

- All employees whose exposures equal or exceed the action level shall participate in an audiometric testing program.
- Within 6 months of an employee's first exposure at or above the action level, a valid baseline audiogram shall be established.
- Where baseline audiograms are obtained more than 6 months after the employee's first exposure at or above the action level, employees shall wear hearing protection for any period exceeding 6 months after the first exposure until the baseline audiogram is obtained.
- Testing to establish a baseline audiogram shall be preceded by at least 14 hours without exposure to workplace noise. Hearing protectors may be used as a substitute for this requirement.

- All employees requiring a baseline audiogram shall be advised to avoid high levels of non-occupational noise exposure during the 14-hour period immediately preceding the audiometric examination.

- At least annually, a new audiogram shall be obtained for each employee exposed at or above the action level.

- 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. A standard threshold shift is defined as a change in hearing threshold relative to the baseline audiogram of an average of 10dB or more at 2000, 3000 and 4000 Hz in either ear. The results shall be age adjusted.

- If the annual audiogram shows that an employee has suffered a standard threshold shift, a retest may be obtained within 30 days.

- If it is determined that a standard threshold shift has occurred, the employee shall be informed of this fact, in writing, within 21 days of the determination.

Noise Control

- Engineering controls will be utilized if the results of area monitoring indicate that an action level exists.

- Hearing protectors shall be made available to all employees exposed at or above the action level. The use of hearing protectors is mandatory for all employees exposed at or above the limits as specified in the attached table.

- Hearing protectors shall also be worn by any employee who is exposed to an 8-hour TWA of 85 dB or greater; who has not had a baseline audiogram established, or has experienced a standard threshold shift.

- The hearing protection attenuation will be evaluated using an approved method.

- Training in the use and care of all hearing protectors shall be provided to all employees required to use same.

Training

- All employees who are exposed to noise at or above an 8-hour TWA of 85 dB, are required to attend an annual training program.
- This training program shall include:
- The effects of noise on hearing.
- The purpose of hearing protectors, the advantages, disadvantages, and attenuation of various types, and instructions on selection, fitting, use and care.
- The purpose of audiometric testing, and an explanation of the test results.

Record Keeping

- Noise exposure measurement records shall be retained for at least three years.
- Audiometric test records shall be retained in the employee medical record for 30 years after termination of employment.

Sound Pressure Level Exposure Limits

Sound Pressure Level (dB)	Time (Hours)
80	32
81	27.9
82	24.3
83	21.1
84	18.4
85	16
86	13.9
87	12.1
88	10.6
89	9.2
90	8
91	7.0
92	6.1
93	5.3
94	4.6
95	4
96	3.5
97	3.0
98	2.6
99	2.3
100	2
101	1.7
102	1.5
103	1.3
104	1.1
105	1
106	0.87
107	0.76
108	0.66
109	0.57
110	0.5
111	0.44
112	0.38
113	0.33
114	0.29
115	0.25
116	0.22
117	0.19
118	0.16
119	0.14
120	0.125
121	0.11

122.....0.095
123.....0.082
124.....0.072
125.....0.063
126.....0.054
127.....0.047
128.....0.041
129.....0.036
130.....0.031

Naturally Occurring Radioactive Material Protection

Policy

It is company policy that all employees be protected from naturally occurring radioactive material (NORM) and technology enhanced naturally occurring radioactive materials (TENORM) in the event of exposure during work.

This policy includes the company's commitment to comply with occupational, public and environmental radiation protection regulations and requirements established by and within the jurisdiction of federal, state, and local authorities.

This includes, but is not limited to, applicable standards established by the US Nuclear Regulatory Commission, US Department of Energy, US Occupational Safety and Health Administration, US Environmental Protection Agency, and individual states and local authorities.

Scope of Program

This radiation protection program (RPP) is established and implemented to ensure that safe work procedures and appropriate, specific employee training are provided prior to the assignment of any company employee to perform work where there is an identified potential for NORM or TENORM exposure.

The company safety coordinator shall be the RPP program coordinator and serve as the administrator over program provisions and requirements.

Each manager, supervisor, and other employees involved in work where such radiation exposures may be present share in the responsibility for maintaining a safety margin by use of site-specific and task-specific safe work procedures based on hazard analysis and safety planning prior to commencing work.

Program implementation shall include:

- Measures for the identification of NORM and TENORM situations;
- Initial and ongoing monitoring of radiation levels during identified situations;
- Training of employees about the types of radiation hazards so identified, the location of such hazards in the workplace or job site, and the types of monitoring and identification processes to be used to ensure that appropriate methods of hazard avoidance and protection are utilized as needed.

The implementation of this policy shall be ensured by incorporating the applicable elements of the controlling radiation protection program (RPP) or this Company RPP into site-specific health and safety plans, work plans, or radiological control documents, as appropriate. Where work under specific host employer contracts requires more stringent measures, those measures shall be adopted.

For projects under the scope of this program in which the host employer either does not have a documented RPP, or the RPP scope is not applicable to the work plan, the site-specific health and safety plan or work plan -- together with applicable elements from this procedure -- shall constitute the company's documented radiation RPP for the project.

Procedure

Each site under the purview of this program shall have one or more qualified individuals responsible for implementing radiological protection of employees, members of the public, and the environment.

Qualifications and training of these individuals shall be commensurate with the potential radiological hazards.

Written radiological operational procedures shall be developed for activities where there is an identified risk to employees or a threat to the environment from radiological hazards.

Such procedures shall be commensurate with the level of hazard and shall address all the radiological protection program elements necessary for identifying, evaluating, and controlling radiological hazards, and ensuring compliance with company and federal occupational safety and health requirements, environmental permits and radiological regulations.

The procedures shall provide for the collection and maintenance of information providing a legal record of protection of employees, the public, and the environment such as instrument calibration and performance checks, contamination monitoring and control, direct radiation monitoring and personnel access control.

Surveys and monitoring to evaluate potential radiological hazards shall be conducted as commensurate with the magnitude of the potential hazard.

The surveys shall include measurements of radiation levels, concentrations or quantities of radioactive material, and other measurements and evaluations necessary to characterize the potential radiological hazards that could be present.

Radiation detection instrumentation shall be provided as appropriate for performing necessary surveys and monitoring. The instrumentation shall be selected based upon the type of radiation detected, minimum detectable activity measurement capability and range in accordance with the radiological hazards present or anticipated for the project.

Appropriate procedures and measures shall be established to control personnel access to radiologically controlled areas. The procedures shall provide that only appropriately trained, authorized and qualified personnel are permitted access to the controlled area.

Personal protective equipment (PPE), which may include the use of HEPA respirators, shall be selected based on the contamination levels in the work area and the anticipated work activity, safety and health considerations, and consideration of non-radiological hazardous materials that may be present.

Only respiratory protection devices tested and approved by NIOSH/MSHA are authorized for use in protection against radionuclides. All personnel who utilize respiratory protection shall do so in accordance with the company's written respiratory protection program.

Hazard communication through posting and labeling shall be in accordance with the cognizant regulatory authority requirements. The standard radiation symbol (ANSI N2.1/12.1) in magenta or black on a yellow background (or alternate as provided by regulations) shall be used to warn individuals of the presence of radiation and/or radioactive material.

Transportation of radioactive material shall be in accordance with DOT requirements in 49 CFR 170 through 180, International Air Transport Association regulations and other Federal, state, and local regulations, as applicable.

The generation, treatment, storage, packaging, and transport of radioactive waste for disposal shall be in accordance with applicable federal, state and local regulatory requirements.

Information and reports regarding any individual's radiation exposure shall be made available to that individual annually and upon request in accordance with the provisions of state privacy laws and federal privacy requirements.

A training program shall be established to provide mandatory training to affected employees at a project site under this radiological program. Radiation protection training shall be provided to each affected employee prior to assignment to work where a NORM or TENORM hazard potential has been identified.

In addition to this initial training, re-training shall be performed at least annually during the length of the project at hand, and whenever workplace situations change or work procedures are modified in a way that affects radiation protection for personnel.

The objective and goal of the training program shall be to provide a consistent baseline level of knowledge and practical skills for general employees and radiological workers working in or adjacent to restricted or radiologically controlled areas.

Specific training and qualification standards shall be as specified in the cognizant regulatory authority requirements or guidance documents, and, as a minimum, shall consist of definitions, sources of radiation, radiological fundamentals, biological effects, ALARA philosophy (as-low-as-reasonably-achievable), radiological posting and controls, contamination and exposure control, personal protective equipment use and limitations, personal hygiene considerations, emergency procedures, roles and responsibilities, and emergency procedures.

Training shall include instruction in special concepts of personal protection from radiation that explain three basic considerations:

- Limitation of the duration of the exposure;
- Greater protection as distance from the exposure increases; and
- Greater protection as shielding factors (primarily type and amount) between the radiation source and the individual increase.

Site-specific radiological emergency procedures commensurate with the level of hazard shall be developed or client procedures adopted prior to the initiation of work addressing severe weather actions, transportation accidents or spills, medical emergencies, personnel contaminations, and on-site hazmat response and notification requirements involving radioactive materials. All site personnel shall be instructed in their emergency responsibilities and the emergency procedures.

The majority of company contracts under the purview of this procedure are expected to be at construction, pipeline, and maintenance sites involving materials containing low levels of Naturally Occurring Radioactive Materials (NORM) and radioactivity, as well as Technology Enhanced Naturally Occurring Radioactive Materials (TENORM).

For these activities, many of the elements of the radiological protection program will not be fully applicable or will be applied in alternate equivalent ways in the site-specific health and safety plan.

Site-Specific Information

Radium, radon, and their decay products are radioactive elements of concern in petroleum production and gas processing. Exposure may occur when contaminated dusts and sludge are inhaled or ingested (internal exposure) or when radiation from surrounding equipment strikes the body (external exposure).

Radium is found in most oil and gas fields in the world in varying concentrations. There is potential to find radium in significant amounts in almost all types of equipment. Radon is found in most natural gas deposits in the world.

Radon itself does not present a health hazard because it is not easily absorbed into the body and is quickly cleared when absorbed.

Radon's radioactive breakdown products, called radon "daughters," may be hazardous. Radon naturally breaks down into radioactive metals before becoming non-radioactive lead.

Radon daughters may be inhaled or ingested when attached to scale or dust generated during equipment inspection and repair. Radon daughter overexposure has been associated with an increased risk of lung cancer.

Work procedures are recommended when maintaining NORM contaminated equipment such as pipelines, filters, pumps, lines, sludge or wellhead equipment. The exposure risk is highest when grinding, cutting, polishing, or performing other work that may generate dust. These dusts present inhalation hazards that result in internal exposures to radioactive material.

Radiological detection and monitoring equipment shall be selected based on the workplace situation and the type of NORM or TENORM anticipated. The methods for testing should be described; in addition, who will perform the tests and the source of information for exposure to which the levels will be compared should also be addressed.

Detection and monitoring shall be done only by trained and qualified personnel who are familiar with the type(s) of equipment in use and methods/protocols to be followed, as determined in the company's and (as applicable) the host employer's site-specific radiation protection program.

Proper respiratory protection (respirator with the proper HEPA filter) should be worn when performing activities that will result in dust or particle generation.

Locations where NORM or TENORM might be found in concentrations higher than background are entrained in water from oil and gas production, transport and delivery equipment for propane, gas processing equipment, and storage areas for used piping.

Personal Protective Equipment

Purpose

The Romer Utility Services provides all Employees with required PPE to suit the task and known hazards. This Chapter covers the requirements for Personal Protective Equipment with the exception of PPE used for hearing conservation and respiratory protection or PPE required for hazardous material response to spills or releases, which if applicable are covered under separate programs.

Safety Representative, is the program coordinator, acting as the representative of the plant manager, who has overall responsibility for the program. Safety Representative will designate appropriate plant supervisors to assist in training employees and monitoring their use of PPE. This written plan is kept in Safety Representative's office. Then he/she will review and update the program as necessary. Copies of this program may be obtained from Safety Representative's office.

We at Romer Utility Services believe it is our obligation to provide a hazard free environment to our employees. Any employee encountering hazardous conditions must be protected against the potential hazards. The purpose of protective clothing and equipment (PPE) is to shield or isolate individuals from chemical, physical, biological, or other hazards that may be present in the workplace.

Establishing an overall written PPE program detailing how employees use PPE makes it easier to ensure that they use PPE properly in the workplace and document our PPE efforts in the event of an OSHA inspection. Romer Utility Service's PPE program covers:

- Purpose
- Hazard assessment
- PPE selection
- Employee training
- Cleaning and maintenance of PPE
- PPE specific information

If after reading this program, you find that improvements can be made, please contact Safety Representative. We encourage all suggestions because we are committed to the success of our Personal Protective Equipment Program. We strive for clear understanding, safe behavior, and involvement in the program from every level of the company.

General Policy

Engineering controls shall be the primary methods used to eliminate or minimize hazard exposure in the workplace. When such controls are not practical or applicable, personal protective equipment shall be employed to reduce or eliminate personnel exposure to hazards. Personal protective equipment (PPE) will be provided, used, and maintained when it has been determined that its use is required and that such use will lessen the likelihood of occupational injuries and/or illnesses.

Responsibilities

Safety Representative will be responsible for assessing the hazards and exposures that may require the use of PPE, determining the type of equipment to be provided, and purchasing the equipment. Input from managers, supervisors, and employees will be obtained and considered in selecting appropriate equipment.

Managers/supervisors will be responsible for training employees in the use and proper care of PPE, ensuring that all employees are assigned appropriate PPE, and ensuring that PPE is worn by employees when and where it is required.

Employees are responsible for following all provisions of this program and related procedures. They are expected to wear PPE when and where it is required. If an employee desires to bring his or her own form of personal protective Equipment on a location operated by Romer Utility Services he or she shall make sure the equipment meets or exceeds the minimum requirements of that PPE that is provided by Romer Utility Services. All equipment shall be maintained and used in accordance with the manufactures recommendations and shall not create any other safety hazards in its self.

Flame Retardant (FR) Clothing

All affected employees that are or may be required to work with in reaching distance of exposed energized parts will be required to wear flame retardant clothing. The following materials will not be allowed to be worn either in blends or alone during such work, acetate, nylon, polyester or rayon.
Such special clothing will be supplied at no cost to the employee and the compliance of such a dress code will be enforced by a designated Romer Utility Services site supervisor.

In addition to wearing the Flame Retardant (FR) Clothing affected employees will be required to remove such items as keys, watches, rings or other such conductive articles prior to getting within reach of exposed energized parts.

Hazard Assessment

The Company will perform an assessment of the workplace to determine if hazards are present, or likely to be present, which necessitates the use of personal protective equipment (PPE). This assessment will consist of a survey of the workplace to identify sources of hazards to workers. Consideration will be given to hazards such as impact, penetration, laceration, compression (dropping heavy objects on foot, roll-over, etc.), chemical exposures, harmful dust, heat, light (optical) radiation, electrical hazards, noise, etc. Where such hazards are present, or likely to be present, the Company will:

- Select, and have each affected Employee use, the proper PPE
- Communicate selection decisions to each affected Employee
- Select PPE that properly fits each affected employee.
- Train employees in the use and care of PPE as described elsewhere in this program

The Company will verify that the workplace hazard assessment has been performed by conducting a written certification. This certification will be dated and signed by Safety Representative or person conducting the assessment.
Whenever there is a change in process or in the workplace that might introduce or change an exposure or hazard, the company will perform an assessment to determine if there needs to be additional PPE or a change in the PPE provided.

These supplemental hazard assessments will also be documented, signed and dated by the person performing the assessment. The Company will review and update the workplace hazard assessment on an annual basis.

Source

During the walk-through survey safety should observe:

a) Sources of motion; i.e., machinery or processes where any movement of tools, machine elements or particles could exist, or movement of personnel that could result in collision with stationary objects;

b) Sources of high temperatures that could result in burns, eye injury or ignition of protective equipment, etc.;

c) Types of chemical exposures;

d) Sources of harmful dust;

e) Sources of light radiation, i.e., welding, brazing, cutting, furnaces, heat treating, high intensity lights, etc.;

f) Sources of falling objects or potential for dropping objects;

g) Sources of sharp objects which might pierce the feet or cut the hands;

h) Sources of rolling or pinching objects which could crush the feet;

i) Layout of workplace and location of co-workers; and

j) Any electrical hazards. In addition, injury/accident data should be reviewed to help identify problem areas.

Organize Data

Following the walk-through survey, it is necessary to organize the data and information for use in the assessment of hazards. The objective is to prepare for an analysis of the hazards in the environment to enable proper selection of protective equipment.

Analyze Data

Having gathered and organized data on a workplace, an estimate of the potential for injuries should be made. Each of the basic hazards should be reviewed and a determination made as to the type, level of risk, and seriousness of potential injury from each of the hazards found in the area. The possibility of exposure to several hazards simultaneously should be considered.

Controlling Hazards

PPE devices alone should not be relied on to provide protection against hazards, but should be used in conjunction with guards, engineering controls, and sound manufacturing practices.

Assessment and Selection

It is necessary to consider certain general guidelines for assessing the foot, head, eye and face, and hand hazard situations that exist in an occupational or educational operation or process, and to match the protective devices to the particular hazard. It should be the responsibility of Safety Representative to exercise common sense and appropriate expertise to accomplish these tasks. Personal protective equipment will meet the following standards:

- Eye & Face Protection devices - ANSI Z87.1-1989 "American National Standard Practice for Occupational and Educational Eye and Face Protection"
- Head Protection devices - ANSI Z89.1-1986 "American National Standard for Personal Protection - Protective Headwear for Industrial Workers"
- Foot Protection devices - ANSI Z41-1991 "American National Standard for Personal Protection - Protective Footwear"
- Hand Protection - No national standard available - Selection will be based on task performed, conditions present, duration of use, and the hazards and potential hazards identified.

- Electrical Protective equipment - No national standard - Equipment will be tested electrically before first use and every 6 months thereafter or upon indication that insulating value is suspect.

Selection Guidelines

The general procedure for selection of protective equipment is to:

a) Become familiar with the potential hazards and the type of protective equipment that is available, and what it can do; i.e., splash protection, impact protection, etc.;

b) Compare the hazards associated with the environment; i.e., impact velocities, masses, projectile shape, radiation intensities, with the capabilities of the available protective equipment;

c) Select the protective equipment which ensures a level of protection greater than the minimum required to protect employees from the hazards; and

d) Fit the user with the protective device and give instructions on care and use of the PPE. It is very important that end users be made aware of all warning labels for and limitations of their PPE.

Fitting the Device

Careful consideration must be given to comfort and fit. PPE that fits poorly will not afford the necessary protection. Continued wearing of the device is more likely if it fits the wearer comfortably. Protective devices are generally available in a variety of sizes. Care should be taken to ensure that the right size is selected.

Devices with Adjustable Features

Adjustments should be made on an individual basis for a comfortable fit that will maintain the protective device in the proper position. Particular care should be taken in fitting devices for eye protection against dust and chemical splash to ensure that the devices are sealed to the face. In addition, proper fitting of helmets is important to ensure that it will not fall off during work operations. In some cases, a chinstrap may be necessary to keep the helmet on an employee's head. (Chinstraps should break at a reasonably low force, however, so as to prevent a strangulation hazard). Where manufacturer's instructions are available, they should be followed carefully.

Reassessment of Hazards

It is the responsibility of Safety Representative to reassess the workplace hazard situation as necessary, by identifying and evaluating new equipment and processes, reviewing accident records, and reevaluating the suitability of previously selected PPE.

Defective & Damaged Equipment

Defective or damaged personal protective equipment shall not be used.

Selection of Personal Protective Equipment (PPE)

Personal protective equipment (PPE) will be selected on the basis of the hazards to which the workers are exposed or potentially exposed. All selections will be made by with input from managers, supervisors and workers.

Training

Each employee who is required to use PPE will be trained in the following:

- Why PPE is necessary
- When PPE is necessary
- What PPE is necessary and any alternative choices of equipment
- How to properly don, doff, adjust, and wear PPE
- The proper care, maintenance, storage, useful life, and disposal of PPE

The training will include an opportunity for employees to handle the PPE and demonstrate that they understand the training and have the ability to use the PPE properly. Training will be provided by the manager or supervisor of the affected employees. Training will be documented in writing with the documentation including the names of each employee trained, the date(s) of the training, and the subject matter covered.

Employees must demonstrate an understanding of the training and the ability to use the PPE properly before they are allowed to perform work requiring the use of the equipment.

Employees are prohibited from performing work without donning appropriate PPE to protect them from the hazards they will encounter in the course of that work. If Safety Representative has reason to believe an employee does not have the understanding or skill required, the employer must retrain. Since an employee's supervisor is in the best position to observe any problems with PPE use by individual employees, Safety Representative will seek this person's input when making this determination. Circumstances where retraining may be required include changes in the workplace or changes in the types of PPE to be used, which would render previous training obsolete. Also, inadequacies in an affected employee's knowledge or use of the assigned PPE, which indicates that the employee has not retained the necessary understanding or skills, would require retraining.

Safety Representative certifies in writing that the employee has received and understands the PPE training.

Because failure to comply with company policy concerning PPE can result in OSHA citations and fines as well as employee injury, an employee who does not comply with this program will be disciplined for noncompliance according to the company's Disciplinary Action Program.

Cleaning and Maintenance

It is important that all PPE be kept clean and properly maintained by the employee to whom it is assigned. Cleaning is particularly important for eye and face protection where dirty or fogged lenses could impair vision. PPE is to be inspected, cleaned, and maintained by employees at regular intervals as part of their normal job duties so that the PPE provides the requisite protection. Supervisors are responsible for ensuring compliance with cleaning responsibilities by employees.

If PPE is for general use, Safety Representative has responsibility for cleaning and maintenance. If a piece of PPE is in need of repair or replacement it is the responsibility of the employee to bring it to the immediate attention of his or her supervisor or Safety Representative. It is against work rules to use PPE that is in disrepair or not able to perform its intended function. Contaminated PPE that cannot be decontaminated is disposed of in a manner that protects employees from exposure to hazards.

Personal Protective Equipment

Engineering controls shall be the primary methods used to eliminate or minimize hazard exposure in the workplace. When such controls are not practical or applicable, personal protective equipment shall be employed to reduce or eliminate personnel exposure to hazards.

Personal protective equipment (PPE) will be provided, used, and maintained when it has been determined that its use is required and that such use will lessen the likelihood of occupational injuries and/or illnesses. Safety Representative will recommend and/or provide necessary protective equipment where there is a reasonable probability that the use of the equipment will prevent or reduce the severity of injuries or illness.

Equipment Specifications and Requirements-

All personal protective clothing and equipment will be of safe design and construction for the work to be performed. Only those items of protective clothing and equipment that meet National Institute of Occupational Safety and Health (NIOSH) or American National Standards Institute (ANSI) standards will be procured or accepted for use.

Eye and Face Protection-

The majority of occupational eye injuries can be prevented by the use of suitable/approved safety spectacles, goggles, or shields. Approved eye and face protection shall be worn when there is a reasonable possibility of personal injury. Supervisors, with assistance from Safety Representative, determine jobs and work areas that require eye protection and the type of eye and face protection that will be used.

Typical hazards that can cause eye and face injury are:

- Splashes of toxic or corrosive chemicals, hot liquids, and molten metals;
- Flying objects, such as chips of wood, metal, and stone dust;
- Fumes, gases, and mists of toxic or corrosive chemicals; and
- Aerosols of biological substances.

Prevention of eye accidents requires that all persons who may be in eye hazard areas wear protective eyewear. This includes employees, visitors, researchers, contractors, or others passing through an identified eye hazardous area. To provide protection for these personnel, activities shall procure a sufficient quantity of heavy-duty goggles and/or plastic eye protectors, which afford the maximum amount of protection possible.

If these personnel wear personal glasses, they shall be provided with a suitable eye protector to wear over them.

Specifications-

Eye and face protectors procured, issued to, and used by Company personnel must conform to the following design and standards:

a) Provide adequate protection against the particular hazards for which they are designed

b) Fit properly and offer the least possible resistance to movement and cause minimal discomfort while in use.

c) Be durable.

d) Be easily cleaned or disinfected for or by the wearer.

e) Be clearly marked to identify the manufacturer.

f) Persons who require corrective lenses for normal vision, and who are required to wear eye protection, must wear goggles or spectacles of one of the following types:

1. Spectacles with protective lenses, which provide optical correction.

2. Goggles that can be worn over spectacles without disturbing the adjustment of the spectacles.

3. Goggles that incorporate corrective lenses mounted behind the protective lenses.

Description and Use of Eye/Face Protectors

– Safety Spectacles. Protective eye glasses are made with safety frames, tempered glass or plastic lenses, temples and side shields which provide eye protection from moderate impact and particles encountered in job tasks such as carpentry, woodworking, grinding, scaling, etc.

– Single Lens Goggles. Vinyl framed goggles of soft pliable body design provides adequate eye protection from many hazards. These goggles are available with clear or tinted lenses, perforated, port vented, or non-vented frames.

  Single lens goggles provide similar protection to spectacles and may be worn in combination with spectacles or corrective lenses to insure protection along with proper vision.

– Welders/Chippers Goggles. These goggles are available in rigid and soft frames to accommodate single or two eyepiece lenses.

  - Welder's goggles provide protection from sparking, scaling or splashing metals and harmful light rays. Lenses are impact resistant and are available in graduated shades of filtration.

  - Chippers/grinders goggles provide eye protection from flying particles. The dual protective eyecups house impact resistant clear lenses with individual cover plates.

– Face Shields. These normally consist of an adjustable headgear and face shield of tinted/transparent acetate or polycarbonate materials, or wire screen. Face shields are available in various sizes, tensile strength, impact/heat resistance and light ray filtering capacity. Face shields will be used in operations when the entire face needs protection and should be worn to protect eyes and face against flying particles, metal sparks, and chemical/ biological splash.

- Welding Shields. These shield assemblies consist of vulcanized fiber or glass fiber body, a ratchet/button type adjustable headgear or cap attachment and a filter and cover plate holder. These shields will be provided to protect workers' eyes and face from infrared or radiant light burns, flying sparks, metal spatter and slag chips encountered during welding, brazing, soldering, resistance welding, bare or shielded electric arc welding and oxyacetylene welding and cutting operations.

Safety Representative maintains a supply of various eye and face protective devices. Personnel requiring prescription safety glasses must contact Safety Representative.

Emergency Eyewash Facilities-

Emergency eyewash facilities meeting the requirements of ANSI Z358.1-1981 shall be provided in all areas where the eyes of any employee may be exposed to corrosive materials. All such emergency facilities shall be located where they are easily accessible to those in need. Romer Utility Services currently has emergency eyewash stations located in the following areas:

In all required areas.

Hearing Protection-

Hearing protection devices are the first line of defense against noise in environments where engineering controls have not reduced employee exposure to safe levels. Hearing protective devices can prevent significant hearing loss, but only if they are used properly.

The most popular hearing protection devices are earplugs, which are inserted into the ear canal to provide a seal against the canal walls. Earmuffs enclose the entire external ears inside rigid cups. The inside of the muff cup is lined with acoustic foam and the perimeter of the cup is fitted with a cushion that seals against the head around the ear by the force of the headband.

Preformed earplugs and earmuffs should be washed periodically and stored in a clean area, and foam inserts should be discarded after each use. It is important for you to wash hands before handling pre-formed earplugs and foam inserts to prevent contaminants from being placed in the ear, which may increase your risk of developing infections.

Also, check hearing protective devices for signs of wear or deterioration.

Replace devices periodically.

Safety Representative and Site Supervisor maintains a supply of a variety of disposable foam ear inserts and earmuffs.

Respiratory Protection

Respiratory hazards may occur through exposure to harmful dusts, fogs, fumes, mists, gases, smoke, sprays, and vapors. The best means of protecting personnel is through the use of engineering controls, e.g., local exhaust ventilation. Only when engineering controls are not practical or applicable shall respiratory protective equipment be employed to reduce personnel exposure.

Safety Representative is responsible for the Respiratory Protection Program at the Company. Workers requiring the use of respirators must first obtain medical approval from the Company physician to wear a respirator before a respirator can be issued. Safety Representative conducts respirator training and fit tests and is responsible for determining the proper type of respiratory protection required for the particular hazard.

Adherence to the following guidelines will help ensure the proper and safe use of respiratory equipment:

- Wear only the respirator you have been instructed to use. For example, do not wear a self-containing breathing apparatus if you have been assigned and fitted for a half-mask respirator.

- Wear the correct respirator for the particular hazard. For example, some situations, such as chemical spills or other emergencies, may require a higher level of protection than your respirator can handle. Also, the proper cartridge must be matched to the hazard (a cartridge designed for dusts and mists will not provide protection from vapors)

- Check the respirator for a good fit before each use. Positive and negative fit checks should be conducted.

- Check the respirator for deterioration before and after use. Do not use a defective respirator.

- Recognize indications that cartridges and canisters are at their end of service. If in doubt, change cartridges/ canisters before using respirator.

- Practice moving and working while wearing the respirator so that you can get used to it.

- Clean the respirator after each use, thoroughly dry it and place the cleaned respirator in a sealable plastic bag.

- Store respirators carefully in a protected location away from excessive heat, light, and chemicals.

Head Protection

Hats and caps have been designed and manufactured to provide workers protection from impact, heat, electrical and fire hazards. These protectors consist of the shell and the suspension combined as a protective system. Safety hats and caps will be of nonconductive, fire and water resistant materials. Bump caps or skull guards are constructed of lightweight materials and are designed to provide minimal protection against hazards when working in congested areas.

Head protection will be furnished to, and used by, all employees and contractors engaged in construction and other miscellaneous work in head-hazard areas. Head protection will also be required to be worn by engineers, inspectors, and visitors at construction sites. Bump caps/skull guards will be issued to and worn for protection against scalp lacerations from contact with sharp objects. They will not be worn as substitutes for safety caps/hats because they do not afford protection from high impact forces or penetration by falling objects.

Hand Protection

Skin contact is a potential source of exposure to toxic materials; it is important that the proper steps be taken to prevent such contact. Gloves should be selected on the basis of the material being handled, the particular hazard involved, and their suitability for the operation being conducted. One type of glove will not work in all situations.

Most accidents involving hands and arms can be classified under four main hazard categories: chemicals, abrasions, cutting, and heat. There are gloves available that can protect workers from any of these individual hazards or any combination thereof.

The first consideration in the selection of gloves for use against chemicals is to determine, if possible, the exact nature of the substances to be encountered. Read instructions and warnings on chemical container labels and SDSs before working with any chemical. Recommended glove types are often listed in the section for personal protective equipment.

All glove materials are eventually permeated by chemicals. However, they can be used safely for limited time periods if specific use and glove characteristics (i.e., thickness and permeation rate and time) are known. Safety Representative can assist is determining the specific type of glove material that should be worn for a particular chemical.

Gloves should be replaced periodically, depending on frequency of use and permeability to the substance(s) handled. Gloves overtly contaminated should be rinsed and then carefully removed after use.

Gloves should also be worn whenever it is necessary to handle rough or sharp-edged objects, and very hot or very cold materials. The type of glove materials to be used (in these situations) includes leather, welder's gloves, aluminum-backed gloves, and other types of insulated glove materials.

Careful attention must be given to protecting your hands when working with tools and machinery. Power tools and machinery must have guards installed or incorporated into their design that prevent the hands from contacting the point of operation, power train, or other moving parts. To protect the hands from injury due to contact with moving parts, it is important to:

- Ensure that guards are always in place and used.

- Always lock out machines or tools and disconnect the power before making repairs.

- Treat a machine without a guard as inoperative; and

- Do not wear gloves around moving machinery, such as drill presses, mills, lathes, and grinders.

Safety Representative can help the supervisor identify appropriate glove selections for their operations. Safety Representative also maintains a selection of gloves for various tasks.

Safety Shoes

Safety shoes shall be worn in the shops, warehouses, maintenance, and other areas as determined by the Health and Safety Branch. Recommendations for safety footwear shall be approved by the Health and Safety Branch. All safety footwear shall comply with American National Standards Institute (ANSI) Standard ANSI Z41-1991, "American National Standard for Personal Protection - Protective Footwear. Protective footwear purchased before July 5, 1994, shall comply with ANSI Standard Z41.1-1967.

Responsibilities

Supervisor - Reviews employees work situation and recommends safety footwear as appropriate in accordance with established Institute policy. Requests safety shoes from Safety Representative for new employees or as indicated for replacement. Ensures that all employees under his supervision use and maintain safety footwear. Makes determination on the need for replacement or repair of safety shoes.

Employee - Wears Institute provided or approved safety shoes in all areas requiring safety footwear as determined by the supervisor and Safety Representative.

Safety Manager - Consults with supervisors concerning safety shoe requirements and approves issuance of all safety shoes. Arranges for local purchase of all safety shoes. Makes arrangements for necessary repairs.

Safety Shoes

Procedures

- Supervisors must review employee's work situation in consultation with Safety Representative to decide the need for safety footwear and appropriate types. The "Request for Safety Shoes" must be completed, reviewed and signed by the supervisor and approved by Safety Representative.

- If an employee is unable to find appropriate safety footwear at the designated vendors, he or she should check with Safety Representative for alternate procedures. Alternate procedures involve employees purchasing safety footwear with their own funds and being reimbursed.

- Employee who want to have their footwear repaired, should be encouraged to do so. Some footwear is designed to be repaired, and some is not. Repairs would include such items as new soles and heels. The Company will reimburse employees for repairs.

Hearing Personal Protective Equipment

Hearing protective devices (ear plugs, muffs, etc.) shall be the permanent solution only when engineering or administrative controls are considered to be infeasible or cost prohibitive. Hearing protective devices are defined as any device that can be worn to reduce the level of sound entering the ear. Hearing protective devices shall be worn by all personnel when they must enter or work in an area where the operations generate noise levels:

•Greater than 85 dBA sound levels, or

•115 dB peak sound pressure level or greater

Types of Hearing Protective Devices Hearing protective devices include the following:

A device designed to provide an airtight seal with the ear canal. There are three types of insert earplugs – Premolded, formable, and custom earplugs.

- Premolded earplugs are pliable devices of fixed proportions. Two standard styles, single flange and triple flange, come in various sizes, and will fit most people. Personnel responsible for fitting and dispensing earplugs will train users on proper insertion, wear, and care. While Premolded earplugs are reusable, they may deteriorate and should be replaced periodically.

- Formable earplugs come in just one size. Some are made of material, which, after being compressed and inserted, expands to form a seal in the ear canal. When properly inserted, they provide noise attenuation values that are similar to those from correctly fitted Premolded earplugs. Individual units may procure approved formable earplugs. Supervisors must instruct users in the proper use of these earplugs as part of the annual education program. Each earplug must be held in place while it expands enough to remain firmly seated. A set of earplugs with a cord attached is available. These earplugs may be washed and therefore are reusable, but will have to be replaced after two or three weeks or when they no longer form an airtight seal when properly inserted.

- Custom Molded Earplugs: A small percentage of the population cannot be fitted with standard Premolded or formable earplugs. Custom earplugs can be made to fit the exact size and shape of the individual's ear canal. Individuals needing custom earplugs will be referred to an audiologist.

- Earmuffs are devices worn around the ear to reduce the level of noise that reaches the ear. Their effectiveness depends on an airtight seal between the cushion and the head.

Selection of Hearing Protective Devices

Employees will be given the opportunity to select hearing protective devices from a variety of suitable ones provided by Safety Representative. In all cases the chosen hearing protectors shall have a Noise Reduction Ratio (NRR) high enough to reduce the noise at the eardrum to 85 dBA or lower.

Issuance of Hearing Protective Devices

The issuance of hearing protective devices is handled through Safety Representative. Safety Representative will issue and fit the initial hearing protective devices (foam inserts, disposables). Instruction on the proper use and care of earplugs and earmuffs will be provided whenever HPDs (hearing protective devices) are dispensed.

Personnel requiring earmuffs in addition to earplugs will be informed of this requirement and educated on the importance of using proper hearing protection. Safety Representative will dispense earmuffs when necessary and will maintain a supply of disposable earplugs.

Use of Hearing Protective Devices

Always use and maintain HPDs as originally intended and in accordance with instructions provided.

Earmuff performance may be degraded by anything that compromises the cushion-to-circumoral flesh seal. This includes other pieces of personal protective equipment such as eyewear, masks, face shields, and helmets.

Maintenance of Hearing Protective Devices

Reusable earplugs, such as the triple flange or formable devices should be washed in lukewarm water using hand soap, rinsed in clean water, and dried thoroughly before use. Wet or damp earplugs should not be placed in their containers. Cleaning should be done as needed.

Earmuff cushions should be kept clean. The plastic or foam cushions may be cleaned in the same way as earplugs, but the inside of the muff should not get wet. When not in use, earmuffs should be placed in open air to allow moisture that may have been absorbed into the cups to evaporate.

Hearing Protection Performance Information

The maximum of sound attenuation one gets when wearing hearing protection devices is limited by human body and bone conduction mechanisms. Even though a particular device may provide outstanding values of noise attenuation the actual noise reductions may be less because of the noise surrounding the head and body bypasses the hearing protector and is transmitted through tissue and bone pathways to the inner ear.

The term “double hearing protection” is misleading. The attenuation provided from any combination earplug and earmuff is not equal to the sum of their individual attenuation values

Appendices

Hazard Assessment Form

Romer Utility Services

Certification of Hazard Assessment

Date of Hazard Assessment: _____

Person Certifying Hazard Assessment: _____

Title: _____

Task	Hazard	PPE Required	Department(s)	Comments

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Process Safety Management

REGULATORY STANDARD: OSHA - 29 CFR 1910.119

BASIS:

Unexpected releases of toxic, reactive, or flammable liquids and gases in processes involving highly hazardous chemicals have occurred numerous times in industry in recent years. Incidents occur in various industries that use highly hazardous chemicals which meet the criteria for highly hazardous chemicals. The Occupational Safety and health Administration (OSHA) estimates that losses can be reduced tremendously if proper safety precautions and preparation at job sites are initiated. This poses a serious problem for exposed workers and their employer.

GENERAL:

Romer Utility Services Construction will ensure that Standard Practice Instructions, and emergency plans are developed. These documents will ensure that the potential for emergencies such as accidental releases of toxic gases, chemical spills, fires, explosions, and personal injury incidents within our facility(s) are evaluated. This standard practice instruction is intended to provide company employees with basic guidance to assist them in the development of company plans and SPIs which address the issues of; evaluating and identifying potential emergencies, emergency planning, written procedures, and communicating information concerning these hazards to employees.

RESPONSIBILITY:

The company Safety Officer is Safety Representative. He is solely responsible for all facets of this program and has full authority to make necessary decisions to ensure success of the program. The Safety Officer is the sole person authorized to amend these instructions and is authorized to halt any operation of the company where there is danger of serious personal injury. This policy includes respiratory hazards.

Contents of the Process Safety Program

1. Written Program.
2. General.
3. Facility Planning Requirements.
4. Employee Involvement.
5. Process Safety Committee.
6. Incident Investigation.
7. Process Safety Information.
8. Facility/Dept. Evaluation.
9. Process Hazard Analysis.
10. Process Operating Procedures.
11. Employee Training.
12. Use of Contractors.
13. Pre-Startup Safety Review.
14. Mechanical Integrity.
15. Quality Assurance.
16. Non-routine Work Authorization.
17. Managing Change.
18. Emergency Preparedness.

Romer Utility Services Construction Process Safety Program

1. Written program.

Romer Utility Services Construction will review and evaluate this standard practice instruction on an annual basis, or when facility operational changes occur that require revision. Effective implementation of this program requires support from all levels of management within this company. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of number of workers employed or the number of work shifts. It is designed to establish clear goals, and objectives.

2. General.

Process safety management is the proactive identification, evaluation and mitigation or prevention of chemical releases that could occur as a result of failures in process, procedures or equipment. The major objective of process safety management of highly hazardous chemicals is to prevent unwanted releases of hazardous chemicals especially into locations which could expose our employees and or community to serious hazards.

2.1 This program will use a systematic approach to evaluating the whole process. Each process will be evaluated as a separate entity. The various lines of defense that have been incorporated into the design and operation of the process to prevent or mitigate the release of hazardous chemicals will be evaluated and strengthened where required to assure their effectiveness at each level. The following elements will be used in the evaluation process.

2.1.1 Process design.

2.1.2 Process technology.

2.1.3 Operational and maintenance activities/procedures.

2.1.4 Nonroutine tasks, activities and procedures.

2.1.5 Emergency preparedness plans and procedures.

2.1.6 Training programs.

2.1.7 Other elements which impact the process.

3. Facility planning requirements.

Proper planning for emergencies is necessary to minimize employee injury and property damage. The effectiveness of response during emergencies depends on the amount of planning and training performed. Management must show its support of plant safety programs and the importance of emergency planning. If management is not interested in employee protection and minimizing property loss, little can be done to promote a safe workplace. It is therefore management's responsibility within this company to see that this program is instituted and that it is frequently reviewed and updated. The input and support of all employees must be obtained to ensure an effective program. The emergency response plans required by this company will be developed locally and will be comprehensive enough to deal with all known types of emergencies.

4. Employee Involvement in Process Safety Management.

Section 304 of the Clean Air Act Amendments states that employers are to consult with their employees and their representatives regarding the employer's efforts in the development and implementation of the process safety management program. Section 304 also requires us to train and educate our employees and to inform affected employees of the findings from incident investigations conducted under the process safety management program. It is our company policy that not only will we consult with our employees regarding efforts to develop and implement process safety management programs, but that we will, where ever possible, integrally involve our employees in the entire process. This is essential because employees of this company comprise the best determination of process safety procedures, and solutions to process safety problems peculiar to our business. This will be accomplished through a "Process Safety Committee." This committee will be responsible for developing process safety policy and procedures.

5.2 Principal Responsibilities. The principal responsibilities of the company process safety committee will be as follows:

5.2.1 Assemble on an annual basis to conduct process safety meetings.

5.2.2 Conduct and oversee departmental process safety evaluations, inspections, and reviews.

5.2.3 Review accident, injury, and near-miss reports to determine process safety deficiencies and discuss corrective actions.

5.2.4 Direct and monitor departmental training and safety meetings.

5.2.5 Discuss and report on unfinished business from previous meetings.

5.2.6 Discuss new business.

5.2.7 Maintain appropriate records of activities.

5.2.8 The Director will make notations of the meeting. He/she will track open process safety items to conclusion. He/she will also act as chairman in the absence of the designated chairman or vice chairman.

5.3 Charter. Charter for the Romer Utility Services Construction Process Safety Committee. This committee will be responsible for developing process safety policy and procedure. The committee will encourage process safety awareness among all employees. It will be established to evaluate, and monitor the process safety performance of evaluated hazardous processes operated by this company, perform the necessary process safety evaluations, and inspections, and aid the development of the company process safety program.

- To reduce injuries and save lives by prevention of unwanted releases of hazardous process chemicals.
- To constantly be aware of process conditions in all work areas that can produce injuries.
- To aid the company in complying with all laws pertaining to process safety.
- To place the personal safety and health of each employee of this company, and the general public located in the vicinity of this facility in a position of primary importance.
- To aid in the prevention of occupationally-induced injuries and illnesses.
- To the greatest degree possible, aid management in providing all mechanical and physical facilities required for personal safety and health in keeping with the highest standards.
- To maintain a process safety program conforming to the best management practices of organizations of this type.
- To establish a program that instills the proper attitudes toward process safety not only on the part of supervisors and employees, but also between each employee and his or her co-workers.
- To ultimately achieve a process safety program maintained in the best interest of all concerned.

6. Investigation of incidents and near misses.

Incident investigation will be directed by the Safety Team leader. The investigation will be initiated as promptly as possible, but no more than 48 hours following the incident. The investigation will focus on the process of identifying the underlying causes of incidents and implementing steps to prevent similar events from occurring. Routine process safety investigations will be conducted on all company processes designated by the process safety committee. The investigation will be conducted to discover process conditions and work practices that could be determined to lead to toxic releases, accidents and industrial illnesses.

*DECISION POINT Below is a suggested format for an investigation team.

6.1 Process safety incident investigation team (PSIIT) composition. The team director will select additional personnel as required to serve on the PSIIT based on the specific process being reviewed. The core PSIIT will be comprised of the following core team members:

6.2 Intervals. The site Safety Manager will coordinate dates and times with all assigned inspection team members. The team will conduct inspections on a regular basis or when conditions or near misses occur which warrant an unscheduled investigation.

*DECISION POINT Suggested classification system.

6.3 Hazard/Deficiency priority classification system. Hazards/Deficiencies will be rated according to the following rating system. Where it is unclear where a hazard/deficiency should be rated, the next higher priority classification will be assumed.

6.3.1 Priority 1. The most serious type of unsafe process safety condition or unsafe work practice that could cause a toxic release resulting in loss of life, or permanent disability, or extensive loss of structure, equipment, or material.

6.3.2 Priority 2. An unsafe process safety condition or work practice that could cause a toxic release resulting in serious injury, industrial illness, or disruptive property damage.

6.3.3 Priority 3. An unsafe process safety condition or work practice that might cause a recordable injury or industrial illness or nondisruptive property damage.

6.3.4 Priority 4. Minor condition, a housekeeping item or unsafe work practice infraction with little likelihood of injury or illness other than perhaps a first-aid case.

6.4 Investigation procedures. The following elements will be checked during investigations. Investigations will be conducted on individual processes. The investigation can and will where required serve as a compliance audit. The format for the investigation will be established in advance. The format, staffing, scheduling and verification methods will all be established prior to conducting the investigation. The following will be used as the basis for the development of inspection criteria.

6.4.1 Sequence of events. The sequence of actions of the Romer Utility Services Construction incident investigation/compliance audit program will be as follows:

- Begin the planning stage of the specific investigation
- Select the investigation staff
- Review requirements of 29 CFR 1910.119
- Review existing inspection checklists
- Conduct the investigation
- Evaluate the results
- Assign action items to individuals
- Determine estimated completion dates
- Develop a corrective action plan
- Hold an investigation review meeting
- Perform follow-up actions as required
- Document the entire process

*DECISION POINT Since processes can vary in great degree it is impossible to provide you with a list of detailed elements you need to inspect during inspections. From the below list you can develop more detailed individual checklists for each element and the criteria to be used for its inspection. OSHA can provide you with additional information and aid in the development of inspection criteria.

6.4.2 Program elements. The format will be designed to provide the lead investigator with a procedure or checklist which details the requirements of each section of the process safety standard.

Element	Criteria
Employee Participation	· Written plan · Involvement in planning
Process Safety Information	· Hazard dissemination · Process technology · Process equipment
Process Hazard Analysis	· Percent complete
Hazardous Materials	· Types used in the process. · Reporting requirements (release)
Emergency Management	· Notification procedures · Written procedures content · Emergency containment procedures · Outside resources involvement · Spill containment procedures · Personal Protective Equipment · Drill frequency
Training Program	· Initial training conducted · Refresher training conducted · Adequacy of content · Frequency of training · Effectiveness of training · Documentation · Interviews results · Written procedures content · Proper personnel trained · Frequency of training · Interview results · Test results · Documented properly
Operator Procedures	· Written operating procedures · Written content · Steps in operating phases · Operating limits · Safety/Health considerations · Safety systems and function · Knowledgeable of duties · Safety procedures followed · Non-routine task procedures

Contractors	· Application · Employer responsibilities · Contractor responsibilities
Pre-Start-up Review	· Requirements
Mechanical Integrity	· Written procedures · Training for maintenance · Inspection and testing · Equipment deficiencies · Quality assurance
Hot-work permits	· Issue procedures · Documentation
Management-of-Change	· Establishment · Implementation · Employee awareness
Incident investigation	· Prompt initiation of invest. · Procedures always followed
Trade secrets	· Protected · Hazard information obtained

6.5 Final report. The Safety Department will develop a final report detailing the results of the inspection. The following items will be accomplished:

6.5.1 Action items. The report will indicate who is responsible for accomplishing action items generated during the investigation.

6.5.2 Estimated completion dates (ECD). Estimated completion dates will be assigned to each action item.

6.5.3 Follow-up actions. An investigation review meeting will be held before the estimated completion dates arrive to ensure action item completion is progressing smoothly. The meeting will also discuss if the ECDs are still realistic.

6.5.4 The Safety Department will develop a statistical analysis of deficiencies noted to determine jobs/areas/processes that have a high incidence of release potential. These areas will be emphasized during future inspections and meetings.

6.5.5 Documentation. After all action items have been completed and closed the investigation will be closed. The final report will be distributed and the original copy maintained in the main office.

6.5.6 Distribution (key staff) The report will be distributed immediately to personnel responsible for correcting deficiencies noted during the inspection. These personnel will use the hazard classification system to prioritize deficiency correction.

6.5.7 Distribution (all others). The report will be distributed to all supervisors and key management personnel. Supervisors will brief the results to all employees under their control. Any employee requesting to be placed on the distribution list will be accommodated.

7. Process Safety Information.

7.1 Uses. Romer Utility Services Construction will maintain complete and accurate written documentation concerning process chemicals, process technology, and process equipment. The compiled information will used for the following:

7.1.1 To perform the process hazards analysis

7.1.2 Develop training programs

7.1.3 Develop operating procedures

7.1.4 Aid contractors whose employees will be working with the process

7.1.5 Conduct pre-startup reviews

7.1.6 Aid local emergency preparedness planners, insurance, and enforcement officials

7.1.7 Employee awareness

7.2 Information to be maintained. The information to be compiled about the chemicals, including process intermediates, needs to be comprehensive enough for an accurate assessment of the hazards involved. The following information as a minimum will be maintained:

7.2.1 Fire and explosion characteristics

7.2.2 Reactivity hazards

7.2.3 Safety and health hazards to workers

7.2.4 Corrosion and erosion effects on the process equipment and monitoring tools.

7.2.5 Current safety Data Sheets (SDS)

7.2.6 Process chemistry information including runaway reaction and over-pressure hazards if applicable.

7.2.7 Established criteria for maximum inventory levels for process chemicals, and limits beyond which would be considered upset conditions; and a qualitative estimate of the consequences or results of deviation that could occur if operating beyond the established process limits.

7.3 Use of diagrams. Diagrams will be used where possible to show process flow information.

7.3.1 Block flow diagrams (BFD). A block flow diagrams will be used to show the major process equipment and interconnecting process flow lines and show flow rates, stream composition, temperatures, and pressures when necessary for clarity. The block flow diagram is considered a simplified flow diagram.

7.3.2 Process flow diagrams (PFD). Process flow diagrams are considered to be more complex and will be constructed where necessary to show all main flow streams including valves to enhance the understanding of the process, as well as pressures and temperatures on all feed and product lines within all major vessels, in and out of headers and heat exchangers, and points of pressure and temperature control. The process flow diagram is considered a detailed flow diagram.

7.3.2.1 Types of information used on PFDs.

- Materials of construction information
- Pump capacities and pressure heads
- Compressor horsepower and vessel design pressures
- Process temperatures
- Major components of control loops are usually shown
- Key utilities

Note: For each process, Piping and instrument diagrams (P&IDs) will be reviewed to determine if they are a more appropriate type of diagram to show some of the above details and to display the information for the piping designer and engineering staff. The P&IDs are to be used to describe the relationships between equipment and instrumentation as well as other relevant information that will enhance clarity. Computer software programs which do P&IDs or other diagrams useful to the information package, may be used to help meet this requirement.

7.4 Documentation of sources. The information pertaining to process equipment design will be documented, such as, the codes and standards relied on to establish good engineering practice.

7.4.1 Older equipment/process. For existing equipment designed and constructed many years ago in accordance with the codes and standards available at that time and no longer in general use today, this employer will document which codes and standards were used and that the design and construction along with the testing, inspection and operation are still suitable for the intended use. Where the process technology requires a design, which departs from the applicable codes and standards, this employer will document that the design and construction is suitable for the intended purpose.

8. Facility/Department Evaluation. An evaluation of our facility(s) will be conducted to identify, designate, and prioritize processes which have the potential for release of hazardous chemicals during a systems or operational failure.

8.1 Existing processes. A process hazard analysis (PHA) will be conducted for existing processes. Existing processes where possible, will be designated and managed as a complete and separate process.

8.2 Future processes. For new processes, a process hazard analysis will be conducted. The PHA will be used to improve the design and construction of the process from a reliability and quality point of view. The safe operation of the new process will be enhanced by making use of the PHA recommendations before final installations are completed.

8.3 Process listing. The following processes have been designated and evaluated.

Designated Process Listing

Process Title	Area Supervisor	Date Designated	Date Evaluated

9. Process Hazard Analysis (PHA). A PHA will be conducted in an organized and systematic effort to identify and analyze the significance of potential hazards associated with the processing or handling of highly hazardous chemicals. Information obtained from a PHA will assist in making decisions for improving safety and reducing the consequences of unwanted or unplanned releases of hazardous chemicals.

9.1 Responsibility. The company representative responsible for process hazard analysis is Safety Representative. He is solely responsible for all facets of the analysis and has full authority to make necessary decisions to ensure success of the program. He/she is the sole person authorized to amend these instructions and is authorized to halt any process operation of this company where there is danger of chemical release or serious personal injury.

9.2 Any PHA conducted by this company will be directed toward determining the hazards and potential failure points or failure modes in a designated process by analyzing the following:

9.2.1 Potential causes and consequences of:

- Fires
- Explosions
- Releases of toxic or flammable chemicals
- Major spills of hazardous chemicals

9.2.2 The PHA will focus on:

- Equipment
- Instrumentation
- Utilities
- Human actions (routine and nonroutine)
- External factors that might impact the process

9.3 Selection of a PHA methodology or technique will be influenced by many factors including:

9.3.1 The amount of existing knowledge about the process.

9.3.2 Is it a process that has been operated for a long period of time with little or no innovation and extensive experience has been generated with its use?

9.3.3 Is it a new process or one which has been changed frequently by the inclusion of innovative features?

9.3.4 The size and complexity of the process.

9.3.5 The application of a PHA to a process may involve the use of different methodologies for various parts of the process. For example, a process involving a series of unit operations of varying sizes, complexities, and ages may use different methodologies and team members for each operation. Then the conclusions can be integrated into one final study and evaluation.

9.3.6 Priority system. The below listing designates the priority for which PHAs will be conducted by this company. A preliminary or gross hazard analysis will be performed to prioritize the processes that are determined to be subject to coverage by the process safety management standard.

9.3.6.1 Priority considerations. The prioritization process will consider the following in prioritizing the potential severity of a chemical release:

- Priority will first be given to those processes with the potential of adversely affecting the largest number of employees and or people in our community.
- The operating history of the process such as the frequency of past chemical releases.
- The age of the process and any other relevant factors.

9.3.7 Designated process priority listing. The above listed factors will be used to establish a ranking order. Either a weighing factor system or a systematic ranking method will be used. The preliminary hazard analysis will be used in determining which process should be of the highest priority and thereby obtaining the greatest improvement in safety for our company.

Priority	Process Title	Date Designated	Date Evaluated

9.4 PHA methodology considerations.

9.4.1 Checklist methodology will be used for processes that are very stable and where no little changes occur over extended periods. The checklist method however, may miss the most recent changes and consequently the changes would not be evaluated.

9.4.2 Assumptions made by the team. The PHA is dependent on good judgment and the assumptions made during the study need to be documented and understood by the team and reviewer and kept for a future PHA.

9.4.3 The team director will ensure that all team members understand the methodology that is going to be used.

9.4.4 Team size. The team director will make the initial size determination of the team. A PHA team can vary in size from two people to a larger number of people with varied operational and technical backgrounds. Some team members may only need to be a part of the team for a limited time. The team director will make him/her self fully knowledgeable in the proper implementation of the PHA methodology that is to be used and should be impartial as possible in the evaluation.

9.4.5 Team members will provide the team with expertise in areas such as:

- Process technology
- Process design
- Process Operating procedures and practices
- How the work is actually performed
- Alarms
- Emergency procedures
- Instrumentation
- Maintenance procedures
- Routine and nonroutine tasks, including:
- How the tasks are authorized
- Procurement of parts and supplies
- Safety and health
- Other relevant subjects as the need dictates.

10. Process Operating Procedures and Practices. Operating procedures for designated processes will be reviewed by the Process Hazard Analysis team, engineering staff, and operating personnel to ensure that they are accurate and provide practical instructions on how to actually carry out job duties safely.

10.1 Content.

10.1.1 Operating procedures will include specific instructions or details on what steps are to be taken or followed in carrying out the stated procedures.

10.1.2 Operating instructions for each procedure will include the applicable safety precautions, and appropriate information on safety implications, to include (where required):

- Pressure limits
- Temperature ranges
- Flow rates
- Procedures to follow when an upset condition occurs
- Pertinent alarms and instruments
- Start-up or shut-down procedures
- Distinctions between startup and normal operations
- Other subjects as required

10.1.3 Computerized process control systems. These operating instructions need to describe the logic of the software as well as the relationship between the equipment and the control system; otherwise, it may not be apparent to the operator.

10.1.4 Operating procedures and instructions are important for training operating personnel. The operating procedures are often viewed as the standard operating practices (SOPs) for operations. Control room personnel and operating staff, in general, need to have a full understanding of operating procedures.

10.1.5 Bilingual procedures and instructions. If workers are not fluent in English then procedures and instructions need to be prepared in a second language understood by the workers.

10.1.6 Changes in the procedures and processes. Operating procedures need to be changed when there is a change in the process as a result of the management of change procedures. Supervisors will ensure that the consequences of operating procedure changes are fully evaluated and the information conveyed to the personnel.

10.1.6.1 Timing. All management-of-change actions must be coordinated and integrated with current operating procedures and operating personnel must be oriented to the changes in procedures before the change is made. When the process is shut down in order to make a change, then the operating procedures must be updated before startup of the process.

10.1.7 Emergency and upset conditions. Supervisors will ensure that procedural instructions and training in how to handle upset conditions are accomplished, as well as what operating personnel are to do in emergencies.

10.1.8 Communication between operating personnel and workers performing work within the process area, such as nonroutine tasks, also must be maintained. The hazards of the tasks will be conveyed to operating personnel in accordance with established procedures and to those performing the actual tasks. When the work is completed, operating personnel will be informed to provide closure on the job.

11. Employee Training. All employees, including maintenance and contractor employees, involved with highly hazardous chemicals will be provided training to fully understand the safety and health hazards of the chemicals and processes they work with, for the protection of themselves, their fellow employees, and the citizens of nearby communities. Training requirements will be clearly defined. The affected employees to be trained and what subjects are to be covered in their training will be delineated and the course of instruction will be developed based on these requirements. Goals and objectives will be clearly defined. The learning goals or objectives will be written in clear measurable terms before the training begins. These goals and objectives will be tailored to each of the specific training modules or segments. Training plans will describe the important actions and conditions under which the employee will demonstrate competence or knowledge as well as what is acceptable performance. Hands-on-training will be conducted where ever possible.

11.1 Initial training. Training shall be conducted prior to job assignment. This employer shall provide training to ensure that employees understand the safety and health hazards of chemicals and processes they work with. The training shall include, as a minimum the following:

11.1.1 Training will be determined from the individual process. All employees associated with a given process will be given training concerning the hazards associated with that process.

11.1.2 Hazard communication training, will help employees to be more knowledgeable about the chemicals they work with as well as familiarize them with reading and understanding SDS. Contractors and visitors who work closely with designated processes will have their HazCom training verified before being allowed access.

11.1.3 Process specific training. Process supervisors will coordinate additional training requirements with the safety officer in subjects such as operating procedures and safety work practices, emergency evacuation and response, safety procedures, routine and nonroutine work authorization activities, and other areas pertinent to process safety and health not covered under the HazCom program.

11.1.4 Written procedures/checklists required for use.

11.1.5 Recognition of applicable hazards associated with the operation or work to be completed.

11.1.6 All other employees whose work operations are or may be in an area that may be affected by the process, shall be instructed to an awareness level concerning hazards associated with the process.

11.1.7 Preventative maintenance training. Appropriate training will be provided to maintenance personnel to ensure that they understand the preventive maintenance program procedures, safe practices, and the proper use and application of special equipment or unique tools that may be required.

11.1.8 Certification. This employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

11.2 Refresher training. Careful consideration will be given to assure that employees including maintenance and contract employees are receiving current and updated training. The training content shall be identical to initial training and include any changes in the process or scope of work. Refresher training will be conducted on a(n) _____ basis or when the following conditions are met, which ever event occurs sooner.

11.2.1 Retraining shall be provided for all authorized and affected employees whenever (and prior to) there being a change in their job assignments, a change in the process, operating procedures, or when a known hazard is added to the work environment.

11.2.2 Additional retraining shall also be conducted whenever a periodic inspection or audit reveals, or whenever this employer has reason to believe, that there are deviations from or inadequacies in the employee's knowledge operating or safety practices.

11.2.3 The retraining shall reestablish employee proficiency and introduce new or revised methods and procedures, as necessary. For example, if changes are made to a process, impacted employees must be trained in the changes and understand the effects of the changes on their job tasks (e.g., any new operating procedures pertinent to their tasks).

11.3 Certification. This employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

11.4 Process trainers. The following employees or position titles will receive training and as required, serve as process trainers. Company qualified trainers will consist of the following:

PROCESS TRAINERS

Title	**Member**
Process Trainer	Process Engineer
Process Trainer	Department Manager
Process Trainer	Safety Officer
Process Trainer	First Line Supervisors
Process Trainer	Union Training Haul Representatives

11.5 Training plans. Training plans will be reviewed on an annual basis to ensure the training is current and to periodically ensure that the necessary skills, knowledge, and routines are being properly understood and implemented by trained employees.

12. Use of Contractors. Whenever contractors are used to perform work in and around processes that involve highly hazardous chemicals, they will need to be provided with site specific training so that they can accomplish the desired job tasks without compromising the safety and health of employees at this facility. For contractors, whose safety performance on the job is not known, this employer will obtain information on injury and illness rates, and experience, and will obtain contractor references. Additionally, this employer will assure that the contractor has the appropriate job skills, knowledge and certifications. Also, contract employers must respect the confidentiality of trade secret information that may be released to them. Contractor work methods and experiences may be evaluated for certain processes.

12.1 Site injury and illness log. If deemed necessary, a site injury and illness log for contractors will be maintained to track and maintain current knowledge of work activities involving contract employees working on or adjacent to covered processes. Injury and illness logs of both the employer's employees and contract employees allow this employer to have full knowledge of process injury and illness experience. This log will also contain information which will be of use to those auditing process safety management compliance and those involved in incident investigations.

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12.2 Contract employees must perform their work safely. Considering that contractors often perform very specialized and potentially hazardous tasks such as confined space entry activities and nonroutine repair activities it is quite important that their activities be controlled while they are working on or near a covered process.

12.3 Permitting system. A permit system or work authorization system for these activities may be instituted if deem necessary. The use of a work authorization system keeps an employer informed of contract employee activities, and as a benefit the employer will have better coordination and more management control over the work being performed in the process area. A well run and well-maintained process where employee safety is fully recognized will benefit all of those who work in the facility whether they be contract employees or employees of the owner.

13. Pre-Startup safety review.

13.1 For new processes, Romer Utility Services Construction will be conducted to improve the design and construction of the process from a reliability and quality point of view. The safe operation of the new process will be enhanced by making use of the PHA recommendations before final installations are completed. P&IDs are to be completed along with having the operating procedures in place and the operating staff trained to run the process before startup. The initial startup procedures and normal operating procedures will be fully evaluated as part of the pre-startup review to assure a safe transfer into the normal operating mode for meeting the process parameters.

13.2 For existing processes that have been shut down for turnaround, or modification, etc., a PHA will be conducted to assure that any changes other than "replacement in kind" made to the process during shutdown go through the management-of-change procedures.

13.2.1 Impact requirements. P&IDs will need to be updated as necessary, as well as operating procedures and instructions. If the changes made to the process during shutdown are significant and impact the training program, then operating personnel as well as employees engaged in routine and nonroutine work in the process area may need some refresher or additional training in light of the changes.

13.2.2 Incident investigations/audits. Any incident investigation recommendations, compliance audits or PHA recommendations need to be reviewed as well to see what impacts they may have on the process before beginning the startup.

14. Mechanical Integrity.

Maintenance programs and schedules will be reviewed to see if there are areas where "breakdown" maintenance is used rather than an on-going mechanical integrity program. Equipment used to process, store, or handle highly hazardous chemicals needs to be designed, constructed, installed and maintained to minimize the risk of releases of such chemicals.

14.1 Elements of a mechanical integrity program include:

14.1.1 Identification and categorization of equipment and instrumentation.

14.1.2 Inspections and tests.

14.1.3 Testing and inspection frequencies.

14.1.4 Development of maintenance procedures.

14.1.5 Training of maintenance personnel.

14.1.6 Establishment of criteria for acceptable test results, documentation of test and inspection results, and documentation of manufacturer recommendations as to meantime to failure for equipment and instrumentation.

14.2 Preventing a release. The first safety priority for our processes will be to ensure that the process is operated and maintained as designed, and to keep the chemicals contained.

14.3 Controlling a release. The second safety priority will be to control release of chemicals through engineering controls such as; venting to scrubbers, flares, or to surge or overflow tanks which are designed to receive such chemicals, etc. Also included are; fixed fire protection systems, water spray, or deluge systems, monitor guns, dikes, designed drainage systems, and other systems which would control or mitigate hazardous chemicals once an unwanted release occurs.

14.4 Process equipment and instrumentation. A list of process equipment and instrumentation for inclusion in the program will be developed. This list will include pressure vessels, storage tanks, process piping, relief and vent systems, fire protection system components, emergency shutdown systems and alarms and interlocks and pumps.

14.4.1 Prioritization. For the categorization of instrumentation and the listed equipment this equipment will be prioritized to denote which pieces of equipment require closer scrutiny than others.

14.4.2 Meantime between failure (MTBF). Meantime between failure of various instrumentation and equipment parts will be determined from the manufacturers data, company records or the experience with the parts, which will then influence the inspection and testing frequency and associated procedures. Also, applicable codes and standards such as the National Board Inspection Code, or those from the American Society for Testing and Material, American Petroleum Institute, National Fire Protection Association, American National Standards Institute, American Society of Mechanical Engineers, and other groups, will be used to provide information to help establish an effective testing and inspection frequency, as well as appropriate methodologies.

14.5 Preventative maintenance training. Appropriate training will be provided to maintenance personnel to ensure that they understand the preventive maintenance program procedures, safe practices, and the proper use and application of special equipment or unique tools that may be required. This training will be part of the overall training program called for in 29 CFR 1910.119.

15. Quality assurance.

A quality assurance system will be used to ensure that the proper materials of construction are used, that fabrication and inspection procedures are proper, and that installation procedures recognize field installation concerns. The quality assurance program is an essential part of the mechanical integrity program and will help to maintain the first and secondary lines of defense that have been designed into the process to prevent unwanted chemical releases or those which control or mitigate a release.

15.1 Drawings. All "As built" drawings, together with certifications of coded vessels and other equipment, and materials of construction will be reviewed for verification. All pertinent drawings will be retained with other quality assurance documentation.

15.2 Installation. Equipment installation jobs will be properly inspected in the field for use of proper materials and procedures and to assure that qualified workers are used to do the job. The use of appropriate gaskets, packing, bolts, valves, lubricants and welding rods will be verified. Also, procedures for installation of safety devices will be verified, such as the torque on the bolts on ruptured disc installations, uniform torque on flange bolts, proper installation of pump seals, etc.

15.3 Equipment supplier audits. If the quality of parts is in question, an audit of the respective supplier will be conducted to ensure purchases of equipment are suitable for the intended service or purpose. Any changes in equipment that may become necessary will go through the management-of-change procedures.

16. Non-routine Work Authorizations.

Non-routine work conducted in process areas will be controlled by the supervisor of the area in a consistent manner. The known hazards involving the work that is to be accomplished will be communicated to those doing the work, but also to those operating personnel whose actions could affect the safety of the process.

*DECISION POINT Suggestion. We recommend that you adopt a work authorization permitting system to control nonroutine work. The following is a suggested system.

16.1 A work authorization notice or permit will contain a procedure that describes the steps the maintenance supervisor, contractor representative, or other person needs to follow to obtain the necessary clearance to get the job started. The following requirements will be addressed:

16.1.1 Pre-start coordination. The work authorization procedures will reference and coordinate, as applicable, lockout/tagout procedures, line breaking procedures, confined space entry procedures and hot work authorizations.

16.1.2 Non-routine work authorization permit. A standardized permit will be developed and used by this company. The permit will detail the requirements to authorize non-routine work at specific job locations.

16.1.3 Job-closure coordination. The permitting procedure will also provide clear steps to follow once the job is completed in order to provide closure for those that need to know the job is now completed and equipment and operations can be returned to normal.

16.2.1 Before the work is authorized, The Foreman will document the completion of the following measures:

16.2.1.2 Specify acceptable work conditions (see permit).

16.2.1.3 If required isolate the work area.

16.2.1.4 Purging, inerting, flushing, or ventilating the work area as necessary to eliminate or control atmospheric hazards (see confined space instructions).

16.2.1.5 Provide pedestrian, vehicle, or other barriers as necessary to protect workers from external hazards.

16.2.1.6 Verify that conditions in the work area are acceptable for the duration of the authorized work period.

16.2.1.7 Ensure supervisors affected by the non-routine work are notified and coordinated with.

16.2.1.8 Ensure all affected workers and workers that may affect the non-routing work are notified of the task to be accomplished.

16.2.1.9 Ensure that the _____ shall signs the work authorization to authorize the work to begin.

16.2.1.10 The completed permit shall be made available at the time of the work begins all authorized workers and their supervisors, by posting it at the work site or by any other equally effective means, so that the workers can confirm that pre-start preparations and authorizations have been completed.

16.2.1.11 The duration of the permit may not exceed the time required to complete the assigned task or job identified on the permit.

16.2.1.12 The supervisor shall terminate the work authorization and cancel the permit when:

- The operations covered by the permit are completed.

- A condition that is not allowed under the permit arises in or near the permittable work area.

16.2.1.13 Develop and utilize checklists based on this standard practice instruction and 29 CFR 1910.119.

16.3 Canceled permit retention. This employer shall retain each canceled permit for at least 1 year to facilitate the review of the process safety program. Any problems encountered during the work authorization period shall be noted on the pertinent permit so that appropriate revisions to the process safety program can be made.

17. Managing Change.

Change, for the purposes of this standard practice instruction include; all modifications to equipment, procedures, raw materials and processing conditions other than "replacement-in-kind". These changes will to be properly managed by identifying and reviewing them prior to implementation of the change. The operator must have the flexibility to maintain safe operation within the established parameters, any operation outside of these parameters requires review and approval by a written management-of-change procedure.

17.1 Management-of-change covers changes in process technology and changes to equipment and instrumentation. These changes may be the result of changes in production rates, raw materials usage, experimentation, equipment availability, new equipment, new product development, change in catalyst and changes in operating conditions to improve yield or quality.

17.2 Romer Utility Services Construction will establish means and methods to detect both technical and mechanical changes.

17.2.1 Temporary change. Time limits for temporary changes will be established and monitored since, without control, these changes may tend to become permanent. Temporary changes are subject to the management-of-change provisions. In addition, the management-of-change procedures are used to ensure that the equipment and procedures are returned to their original or designed conditions at the end of the temporary change. Proper documentation and review of these changes is invaluable in ensuring that the safety and health considerations are being incorporated into the operating procedures and the process.

17.2.1.1 Management-of-change authorization permit. A standardized permit will be developed and used by this company. The permit will detail the requirements to authorize management-of-change actions. The permit will include as a minimum the following items/actions:

- Description and the purpose of the change
- Technical basis for the change
- Safety and health considerations
- Changes required to operating procedures
- Maintenance procedures
- Inspection and testing change requirements
- Piping and instrument diagrams (P&IDs) changes
- Electrical classification changes
- Training and communications changes
- Pre-startup inspection requirements
- Duration if a temporary change
- Approvals and authorization

17.2.1.2 Management-of-change authorization checklist. Where the impact of the change is minor and well understood, a check list reviewed by Management with proper communication to all employees concerned will be sufficient

17.2.1.3 Complex or significant design changes. For a more complex or significant design change, a process hazard audit with approvals by operations, maintenance, and the safety officer will be conducted and used. Changes in documents such as P&IDs, raw materials, operating procedures, mechanical integrity programs, electrical classifications, etc., will be noted so that these revisions can be made permanent when the drawings and procedure manuals are updated. Copies of process changes will to be kept in the main office to ensure that design changes are available to operating personnel as well as to PHA team members when a PHA is being done or one is being updated.

18. Emergency Preparedness.

*DECISION POINT You will need to decide:

- If you want employees to handle and contain small or minor incidental releases.
- If you wish to mobilize the available resources at your facility and have them brought to bear on a more significant release.
- If you want to evacuate the danger area and promptly escape to a preplanned safe zone area, and allow the local community emergency response organizations to handle the release.
- Or if you want to use some combination of these actions.

18.1 Emergency action plan. Romer Utility Services will develop and implement an emergency action plan which will facilitate the prompt evacuation of employees due to an unwanted release of a highly hazardous chemical.

18.1.1 Alarm system. This employer will have a plan that will be activated by an alarm system to alert employees when to evacuate and will ensure that, employees who are physically impaired, will have the necessary support and assistance to get them to the safe zone. The intent of these actions will be to alert and move employees to a safe zone quickly. Delaying alarms or confusing alarms will be avoided.

18.1.2 Evacuation/relocation. Unwanted incidental releases of highly hazardous chemicals in the process area will be addressed in the emergency action plan and detail the actions employees are to take. If the decision to evacuate the area, is made then the emergency action plan will be activated. For any outdoor process where wind direction is important for selecting the safe route to a refuge area, a wind sock or pennant will be placed at the highest point that can be seen throughout the process area. Employees can then move in the direction of cross wind to upwind to gain safe access to the refuge area by knowing the wind direction.

18.1.3 Preplanning for releases. Preplanning for releases that are more serious than incidental releases will be addressed in the emergency action plan. When a serious release of a highly hazardous chemical occurs, this employer through preplanning will have determined in advance what actions employees are to take. The evacuation of the immediate release area and other areas as necessary will be accomplished under the emergency action plan. Cooperation and coordination between our company and local community emergency preparedness managers will be pursued to aid in complying with the Environmental Protection Agency's Risk Management Plan criteria.

NOTE: An effective way for medium to large facilities to enhance coordination and communication during emergencies for on-site operations and with local community organizations is for employers to establish and equip an emergency control center. The emergency control center would be situated in a safe zone area so that it could be occupied throughout the duration of an emergency. The center would serve as the major communication link between the on-scene incident commander and plant or corporate management as well as with the local community officials. The communication equipment in the emergency control center should include a network to receive and transmit information by telephone, radio or other means. It is important to have a backup communication network in case of power or communication failures. The center should also be equipped with the plant layout and community maps, utility drawings including fire, water, emergency lighting, appropriate reference materials such as a government agency notification list, company personnel phone lists, SARA Title III reports and safety Data Sheets, emergency plans and procedures manual, a listing with the location of emergency response equipment, mutual aid information, and access to meteorological or weather condition data and any dispersion modeling data.

Recording and Reporting Injuries and Illnesses

Purpose

This Recording and Reporting Occupational Injuries and Illnesses Compliance Program explains our company's process for meeting the requirements of OSHA 29 CFR 1904. This regulation allows the Bureau of Labor Statistics under the U.S. Department of Labor to uniformly gather statistics on occupational injuries and illnesses. With this data, the Occupational Safety and Health Administration (OSHA) can identify and solve work-related exposures nationwide through new and revised regulations and guidance.

At the same time, the data can help Romer Utility Services identify its own company exposures and solve them with improved engineering, administrative, and work practice controls. It is essential that data we record be uniform, to assure the validity of the statistical data. This program is ultimately designed for the safety and health of our employees.

Administrative Duties

Safety Representative, Safety Manager, is also our Recording and Reporting Occupational Injuries and Illnesses Compliance Program Administrator, is responsible for developing and maintaining this written program. This person has full authority to make necessary decisions to ensure the success of this program. Copies of this written program may be obtained from Safety Representative's office. If after reading this program, you find that improvements can be made, please contact Safety Representative. We encourage all suggestions because we are committed to the success of this written program.

Employee Involvement

One of the goals of our program is to enhance employee involvement in the recordkeeping process. We believe that employee involvement is essential to the success of all aspects of safety and health for the company. This is especially true in the area of recordkeeping, because free and frank reporting by employees is the cornerstone of the system.

If employees fail to report their injuries and illnesses, the "picture" of the workplace that the OSHA forms reveal will be inaccurate and misleading. This

means that our company and our employees will not have the information we need to improve safety and health in the workplace.

Therefore, Romer Utility Services involves employees in our program in the following ways:

- Training employees on how to report work-related injuries and illnesses,
- Allowing employees access to report forms (with limitations), and/or
- Posting the annual summary of injuries and illnesses.

Employee Injury and Illness Reporting System

Employee reports of injuries and illnesses are taken seriously by our company. We use the following method for reporting:

Incidents (Injuries and Illnesses)

All work-related injuries and illnesses are to be reported to the Supervisor immediately or as soon as practically possible. Failure to report work related injuries and illnesses in a timely manner may result in the denial of benefits under the Workers' Compensation Law.

Upon being advised of the incident, the supervisor on duty at the time of the incident should report immediately to the scene of the occurrence to assure prompt medical attention for the employee(s) involved and address any safety hazards which may have caused or contributed to the incident. In the event the incident occurs outside the employee's work area, the supervisor on duty in the area where the incident occurs should report to the scene immediately.

Serious injury or illness posing a life-threatening situation shall be reported immediately to the local emergency response medical services (Call 911).

Injuries and illnesses shall be reported by the injured employee to his or her supervisor in person or by phone as soon after any life-threatening situation has been addressed.
If the injured employee is unable to report immediately, then the incident should be reported as soon as possible.

Upon notification of an occupational injury or illness, the supervisor should notify Safety Representative, who will then prepare the necessary record keeping forms.

Events

Incidents not involving injury or illness, but resulting in property damage, must also be reported to the involved employee's Supervisor immediately or as soon as practically possible.

In cases of a fire or explosion that cannot be controlled by one-person, vehicular accident resulting in injury or more than $500 worth of damage, or a chemical release requiring a building evacuation, the involved party must immediately report the incident to the emergency response services in the area (911 – police, fire, etc.)

All near miss incidences are also required to be reported to the supervisor immediately or as soon as practically possible and recorded on the Incident Report Form within 48 hours of occurrence. In place of indicating the result of the incident (i.e., actual personal or property damage), the reporting person shall indicate the avoided injury or damage.

Events, hazardous working conditions or situations, and incidents involving contractor personnel must be reported to Supervisor and/or Safety Manager immediately.

Our reporting system ensures that Safety Manager and/or Supervisor receive the report. Safety Representative has examined our existing reporting policies and practices to ensure that they encourage and do not discourage reporting and participation in our program. Also, Romer Utility Services does not discriminate against employees who file a work-related injury or illness or any other safety and health complaint.

Training

Our employees are expected to understand our occupational injury and illness reporting system, so that reports of work-related injuries and illnesses are received in a timely and systematized manner. Safety Manager will make arrangements with each Supervisor to schedule training for new employees. Safety Representative is responsible for training each employee in how and when to report a work-related injury or illness.

Training topics include:

- The company's Injury and Illness Reporting Process,
- What is considered work-related and what is not,
- What is considered OSHA recordable and non-recordable,
- Each employee's right to access certain records, and
- Posting of the annual summary.

Training is done in a lecture and discussion format with some written materials provided. All training and information are provided in a language the trainees will understand. The company's training program includes an opportunity for employees to ask questions and receive answers a physically present and qualified trainer.

Safety Representative is responsible for keeping records certifying each employee who has successfully completed training. Each certificate includes: trainee name, date of training, and trainer's signature.

Recording Injuries and Illnesses

Romer Utility Services keeps records of its employee fatalities, injuries, and illnesses that:

- Is work-related; and
- Is a new case; and
- Meets one or more of the general recording criteria of Sec. 1904.7 or the application to specific cases of Sec. 1904.8 through Sec. 1904.12.

Each recordable injury or illness is entered on OSHA 300 Log of Work-Related Injuries and Illnesses, OSHA 301Form Injury and Illness Incident Report, and a separate, confidential list of privacy-concern cases, if any, within (7) calendar days calendar days of receiving information that a recordable injury or illness has occurred. Safety Representative keeps these records up to date.

If there is a privacy-concern case, we have the option to not enter the employee's name on OSHA 300 Log of Work-Related Injuries and Illnesses. Instead, the text "Privacy Case" is entered in the space normally used for the employee's name. This will protect the privacy of the injured or ill employee when another employee, a former employee, or an authorized employee representative is provided access to the OSHA 300 Log under Sec. 1904.35(b)(2). The company will keep a separate, confidential list of the case numbers and employee names for your privacy concern cases so that we can update the cases and provide the information to the government if asked to do so.

Annual Summary

At the end of each calendar year, Safety Manager performs the following steps:

1. Reviews OSHA 300 Log of Work-Related Injuries and Illnesses to verify that the entries are complete and accurate,

2. Corrects any deficiencies identified in the entries,

3. Creates an annual summary of injuries and illnesses recorded on OSHA 300 Log of Work-Related Injuries and Illnesses,

4. Ensures that he/she, Safety Representative, who is Safety Representative and "President" of the company certifies that he reasonably believes, based on his/her knowledge of the process by which the information was recorded, that the annual summary is correct and complete, and

5. Posts OSHA 300-A Summary of Work-Related Injuries and Illnesses on the Main Office bulletin board from February 1 of the year following the year covered by the records and kept in place until April 30 for a total of three (3) months.

Employee Access to Report Forms

All employees, former employees, their personal representatives, and their authorized employee representatives have a right to access our regulatory-required injury and illness records, with the following limitations:

- We are allowed to give the requester a copy of OSHA 300 Log of Work-Related Injuries and Illnesses by the end of the next business day.

- We may choose to not record the employee's name on OSHA 300 Log of Work-Related Injuries and Illnesses in order to protect the privacy of injured and ill employees in certain privacy-concern cases.

- We are allowed to give an employee, former employee, or personal representative a copy of OSHA 301Form Injury and Illness Incident Report by End of the next business day.

  A personal representative is:

  - Any person that the employee or former employee designates as such, in writing; or

  The legal representative of a deceased or legally incapacitated employee or former employee.

- We are allowed to give authorized employee representatives under a collective bargaining agreement a copy of OSHA 301Form Injury and Illness Incident Report within seven (7) calendar days.

  An authorized employee representative is an authorized collective bargaining agent of employees. The authorized employee representative will be provided the OSHA 301 Incident Report section titled 'Tell us about the case.' The company will remove all other information from the copy of the OSHA 301 Incident Report or the equivalent substitute form that is given to the authorized employee representative.

While the first copy is free, we may charge a reasonable amount for retrieving and copying additional copies.

- Employees also have access to OSHA 300-A Summary of Work-Related Injuries and Illnesses, which is posted on the Main Office bulletin board from February 1 of the year following the year covered by the records and kept in place until April 30 for a total of three (3) months.

Romer Utility Services does not discriminate against employees who request access to any records required by OSHA 29 CFR 1904 or otherwise exercise any rights afforded by the OSH Act.

Record Retention

Safety Representative saves the following records for (5) years following the end of the calendar year that these records cover:

- OSHA 300 Log, the privacy case list (if one exists),
- the annual summary, and
- the OSHA 301 Incident Report forms.

During the storage period, Safety Representative updates OSHA 300 Log of Work-Related Injuries and Illnesses to include any newly discovered recordable injuries or illnesses and any changes that have occurred in the classification of previously recorded injuries and illnesses. If our company changes ownership, Safety Representative, President is responsible for transferring the OSHA 29 CFR 1904 records to the new owner.

Variances

If our company wishes to keep records in a different manner from that prescribed by OSHA 29 CFR 1904, we may submit a variance petition to the Assistant Secretary of Labor for Occupational Safety and Health, U.S. Department of Labor, Washington, DC 20210. Alternative recordkeeping systems can be approved for a variance if they collect the same information, meet the OSH Act, and do not interfere with administration of the Act. See OSHA 29 CFR 1904 for instructions in how to obtain a variance.

Reporting Fatalities and Hospitalizations

Within eight (8) hours after the death of any employee from a work-related incident or the inpatient hospitalization of three (3) or more or more employees as a result of a work-related incident, Safety Representative, Safety Manager, is responsible for orally reporting the fatality and/or multiple hospitalization by telephone or in person to OSHA's Regional Office:

OSHA toll-free central telephone number

1-800-321-OSHA (1-800-321-6742)

Safety Representative will provide the agency the following information:

- The establishment name;
- The location of the incident;
- The time of the incident;
- The number of fatalities or hospitalized employees;
- The names of any injured employees;
- Your contact person and his or her phone number; and
- A brief description of the incident.

Fatalities or multiple hospitalization incidents resulting from a motor vehicle accident or on a commercial or public transportation system do not require reporting. However, these injuries must be recorded on our injury and illness records if required.

Other Reporting

When an authorized government representative asks for the records, we keep under OSHA 29 CFR 1904, Safety Manager provides copies of the records within four business hours of the request.

If we receive OSHA's annual survey form, Safety Representative fills it out and sends it to OSHA or OSHA's designee, as stated on the survey form, within 30 calendar days, or by the date stated in the survey form, whichever is later. If our company receives a Survey of Occupational Injuries and Illnesses Form from the Bureau of Labor Statistics (BLS), or a BLS designee, Safety Representative promptly completes the form and returns it following the instructions contained on the survey form.

Workers' Compensation Fraud

Romer Utility Services is committed to every employee who receives a legitimate, work-related injury or illness. However, if an employee attempt to file a fraudulent work comp claim for injury is suspected it will be turned over to the company's Workers' Compensation insurer and the state's Attorney General's Office for investigation. Workers' Compensation fraud is a serious crime and will be prosecuted to the fullest extent of the law. Fraud results in high Workers' Compensation insurance premiums and productivity interruption affecting the company's ability to remain competitive in the marketplace. This in turn affects all employee's job security and wages. All employees are encouraged to immediately report any suspected fraud to his/her supervisor. Complete confidentiality will be maintained.

Respiratory Protection Written Program

Respiratory Protection Program

This respirator program lays out standard operating procedures to ensure the protection of all employees from respiratory hazards through proper selection and use of respirators. Respirators are to be used only where engineering control of respirator hazards is not feasible, while engineering controls are being installed, or in emergencies. This program is in accordance with the requirements of OSHA 29 CFR 1910.134.

Administrative Duties

At Romer Utility Services, Our Respiratory Protection Program Administrator is Safety Representative. This person is solely responsible for all facets of the program and has full authority to make necessary decisions to ensure success of this program. His/her authority includes hiring personnel and purchasing equipment necessary to implement and operate the program. The Program Administrator will develop written detailed instructions covering each of the basic elements in this program, and is the sole person authorized to amend these instructions.

Appropriate training and experience that is commensurate with the complexity of the program, to administer or oversee our Respiratory Protection Program and conduct the required evaluations of program effectiveness, also qualify him.

Employees may review a copy of our Respiratory Protection Program. It is located in the, main office building. Our Program Administrator, Safety Representative, reviews this program periodically to ensure its effectiveness. Only the Program Administrator may amend the written program.

Respirator Selection

Respirators are selected on the basis of respiratory hazards to which the worker is exposed and workplace and user factors that affect respirator performance and reliability. All selections are made by the Program Administrator, Safety Representative.

The Program Administrator will develop detailed written standard operating procedures governing the selection of respirators using the following guidelines: the NIOSH Respirator Logic will be used to assist in the selection of the proper type of Respirator. Detailed procedures will be included as appendices to this respirator program. Outside consultation, manufacturer's assistance, and other recognized authorities will be consulted if there is any doubt regarding proper selection.
Our company's selection procedures include coverage of the following OSHA requirements:

Selection Procedure Checklist

When selecting any respirator in general:

* Select and provide respirators based on respiratory hazard(s) to which a worker is exposed and workplace and user factors that affect respirator performance and reliability.
* Select a NIOSH-certified respirator. (NIOSH stands for the National Institute for Occupational Safety and Health)
* Identify and evaluate the respiratory hazard(s) in the workplace, including a reasonable estimate of employee exposures to respiratory hazard(s) and an identification of the contaminant's chemical state and physical form. Consider the atmosphere to be immediately dangerous to life or health (IDLH) if you cannot identify or reasonably estimate employee exposure.
* Select respirators from a sufficient number of respirator models and sizes so that the respirator is acceptable to, and correctly fits, the user.

When selecting respirators for IDLH atmospheres:

* Provide these respirators:
* A full-face piece pressure demand self-contained breathing apparatus (SCBA) certified by NIOSH for a minimum service life of thirty minutes, or
* A combination full-face piece pressure demand supplied-air respirator, Self-Contained breathing apparatus (SAR) with auxiliary self-contained air supply.

* Provide respirators NIOSH-certified for escape from the atmosphere in which they will be used when they are used only for escape from IDLH atmospheres.
* Consider all oxygen-deficient atmospheres to be IDLH. Exception: If we can demonstrate that, under all foreseeable conditions, the oxygen concentration can be maintained within the ranges specified in Table II of 29 CFR 1910.134 (i.e., for the altitudes set out in the table), and then any atmosphere-supplying respirator may be used.

When selecting respirators for atmospheres that are not IDLH:

* Provide a respirator that is adequate to protect the health of the employee and ensure compliance with all other OSHA statutory and regulatory requirements, under routine and reasonably foreseeable emergency situations.
* Select respirators appropriate for the chemical state and physical form of the contaminant.
* For protection against gases and vapors, provide:
* An atmosphere-supplying respirator, or
* An air-purifying respirator, provided that:

(1) The respirator is equipped with an end-of-service-life indicator (ESLI) certified by NIOSH for the contaminant; or (2) If there is no ESLI appropriate for conditions in our workplace, implement a change schedule for canisters and cartridges that is based on objective information or data that will ensure that canisters and cartridges are changed before the end of their service life. Describe in the respirator program the information and data relied upon and the basis for the canister and cartridge change schedule and the basis for reliance on the data.

* **For protection against particulates, provide:**

* An atmosphere-supplying respirator; or
* An air-purifying respirator equipped with a filter certified by NIOSH under 30 CFR part 11 as a high efficiency particulate air (HEPA) filter, or an air-purifying respirator equipped with a filter certified for particulates by NIOSH under 42 CFR 84; or

* For contaminants consisting primarily of particles with mass median aerodynamic diameters (MMAD) of at least 2 micrometers, an air-purifying respirator equipped with any filter certified for particulates by NIOSH.

Respirator Types and Uses

Only NIOSH-certified respirators are selected and used. Where practicable, the respirators will be assigned to individual workers for their exclusive use.

Medical Evaluations

A medical evaluation to determine whether an employee is able to use a given respirator is an important element of an effective Respiratory Protection Program and is necessary to prevent injuries, illnesses, and even, in rare cases, death from the physiological burden imposed by respirator use.

At Romer Utility Services, persons will not be assigned to tasks requiring use of respirators nor fit tested unless it has been determined that they are physically able to perform the work and use the respirator.

An approved PLHCP will perform medical evaluations using a medical questionnaire found in Sections 1 and 2, Part A of Appendix C of 29 CFR 1910.134.

All medical questionnaires and examinations are confidential and handled during the employee's normal working hours or at a time and place convenient to the employee. The medical questionnaire is administered so that the employee understands its content. All employees are provided an opportunity to discuss the questionnaire and examination results with their physician or other licensed health care professional (PLHCP).

Before any initial examination or questionnaire is given, we supply the PLHCP with the following information so that he/she can make the best recommendation concerning an employee's ability to use a respirator:

* Type and weight of the respirator to be used by the employee;
* Duration and frequency of respirator use (including use for rescue and escape);
* Expected physical work effort;
* Additional protective clothing and equipment to be worn;
* Temperature and humidity extremes that may be encountered.

Once the PLHCP determines whether the employee has the ability to use or not use a respirator, he/she sends Romer Utility Services a written recommendation containing only the following information:

* Limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;
* The need, if any, for follow-up medical evaluations; and
* A statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

Follow-up medical examination:

A follow-up medical examination will be provided if a positive response is given to any question among questions 1 through 8 in Section 2, Part A of Appendix C of 29 CFR 1910.134 or if an employee's initial medical examination demonstrates the need for a follow-up medical examination. Our follow-up medical examination includes tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination.

If the respirator is a negative pressure respirator and the PLHCP finds a medical condition that may place the employee's health at increased risk if the respirator is used, our company will provide a powered air-purifying respirator (PAPR) if the PLHCP's medical evaluation finds that the employee can use such a respirator. If a subsequent medical evaluation finds that the employee is medically able to use a negative pressure respirator, then we are no longer required to provide a PAPR.

Additional medical examinations:

Our company provides additional medical evaluations if:

* An employee reports medical signs or symptoms that are related to ability to use a respirator;
* A PLHCP, supervisor, or the respirator program administrator informs the employer that an employee needs to be reevaluated;

* Information from the respiratory protection program, including observations made during fit testing and program evaluation, indicates a need for employee reevaluation; or
* A change occurs in workplace conditions (e.g., physical work effort, protective clothing, temperature) that may result in a substantial increase in the physiological burden placed on an employee.

We also provide medical examinations at the following time(s):

On a yearly basis all field service employees are given a full Hazmat physical. .

Contact (enter your answer) for a copy of your confidential medical evaluation or questionnaire.

Fit Testing Procedures

It is axiomatic that respirators must fit properly to provide protection. If a tight seal is not maintained between the face piece and the employee's face, contaminated air will be drawn into the face piece and be breathed by the employee. Fit testing seeks to protect the employee against breathing contaminated ambient air and is one of the core provisions of our respirator program.

In general, fit testing may be either qualitative or quantitative. Qualitative fit testing (QLFT) involves the introduction of a gas, vapor, or aerosol test agent into an area around the head of the respirator user. If that user can detect the presence of the test agent through subjective means, such as odor, taste, or irritation, the respirator fit is inadequate.

In a quantitative respirator fit test (QNFT), the adequacy of respirator fit is assessed by measuring the amount of leakage into the respirator, either by generating a test aerosol as a test atmosphere, using ambient aerosol as a test agent, or using controlled negative pressure to measure the volumetric leak rate. Appropriate instrumentation is required to quantify respirator fit in QNFT.

Romer Utility Services makes sure those employees are fit tested at the following times with the same make, model, style, and size of respirator that will be used:

* Before any of our employees are required to use any respirator with a negative or positive pressure tight-fitting face piece;
* Whenever a different respirator face piece (size, style, model, or make) is used;
* At least annually;
* Whenever the employee reports, or our company, PLHCP, supervisor, or Program Administrator makes visual observations of changes in the employee's physical condition that could affect respirator fit. Such conditions include, but are not limited to, facial scarring, dental changes, cosmetic surgery, or an obvious change in body weight; and
* When the employee, subsequently after passing a QLFT or QNFT, notifies the company, Program Administrator, supervisor, or PLHCP that the fit of the respirator is unacceptable. That employee will be retested with a different respirator face piece.

Employees must pass one of the following fit test types that follow the protocols and procedures contained in 29 CFR 1910.134 Appendix A:

* QLFT (Only used to fit test negative pressure air-purifying respirators that must achieve a fit factor of 100 or less. May be used to test tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode);
* QNFT (May be used to fit test a tight-fitting half face piece respirator that must achieve a fit factor of 100 or greater OR a tight-fitting full face piece respirator that must achieve a fit factor of 500 or greater OR tight-fitting atmosphere-supplying respirators and tight-fitting powered air-purifying respirators if tested in the negative pressure mode).

Our workplace-specific fit testing procedures include the following:

All fit testing is done in accordance with 29 CFR 1910.134

Proper Use Procedures

Once the respirator has been properly selected and fitted, its protection efficiency must be maintained by proper use in accordance with 29 CFR 1910.134(g). Our company ensures with written procedures that respirators are used properly in the workplace. Our proper respirator use procedures are based on the manufacture's guidelines.

Face piece Seal Protection

* Do not permit respirators with tight-fitting face pieces to be worn by employees who have:

* Facial hair that comes between the sealing surface of the face piece and the face or that interferes with valve function; or
* Any condition that interferes with the face-to-face piece seal or valve function.

* If an employee wears corrective glasses or goggles or other personal protective equipment, ensure that such equipment is worn in a manner that does not interfere with the seal of the face piece to the face of the user.
* For all tight-fitting respirators, ensure that employees perform a user seal check each time they put on the respirator using the procedures in 29 CFR 1910.134 Appendix B-1 (User Seal Check Procedures) or procedures recommended by the respirator manufacturer that you could demonstrate are as effective as those in Appendix B-1.

Continuing Respirator Effectiveness

* Appropriate surveillance must be maintained of work area conditions and degree of employee exposure or stress. When there is a change in work area conditions or degree of employee exposure or stress that may affect respirator effectiveness, reevaluate the continued effectiveness of the respirator.
* Ensure that employees leave the respirator use area:

* To wash their faces and respirator face pieces as necessary to prevent eye or skin irritation associated with respirator use; or
* If they detect vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece; or
* To replace the respirator or the filter, cartridge, or canister elements.

* If the employee detects vapor or gas breakthrough, changes in breathing resistance, or leakage of the face piece, replace or repair the respirator before allowing the employee to return to the work area.

Procedures for IDLH Atmospheres

Ensure that:

* One employee or, when needed, more than one employee is located outside the IDLH atmosphere;
* Visual, voice, or signal line communication is maintained between the employee(s) in the IDLH atmosphere and the employee(s) located outside the IDLH atmosphere;
* The employee(s) located outside the IDLH atmosphere are trained and equipped to provide effective emergency rescue;
* The employer or designee is notified before the employee(s) located outside the IDLH atmosphere enter the IDLH atmosphere to provide emergency rescue;
* The employer or designee authorized to do so by the company, once notified, provides necessary assistance appropriate to the situation;
* Employee(s) located outside the IDLH atmospheres are equipped with:
* Pressure demand or other positive pressure self-contained breathing apparatuses (SCBAs), or a pressure demand or other positive pressure supplied-air respirator with auxiliary SCBA; and either:
* Appropriate retrieval equipment for removing the employee(s) who enter(s) these hazardous atmospheres where retrieval equipment would contribute to the rescue of the employee(s) and would not increase the overall risk resulting from entry; or
* Equivalent means for rescue where retrieval equipment is not required under the bullet item above this one.

Procedures for Interior Structural Firefighting

In addition to the requirements set forth in the row above for Procedures for IDLH Atmospheres, in interior structural fires, ensure that:

* At least two employees enter the IDLH atmosphere and remain in visual or voice contact with one another at all times;
* At least two employees are located outside the IDLH atmosphere; and
* All employees engaged in interior structural firefighting use SCBAs.

Notes:

* One of the two individuals located outside the IDLH atmosphere may be assigned to an additional role, such as incident commander in charge of the emergency or safety officer, so long as this individual is able to perform assistance or rescue activities without jeopardizing the safety or health of any firefighter working at the incident.
* Nothing in this Proper Use Procedures section is meant to preclude firefighters from performing emergency rescue activities before an entire team has assembled.

Maintenance and Care Procedures

In order to ensure continuing protection from respiratory protective devices, it is necessary to establish and implement proper maintenance and care procedures and schedules. A lax attitude toward maintenance and care will negate successful selection and fit because the devices will not deliver the assumed protection unless they are kept in good working order.

Cleaning & disinfecting

Our company provides each respirator user with a respirator that is clean, sanitary, and in good working order. We ensure that respirators are cleaned and disinfected using the procedures below:

• In Appendix B-2 of 29 CFR 1910.134. See this attached appendix.

• Recommended by the respirator manufacturer. See these attached procedures. These procedures are of equivalent effectiveness as Appendix B-2 of 29 CFR 1910.134.

The respirators are cleaned and disinfected at the following intervals:

Respirator type: Are **cleaned and disinfected at the following interval:**
Issued for the exclusive use of an employee as often as necessary to be maintained in a sanitary condition
Issued to more than one employee before being worn by different individuals
Maintained for emergency use after each use
Used in fit testing and training after each use

In order to meet these intervals, we have created the following schedules to be used for each respirator:

According to 29 CFR 1910.134(h) respirators are to be cleaned and disinfected at the following intervals:

* Respirator issued for the exclusive use of an employee must be cleaned and disinfected as often as necessary to be maintained in a sanitary condition.
* Respirators issued to more than one employee must be cleaned and disinfected before being worn by different individuals.
* Respirators maintained for emergency use must be cleaned and disinfected after each use.
* Respirators used in fit testing and training must be cleaned and disinfected after each use. .

Storage

Storage of respirators must be done properly to ensure that the equipment is protected and not subject to environmental conditions that may cause deterioration. We ensure that respirators are stored to protect them from damage, contamination, dust, sunlight, extreme temperatures, excessive moisture, and damaging chemicals, and they are packed or stored in All respirators are to store in plastic bags while not in use. To prevent deformation of the face piece and exhalation valve. In addition, emergency respirators are kept accessible to the work area; stored in "covers" that are clearly marked as containing emergency respirators; and stored in accordance with any applicable manufacturer instructions.

Inspection

In order to assure the continued reliability of respirator equipment, it must be inspected on a regular basis. The frequency of inspection is related to the frequency of use. Here are our frequencies for inspection:

Inspected at the following frequencies:
All types used in routine situations: Prior to use and after respirator has been used.

Maintained for use in emergency situations: At least monthly and in accordance with the manufacturer's recommendations, and checked for proper function before and after each use.

Emergency escape-only respirators before being carried into the workplace for use

In order to meet these intervals, we have created the following schedule(s) to be used for each respirator:
* All types of respirators used in routine situations must be inspected before each use and during cleaning.
* Respirators maintained for use in emergency situations must be inspected at least monthly and in accordance with the manufacturer's recommendations, and checked for proper function before and after each use.

* Emergency escape-only respirators must be inspected before being carried into the workplace for use.
Any one of our respirator inspections includes a check:
* For respirator function, tightness of connections, and the condition of the various parts including, but not limited to, the face piece, head straps, valves, connecting tube, and cartridges, canisters or filters; and
* Of electrometric parts for pliability and signs of deterioration.
* For self-contained breathing apparatus, in addition to the above, monthly, we maintain air and oxygen cylinders in a fully charged state and recharge when the pressure falls to 90% of the manufacturer's recommended pressure level and determine that the regulator and warning devices function properly.

Also, for respirators maintained for emergency use, we certify the respirator by documenting the date the inspection was performed, the name (or signature) of the person who made the inspection, the findings, required remedial action, and a serial number or other means of identifying the inspected respirator. See attached documentation. This information shall be maintained until replaced following a subsequent certification.

See the attached respirator inspection records.

Repairs

Respirators that fail an inspection or are otherwise found to be defective are removed from service, and are discarded or repaired or adjusted in accordance with the following procedures:

* Repairs or adjustments to respirators are to be made only by persons appropriately trained to perform such operations and only with the respirator manufacturer's NIOSH-approved parts designed for the respirator;

* Repairs must be made according to the manufacturer's recommendations and specifications for the type and extent of repairs to be performed; and
* Reducing and admission valves, regulators, and alarms must be adjusted or repaired only by the manufacturer or a technician trained by the manufacturer.

Discarding of respirators

Respirators that fail an inspection or are otherwise not fit for use and cannot be repaired must be discarded. We use the following discarding procedures:
* Respirators that fail inspection are to be properly disposed of in accordance with all state and federal disposal guidelines.

Air Quality Procedures

When atmosphere-supplying respirators are being used to protect employees, it is essential to ensure that the air being breathed is of sufficiently high quality. Our company's procedures to ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators include coverage of the following OSHA requirements:

* Compressed and liquid oxygen must meet the United States Pharmacopoeia requirements for medical or breathing oxygen.
* Compressed breathing air must meet at least the requirements for Grade D breathing air described in ANSI/Compressed Gas Association Commodity Specification for Air, G-7.1-1989, to include:
* Oxygen content (v/v) of 19.5-23.5%;
* Hydrocarbon (condensed) content of 5 milligrams per cubic meter of air or less;
* Carbon monoxide (CO) content of 10 parts per million (ppm) or less;
* Carbon dioxide content of 1,000 ppm or less; and
* Lack of a noticeable odor.
* Ensure that compressed oxygen is not used in atmosphere-supplying respirators that have previously used compressed air.
* Ensure that oxygen concentrations greater than 23.5% are used only in equipment designed for oxygen service or distribution.

Cylinders Used to Supply Breathing Air to Respirators:

* Cylinders must be tested and maintained as prescribed in the Shipping Container Specification Regulations of the Department of Transportation (49 CFR 173 and 178).
* Cylinders of purchased breathing air must have a certificate of analysis from the supplier that the breathing air meets the requirements for Grade D breathing air.
* The moisture content in the cylinder must not exceed a dew point of -50 deg. F (-45.6 deg. C) at 1 atmosphere pressure.

Compressors:

* Ensure that compressors used to supply breathing air to respirators are constructed and situated so as to:
* Prevent entry of contaminated air into the air-supply system;
* Minimize moisture content so that the dew point at 1 atmosphere pressure is 10 degrees F (5.56 deg. C) below the ambient temperature;
* Have suitable in-line air-purifying sorbet beds and filters to further ensure breathing air quality. Sorbet beds and filters must be maintained and replaced or refurbished periodically following the manufacturer's instructions; and
* Have a tag containing the most recent change date and the signature of the person authorized by our company to perform the change. The tag must be maintained at the compressor.

* For compressors that are not oil-lubricated, ensure that carbon monoxide levels in the breathing air do not exceed 10 ppm.
* For oil-lubricated compressors, use a high-temperature or carbon monoxide alarm, or both, to monitor carbon monoxide levels. If only high-temperature alarms are used, the air supply must be monitored at intervals sufficient to prevent carbon monoxide in the breathing air from exceeding 10 ppm.

Breathing Air Couplings:

* Ensure that breathing air couplings are incompatible with outlets for non-respirable worksite air or other gas systems. No asphyxiating substance must be introduced into breathing airlines.

Breathing Gas Containers:

* Use breathing gas containers marked in accordance with the NIOSH respirator certification standard, 42 CFR 84.

Filters, Cartridges, and Canisters:

* Ensure that all filters, cartridges and canisters used in the workplace are labeled and color-coded with the NIOSH approval label and that the label is not removed and remains legible.

The following detailed procedures ensure adequate air quality, quantity, and flow of breathing air for atmosphere-supplying respirators:

All grades D breathing air is checked on a 1/4-ly basis. All Positive Pressure respirators are to be flow tested yearly.

Training

The most thorough respiratory protection program will not be effective if employees do not wear respirators, or if wearing them, do not do so properly. The only way to ensure that our employees are aware of the purpose of wearing respirators, and how they are to be worn is to train them. Simply put, employee training is an important part of the respiratory protection program and is essential for correct respirator use.

Our training program provided by all training is completed by a certified trainer, familiar with the proper donning, doffing, cleaning and maintenance of the respirator being trained on. Is two-fold; it covers both the:

* Respiratory hazards to which our employees are potentially exposed during routine and emergency situations, and
* Proper use of respirators, including putting on and removing them, any limitations on their use, and their maintenance.

Both training parts are provided prior to requiring an employee to use a respirator in our workplace. However, if an employee has received training within 12 months addressing the seven basic elements of respiratory protection (see "Seven basic elements" below) and Romer Utility Services and the employee can demonstrate that he/she has knowledge of those elements, then that employee is not required to repeat such training initially.

Yet, we do require all of our employees to be retrained annually and when the following situations occur:

* Changes in the workplace or the type of respirator render previous training obsolete;
* Inadequacies in the employee's knowledge or use of the respirator indicate that the employee has not retained the requisite understanding or skill; or
* Any other situation arises in which retraining appears necessary to ensure safe respirator use.

Seven basic elements:

Our employees are trained sufficiently to be able to demonstrate knowledge of at least these seven elements:

* Why the respirator is necessary and how improper fit, usage, or maintenance can compromise the protective effect of the respirator.
* What the limitations and capabilities of the respirator are.
* How to use the respirator effectively in emergency situations, including situations in which the respirator malfunctions.
* How to inspect, put on, remove, use, and check the seals of the respirator.
* What the procedures are for maintenance and storage of the respirator.
* How to recognize medical signs and symptoms that may limit or prevent the effective use of respirators.
* The general requirements of 29 CFR 1910.134.

The basic advisory information on respirators, as presented below is provided by our Program Administrator in any written or oral format, to employees who wear respirators when such use is not required by the regulations or by our company:

Information for employees using respirators when not required under the standard

Respirators are an effective method of protection against designated hazards when properly selected and worn. Respirator use is encouraged, even when exposures are below the exposure limit, to provide an additional level of comfort and protection for workers. However, if a respirator is used improperly or not kept clean, the respirator itself can become a hazard to the worker. Sometimes, workers may wear respirators to avoid exposures to hazards, even if the amount of hazardous substance does not exceed the limits set by OSHA standards. If your employer provides respirators for your voluntary use, or if you provide your own respirator, you need to take certain precautions to be sure that the respirator itself does not present a hazard.

You should do the following:

* Read and heed all instructions provided by the manufacturer on use, maintenance, cleaning and care, and warnings regarding the respirator's limitations.
* Choose respirators certified for use to protect against the contaminant of concern. NIOSH, the National Institute for Occupational Safety and Health of the U.S. Department of Health and Human Services, certifies respirators. A label or statement of certification should appear on the respirator or respirator packaging. It will tell you what the respirator is designed for and how much it will protect you
* Do not wear your respirator into atmospheres containing contaminants for which your respirator is not designed to protect against. For example, a respirator designed to filter dust particles will not protect you against gases, vapors, or very small solid particles of fumes or smoke.
* Keep track of your respirator so that you do not mistakenly use someone else's respirator.

Program Evaluation

It is inherent in respirator use that problems with protection, irritation, breathing resistance, comfort, and other respirator-related factors occasionally arise in most respirator protection programs. Although it is not possible to eliminate all problems associated with respirator use, we try to eliminate as many problems as possible to improve respiratory protection and encourage employee acceptance and safe use of respirators. By having our program administrator, Safety Representative, thoroughly evaluate and, as necessary, revise our Respiratory Protection Program, we can eliminate problems effectively.

At Romer Utility Services, the program evaluation is performed annually by our program administrator, involves the following:

* Conducting evaluations of the workplace as necessary to ensure that the provisions of the current written program are being effectively implemented and that it continues to be effective.

* Regularly consulting employees required to use respirators to assess their views on program effectiveness and to identify any problems. Any problems that are identified during this assessment must be corrected. Factors to assess include, but are not limited to:
* Respirator fit (including the ability to use the respirator without interfering with effective workplace performance)
* Appropriate respirator selection for the hazards to which the employee is exposed
* Proper respirator use under the workplace conditions the employee encounters
* Proper respirator maintenance

Appendices

Appendix 1--References

The following documents are helpful references:

* 29 CFR 1910.134, Respiratory Protection, and Appendices,
* 42 CFR 84, Approval of Respiratory Protective Devices,
* ANSI Z88.2, Respiratory Protection,
* NIOSH Guide to Industrial Respiratory Protection-1987 (however, this may be out of date),
* NIOSH Guide to the Selection and Use of Particulate Respirators Certified Under 42 CFR 84 (4/23/96).

Appendix 2--Respiratory Protection Program Attachments

The following documents are attached to this Respiratory Protection Program:

Fit testing procedures, Proper respirator use procedures, Respirator manufacturer's respirator cleaning procedures, Respirator inspection records, Employee respirator training curriculum/materials,

Crane/ Rigging Safety Program

1. Written Program. Romer Utility Services will review and evaluate this standard practice instruction on an annual basis, or when changes occur to regulatory standards that prompt revision of this document, or when facility operational changes occur that require a revision of this document. Effective implementation of this program requires support from all levels of management within this company. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of number of workers employed or the number of work shifts. It is designed to establish clear goals, and objectives.

2. General Requirements. Romer Utility Services will establish crane safety and operational procedures through the use of this document. This standard practice instruction applies to cranes used in conjunction with other material handling equipment for the movement of material. The types of cranes covered are:

2.1 Boom Type
2.2 Mast Type
2.3 Derek Type

3. Initial Training. Training shall be conducted prior to job assignment. This employer shall provide training to ensure that the purpose, function, and proper use of cranes is understood by employees and that the knowledge and skills required for the safe application and usage is acquired by employees. This standard practice instruction shall be provided to, and read by all employees receiving training. The training shall include, as a minimum the following:

3.1 Preoperational inspection requirements of the crane to be used.

3.2 Specific operational requirements of the crane to be used.

3.3 Principals of crane operations.

3.4 Recognition of applicable hazards associated with the work to be completed.

3.5 Load determination and balancing requirements.

3.6 Procedures for removal of a crane from service.

3.7 All other employees whose work operations are or may be in an area where cranes may be utilized shall be instructed to an awareness level concerning hazards associated with cranes.

3.8 Physical and mental requirements of operators. Crane operators will be screened for physical and mental impairments that could result in improper use.

Operators will meet as a minimum, the following requirements before being certified to operate cranes.

- be drug and alcohol free during any lifting event.
- be thoroughly trained in all facets of the required lift.
- Have a mature and safe attitude at all times.
- Have good depth perception (essential for load spotting).
- Have good hearing and vision (corrected or uncorrected).
- Have no history of unsafe acts in the workplace.
- Have the ability to react quickly in an emergency.
- Take no medication that will interfere with the operation.
- Understand the requirements for all phases of the lift.

3.9 Certification. This employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

3.10 Crane trainers. The following employees or position titles will receive training and as required, serve as crane trainers. Qualified trainers will consist of the following:

CRANE TRAINERS

Title	**Member**
Crane Trainer	Qualified Outside Contractors
Crane Trainer	Manufacturers of In-use cranes

4. Refresher Training. This standard practice instruction shall be provided to, and read by all employees receiving refresher training. The training content shall be identical to initial training. Refresher training will be conducted on a (n) annual basis or when the following conditions are met, which ever event occurs sooner.

4.1 Retraining shall be provided for all authorized and affected employees whenever (and prior to) there being a change in their job assignments, a change in the type of crane used, equipment being lifted, lifting procedures, or when a known hazard is added to the lifting environment.
4.2 Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever this employer has reason to believe, that there are deviations from or inadequacies in the employee's knowledge or use of crane procedures.

4.3 The retraining shall reestablish employee proficiency and introduce new or revised methods and procedures, as necessary.

4.4 Certification. This employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain each employee's name and dates of training.

5. Safe Operating Practices for Operators. Whenever any crane is used, the following safe practices (as a minimum) shall be observed:

1. Always check warning devices and signals before use.
2. Always document and maintain inspection records.
3. Always ensure cranes shall not be loaded in excess of their rated capacities. (Rating chart must be in plain view of Operator while seated at the controls.)
4. Always ensure the new location support the weight?
5. Always keep employees clear of lifted and or suspended loads.
6. Always keep suspended loads clear of all obstructions.
7. Always lockout before maintenance or repairing cranes.
8. Always position the hook directly over the load before lifting.
9. Always test brakes by a short lift to ensure control.
10. Before being lifted, loads will be checked for proper balance.
11. Follow the manufacturer's recommendations.
12. Frequently inspect cranes exposed to adverse conditions.
13. Hands must clear of the suspension means and the load during lifting.
14. Know where you're going to set the load down!
15. Know your travel path in advance of the lift!
16. Loads will in all cases be properly balanced to prevent slippage.
17. Move loads only after being signaled by the designated, qualified signaler.
18. Never allow riders on loads or hooks.
19. Never allow unauthorized persons to operate cranes.
20. Never attempt to operate a crane or hoist that is suspected to be unsafe.
21. Never carry loads over workers.
22. Never carry loads past workers (they must yield right of way).
23. Never use a crane that is damaged or defective in any way.
24. Operators must watch the signalers.
25. Shock loading is prohibited.
26. Signalers must keep line-of-sight with the operator.
27. Signalers must watch the load.
28. Test all hoist controls and brakes at the beginning of each shift.
29. Employees shall not be exposed to hazardous atmospheres created by the combustion engine.

6. Safe Operating Practices for Signalers. Whenever any crane is used, the following safe practices (as a minimum) shall be observed:

1. Ensure that only one person is the designated signaler.
2. Ensure the operator acknowledges every signal, use only ANSI signals.
3. Follow the manufacturer's recommendations.
4. Know the new location will support the weight.
5. Maintain line-of-sight with the operator.
6. Operators must watch the signalers.
7. Plan in advance where the load is going!
8. Stop the operation any time comprehension is lost.
9. Communication devices must be tested before operations begin.

7. Leaving or Parking Hoists or Cranes. Whenever leaving or parking hoists or cranes, the following safe practices (as a minimum) shall be observed:

1. Follow the manufacturer's recommendations.
2. Make a visual check for any dangerous condition.
3. Place all controls in the "off" position.
4. Place main power switch in the "off" position.
5. Raise all hooks to - but not through - limit switches.
6. Report all cranes that are not in operation immediately.
7. Report any defects immediately.
8. Tag out defective equipment immediately.

8. Rigging. The following general safe practices (as a minimum) shall be observed when handling slung loads.

8.1 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.

8.2. Always keep hands and fingers clear of intentioned loads. At no time are employees to be allowed to wrap their hands around an edge, thus putting their fingers in a pinch point, Tag lines should be used to help eliminate this from happening.

8.3. Always keep suspended loads clear of all obstructions. If spotters are used to assist the operator, they need to have a clear view of all obstructions in the work area.

8.4. Always keep suspended loads clear of employees. There is to never be an employee allowed to pass under a suspended load. If employees are not complying with this rule the operator is to suspend operations and notify the supervisor so retraining can continue.

8.5. Always pad or protect slings from sharp edges of the load. Never allow web slings to be used in a situation where the sling can be damaged by a sharp edge.

8.6. Determine the history of the care and usage of the sling. If during the pre-use inspection it is determined that the sling was damaged during a previous use that sling is to be taken out of service and tagged. The supervisor is responsible for either the repair or the disposal of the sling as soon as the defect is identified.

8.7. Defective equipment shall not be used and removed from service immediately.

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8.8 Ensure you know rated capacity of the sling. And be sure to never exceed those limits. Missing labels cause the sling to have to be taken out of service. At no time is a sling to be used that is missing the rating tag.

9. 9 ensure the angle the sling does not put a horizontal pull against the edge of a load hook. All hooks used for lifting need to be equipped with a self-closing latch.

9.10 Never pull a sling from a suspended load under tension. This action could cause a shock load as well as potentially cause debris to become airborne.

9.11 All rigging equipment needs to be kept picked up and stored properly when not in use. Never leave unused rigging material in the work area.

9. Estimating the Weight of Loads. Lifting will not be conducted until load weights have been determined. When estimating load weights operators will stay within 50% of the cranes rated capacity when estimating loads (or manufacturer recommendation). Never attempt a load lift based solely on a guess! The following methods may be used to estimate the weight of loads.

1. Check equipment nomenclature plates.
2. Check shipping papers.
3. Consult with the equipment manufacturer.
4. Estimate weight using weights of similar loads.
5. Use a dynamometer.
6. Use industry standard tables or charts

10. Personal Protective Equipment. Supervisor will ensure that a Job Hazard Analysis is conducted for specific lifting operations. Operators will use the required PPE in the conduct of lifting operations. Protective clothing and equipment considerations:

1. Ensure PPE is appropriate for the particular hazard(s).
2. Ensure PPE is kept clean, fully functional, and sanitary.
3. Maintained all PPE in good condition.
4. Properly store PPE when not in use.

11. Electrical hazards. Electrical safety-related 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 overhead lines. The specific safety-related work practices shall be consistent with the nature and extent of the associated electrical hazards. If work is to be performed near overhead lines, the lines shall be DE energized and grounded, or other protective measures shall be provided before work is started. If the lines are to be DE energized, arrangements shall be made with the person or organization that operates or controls the electric circuits involved to DE energize and ground them. If protective measures, such as guarding, isolating, or insulating, are provided, these precautions shall prevent employees from contacting such lines directly with any part of their body or indirectly through conductive materials, tools, or equipment. The following guidelines from 29CFR1910.333 will be followed.

For lines rated 50kv or lower a minimum distance of 10' will be kept at all times. For all other lines the regulations will be visited and followed accordingly.

12. Crane Inspections. Where not otherwise delineated, crane inspections will be conducted in accordance with this section.

11.1 Crane inspectors. The following employees or position titles will receive training and as required, serve as crane inspectors. Company qualified inspectors will consist of the following:

CRANE INSPECTORS

Title	**Member**
Crane Inspector	Department Manager
Crane Inspector	Crane Manufacture

11.2 Inspection intervals.

11.2.1 Daily inspections. Cranes will be inspected each day before being used, the crane will inspect in accordance with OSHA, Consensus Standards, and Manufacturer recommendations.

11.2.2 Periodic inspections. Supervisors will determine and schedule additional inspections periodically during crane use, where service conditions warrant. A thorough periodic inspection shall be made on a regular basis, to be determined on the basis of, frequency of crane use; severity of service conditions; nature of lifts being made; experience gained on the service life of cranes used in similar circumstances, and OSHA, Consensus Standards, and Manufacturer recommendations.

11.2.3 Scheduled inspections. Safety Representative will coordinate inspection dates and times with all assigned crane inspectors. The inspections will be conducted on an annual basis. Such inspections shall in no event be at intervals greater than once every 12 months.

11.3 Inspection documentation.

Cranes inspections will be documented as having been inspected. Scheduled inspections will be documented as having been conducted.

1. Identify items that were inspected.
2. Show the status of the inspected items.
3. Provide the signature of the inspector.
4. Show the date.
5. File it and maintain it!
6. Review the manufacturer's specific inspection requirements!

11.4 Inspection documentation storage.

Inspection records and certifications shall be maintained in Safety Representative's office

11.5 Damaged/unserviceable Cranes.

Cranes found to be damaged or unserviceable will be immediately removed from service.

13. Daily Checks.

The following items (as a minimum) shall be checked prior to use of any crane:

1. Check for air or hydraulic fluid leakage.
5. Check for load capacity stenciling on both sides of unit.
6. Check for rating chart in cab.
4. Check for twisted, broken or kinked cables or chains.
5. Check the operation of the crane; controls & movement.
6. Inspect for deformed, cracked, or stretched hooks.
7. Inspect for serviceable safety latches.
8. Observe correct drum spooling as the hook is raised.
9. Operate empty hook till it actuates the upper limit switch.
10. Operate hoist and trolley brakes, ensure no excessive coasting.
11. Visually inspect all units for integrity, leaks etc.
14. Review the manufacturer's specific requirements!
15. Check to ensure a CO2 or dry chemical fire extinguisher is in the crane cab or vicinity of the crane.

14. Monthly Checks. The following items (as a minimum) shall be checked monthly:

1. Follow any additional recommendations of the manufacturer.
2. Inspect for twisted, broken or kinked cables or chains.
3. Inspect hooks for cracks, missing or broken parts.
4. Measure hooks for deformation or stretching.
5. Measure lifting chains for excessive stretch, twisting etc.
6. Review the manufacturer's specific inspection requirements!
7. Visually inspect all critical items.
8. Review the manufacturer's specific requirements!

15. Periodic Checks. Review the manufacturer's specific inspection requirements! The following items (as a minimum) shall be checked at periodic inspections (1 to 12-month intervals):

1. Interval dependent on the type of activity performed.
2. Interval dependent on the severity of service.
3. Interval dependent on the environmental conditions.
4. As a minimum the inspection should cover:

Chain or Cable	Reeving	Hook Condition
Electrification	Hoist Drives	Travel Drives
Brakes	Limit Switches	Couplings
Rails	Balance	Controls
Warning Devices	End Stops	Signage

16. Periodic CMAA Inspection Recommendations:

Class	Description	Typical Schedule
A	Standby or infrequent service	annually
B	Light service - 2-5 lifts hr.	Annually
C	moderate service - 50% capacity, 5-10 lifts hr.	annually
D	Heavy service - 50% capacity, 10-20 lifts hr.	Semiannually
E	Severe service - near capacity, 20+ lifts hr.	Quarterly
F	Continuous severe service - near capacity And continuous service throughout day	bi-monthly

Note: Different conditions may suggest different intervals.

17. New, Idle, Altered, and Used Cranes: The use status of cranes will drive specific requirements for periodic maintenance and servicing. The status of the crane will be determined based on manufacturer recommendations and consultation with specific regulatory standards. Prior to initial or reintroduction into service cranes will be tested and inspected completely using the criteria applicable to periodic inspections. A report will be generated and kept on file for future reference. The manufacturer's specific requirements will be reviewed!

18. Preventive Maintenance: Preventative maintenance procedures will be developed and used for specific cranes. Maintenance procedures will be determined on the basis of, frequency of crane use; severity of service conditions; nature of lifts being made; experience gained on the service life of cranes used in similar circumstances, and OSHA, Consensus Standards, and Manufacturer recommendations. Typical requirements include:

1. Adjusting the brakes.
2. Adjusting the operation of limit switches.
3. Checking and filling the gear cases to the proper levels.
4. Cleaning and lubricating the wire rope (cable) and load chain.
5. Cleaning or replacing pitted or burned electrical contacts.
6. Cleaning or replacing the air and fluid filters.
7. Inspecting the operation of all controls and warning systems.
8. Lubricating the bearings, gears, pinions, linkages, shafts, etc.
9. Replacing any contaminated oils.

19. Preoperational Testing Requirements: Preoperational tests will be conducted prior to use of any crane. Testing requirements will be determined on the basis of, frequency of crane use; severity of service conditions; nature of lifts being made; experience gained on the service life of cranes used in similar circumstances, and OSHA, Consensus Standards, and Manufacturer recommendations. Typical requirements include:

Preoperational Tests - General:

1. Check for obstructions in the travel path of the crane.
2. Check upper and lower limit switches.
3. Ensure all emergency disconnects are known before any test.
4. Ensure that the manufacturer's recommendations are followed.
5. If you have a checklist - follow it!
6. If you're not familiar with the cranes' operation get help.
7. Inspect all electrical controls for proper operation.
8. Never unwind the spool completely!
9. Observe for smooth operation of the components.
10. Test all controls to determine proper operation.

Preoperational Tests - 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.

1. Replace if deformation or cracks are found.
2. Check for proper function of the safety latch.
3. Inspect for twists from the plane of the unbent hook.
4. Check for proper swivel.
5. Hook repair is generally not recommended.
6. Emergency hook repair must be performed only under competent supervision.
7. After any hook repairs, the hook must be load tested before being returned to normal service.

Preoperational Tests - Rope:

1. Broken or worn outside wires.
2. Corroded or broken wires at end of connections.
3. Corroded, cracked, bent, worn, or improperly applied end connections.
4. Reduction in rope diameter (replace if found).
5. Severe kinking, crushing, cutting or unstranding.

20. Lock Out Tag Out Considerations:

Lockout Tag Out will be conducted when maintenance or servicing is performed on any crane. Lockout requirements will be determined on the basis of, OSHA, Consensus Standards, and Manufacturer recommendations. Typical requirements include:

1. Review requirements for the individual crane.
2. Integrate lock out and maintenance requirements.
3. Ensure training in adequate for level of maintenance.
4. Ensure written programs are established and reviewed.
5. Carefully select lockout devices, ask the manufacturer for recommendations.
6. Do not necessarily assume devices are interchangeable between different Types of cranes.

21. Modifications: No modifications will be made to any portion of the crane or rigging without the written approval from the manufacture.

Risk Assessment Hazard Control

Management Walkabouts and Self Assessments

To ensure that there is a process in place to continually reduce the employee exposure to hazards Romer Utility Services will use a Self-Assessment Process.
The site management team which includes the Site Superintendent, Project Manager or other management members will conduct at a minimum one (1) documented safety inspection per week. In the event an existing hazard is identified the mitigation recommendations will be documented on the audit form. The hazards as well as the corrective actions will be communicated to all employees during the scheduled weekly safety meetings. The crew foreman is responsible for correcting any of action items identified by the safety inspections the safety department as well as the Superintendent should provide as much guidance as possible.

JSA Implementation Process

A detailed JSA will be developed that is specific to the task being performed. Each task will be ranked and addressed according to severity. The JSA will be developed using the job scope provided by the Operator. The JSA will be reviewed with all employees and sub-contractors prior to performing the job task thus ensuring no new hazards are created by a mitigating process. Any changes or upgrades will be documented and shared with all employees during the scheduled weekly safety meetings and the daily tool box talks.

Safety Awareness Meetings

Safety awareness meetings will be conducted on Friday mornings as part of the scheduled weekly safety meetings. This day may be changed from week to week depending on field activities special meetings may be held for High Hazards that have been identified or significant incident, near misses, property damage or injury incidents.

Control of Hazardous Materials
To ensure the control of hazardous materials while performing work on this site Romer Utility Services will not allow any Hazardous Materials to be brought on site without prior approval and accompanied with the SDS Sheet. As part of the process Romer Utility Services will have on site a written HAZ COMM Program and SDS sheets for all chemicals being used or available on site.
Certain task being performed such as Excavating, Blasting/Coating and Welding tie ins will be evaluated to ensure identification of the Hazards and the method used to perform these tasks including the level of PPE or cleanup efforts.

H&S Self Inspection Programs

As with the Hazard Control Process Romer Utility Services will utilize the Management Walkabout and Self-Assessment Process to identify, correct and document the H&S Inspection Program. The Self Assessments and Management Walkabout documentation is sent to the Romulus office to provide a close loop process for the identified hazards and the recommended mitigations.

Training

The employee will be trained in the hazard identification process including the use and care of proper PPE that is provided at no cost prior to job assignment.

Silica Program

PURPOSE

This Respirable Crystalline Silica Program was developed to prevent employee exposure to hazardous levels of Respirable Crystalline Silica that could result through construction activities or nearby construction activities occurring on worksites. Respirable Crystalline Silica exposure at hazardous levels can lead to lung cancer, silicosis, chronic obstructive pulmonary disease, and kidney disease. It is intended to meet the requirements of the Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153) established by the Occupational Safety and Health Administration (OSHA).

All work involving chipping, cutting, drilling, grinding, or similar activities on materials containing Crystalline Silica can lead to the release of respirable-sized particles of Crystalline Silica (i.e. Respirable Crystalline Silica). Crystalline Silica is a basic component of soil, sand, granite and many other minerals. Quartz is the most common form of Crystalline Silica. Many materials found on constructions sites include Crystalline Silica; including but not limited to – cement, concrete, asphalt, pre-formed structures (inlets, pipe, etc.) and others. Consequently, this program has been developed to address and control these potential exposures to prevent our employees from experiencing the effects of occupational illnesses related to Respirable Crystalline Silica exposure.

SCOPE

This Respirable Crystalline Silica Program applies to all employees who have the potential to be exposed to Respirable Crystalline Silica when covered by the OSHA Standard. The OSHA Respirable Crystalline Silica Construction Standard applies to all occupational exposures to Respirable Crystalline Silica in construction work, except where employee exposure will remain below 25 micrograms of Respirable Crystalline Silica per cubic meter of air (25 $\mu g/m^3$) as an 8-hour time-weighted average (TWA) under any foreseeable conditions.

RESPONSIBILITIES

Roemer Utility Services firmly believes protecting the health and safety of our employees is everyone's responsibility. All employees must be provided proper training. This responsibility begins with upper management providing the necessary support to properly implement this program. However, all levels of the organization assume some level of responsibility for this program including the following positions.

Program Administrator Brad Revett

- Conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an employee's exposure will be above 25 µg/m^3 as an 8-hour TWA under any foreseeable conditions

- Select and implement into the project's ECP the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

  NOTE: OSHA's Construction Standard Table 1 is a list of 18 common construction tasks along with acceptable exposure control methods and work practices that limit exposure for those tasks.

- Ensure that the materials, tools, equipment, personal protective equipment (PPE), and other resources (such as worker training) required to fully implement and maintain this Respirable Crystalline Silica Program are in place and readily available if needed.

- Ensure that Project Mangers, Site Managers, Competent Persons, and employees are educated in the hazards of Silica exposure and trained to work safely with Silica in accordance with OSHA's Respirable Crystalline Silica Construction Standard and OSHA's Hazard Communication Standard. Managers and Competent Persons may receive more advanced training than other employees.

- Maintain written records of training (for example, proper use of respirators), ECPs, inspections (for equipment, PPE, and work methods/practices), medical surveillance (under lock and key), respirator medical clearances (under lock and key) and fit-test results.

- Conduct an annual review (or more often if conditions change) of the effectiveness of this program and any active project ECP's that extend beyond a year. This includes a review of available dust control technologies to ensure these are selected and used when practical.

- Coordinate work with other employers and contractors to ensure a safe work environment relative to Silica exposure.

Program Administrator Brad Revett

- Ensure all applicable elements of this Respirable Crystalline Silica Program are implemented on the project including the selection of a Competent Person.

- Assist the Brad Revett in conduct job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

- Assist in the selection and implementation of the appropriate control measures in accordance with the Construction Tasks identified in OSHA's Construction Standard Table 1; and potentially including (but not limited to) - a written Exposure Control Plan (ECP), exposure monitoring, Hazard Communication training, medical surveillance, housekeeping and others.

- Ensure that employees using respirators have been properly trained, medically cleared, and fit-tested in accordance with the company's Respiratory Protection Program. This process will be documented.

- Ensure that work is conducted in a manner that minimizes and adequately controls the risk to workers and others. This includes ensuring that workers use appropriate engineering controls, work practices, and wear the necessary PPE.

- Where there is risk of exposure to Silica dust, verify employees are properly trained on the applicable contents of this program, the project-specific ECP, and the applicable OSHA Standards (such as Hazard Communication). Ensure employees are provided appropriate PPE when conducting such work.

Competent Person and/or Site Manager (Superintendent, Foreman, etc.)

- Make frequent and regular inspections of job sites, materials, and equipment to implement the written ECP.

- Identify existing and foreseeable Respirable Crystalline Silica hazards in the workplace and take prompt corrective measures to eliminate or minimize them.

- Notify the Brad Revett and/or of any deficiencies identified during inspections in order to coordinate and facilitate prompt corrective action.

- Assist the Brad Revett and in conducting job site assessments for Silica containing materials and perform employee Respirable Crystalline Silica hazard assessments in order to determine if an ECP, exposure monitoring, and medical surveillance is necessary.

Employees:

- Follow recognized work procedures (such as the Construction Tasks identified in OSHA's Construction Standard Table 1) as established in the project's ECP and this program.
- Use the assigned PPE in an effective and safe manner.
- Participate in Respirable Crystalline Silica exposure monitoring and the medical surveillance program.
- Report any unsafe conditions or acts to the Site Manager and/or Competent Person.
- Report any exposure incidents or any signs or symptoms of Silica illness.

DEFINITIONS

If a definition is not listed in this section, please contact your supervisor. If your supervisor is unaware of what the term means, please contact the Competent Person or your Safety Department.

- Action Level means a concentration of airborne Respirable Crystalline Silica of 25 µg/m^3, calculated as an 8-hour TWA.
- Competent Person means an individual who is capable of identifying existing and foreseeable Respirable Crystalline Silica hazards in the workplace and who has authorization to take prompt corrective measures to eliminate or minimize them.
- Employee Exposure means the exposure to airborne Respirable Crystalline Silica that would occur if the employee were not using a respirator.
- High-Efficiency Particulate Air (HEPA) Filter means a filter that is at least 99.97 percent efficient in removing monodispersed particles of 0.3 micrometers in diameter.
- Objective Data means information, such as air monitoring data from industry-wide surveys or calculations based on the composition of a substance, demonstrating employee exposure to Respirable Crystalline Silica associated with a particular product or material or a specific process, task, or activity. The data must reflect workplace conditions closely resembling or with a higher exposure potential than the processes,

types of material, control methods, work practices, and environmental conditions in the employer's current operations.

- Permissible Exposure Limit (PEL) means the employer shall ensure that no employee is exposed to an airborne concentration of Respirable Crystalline Silica in excess of 50 µg/m^3, calculated as an 8-hour TWA.

- Physician or Other Licensed Health Care Professional (PLHCP) means an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide or be delegated the responsibility to provide some or all of the particular health care services required by the Medical Surveillance Section of the OSHA Respirable Crystalline Silica Standard.

- Respirable Crystalline Silica means Quartz, Cristobalite, and/or Tridymite contained in airborne particles that are determined to be respirable by a sampling device designed to meet the characteristics for respirable-particle size- selective samplers specified in the International Organization for Standardization (ISO) 7708:1995: Air Quality-Particle Size Fraction Definitions for Health-Related Sampling.

- Specialist means an American Board-Certified Specialist in Pulmonary Disease or an American Board-Certified Specialist in Occupational Medicine.

REQUIREMENTS

Specified Exposure Control Methods

When possible and applicable, Roemer Utility Services will conduct activities with potential Silica exposure to be consistent with OSHA's Construction Standard Table 1. Supervisors will ensure each employee under their supervision and engaged in a task identified on OSHA's Construction Standard Table 1 have fully and properly implemented the engineering controls, work practices, and respiratory protection specified for the task on Table 1 (unless Roemer Utility Services has assessed and limited the exposure of the employee to Respirable Crystalline Silica in accordance with the Alternative Exposure Control Methods Section of this program).

The task(s) being performed by Roemer Utility Services identified on OSHA's Construction Standard Table 1 is/are: Select any/all of the following that apply:

Table 1: Specified Exposure Control Methods When Working with Materials Containing Crystalline Silica

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
1	Stationary masonry saws	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
2a	Handheld power saws (any blade diameter) when used outdoors	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
2b	Handheld power saws (any blade diameter) when used indoors or in an enclosed area	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
3	Handheld power saws for cutting fiber-cement board (with blade diameter of 8 inches or less) for tasks performed outdoors only	• Use saw equipped with commercially available dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency.	None	None
4a	Walk-behind saws when used outdoors	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
4b	Walk-behind saws when used indoors or in an enclosed area	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
5	Drivable saws for tasks performed outdoors only	• Use saw equipped with integrated water delivery system that continuously feeds water to the blade. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
6	Rig-mounted core saws or drills	• Use tool equipped with integrated water delivery system that supplies water to cutting surface.	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
		• Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.		
7	Handheld and stand-mounted drills (including impact and rotary hammer drills)	• Use drill equipped with commercially available shroud or cowling with dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	None	None
8	Dowel drilling rigs for concrete for tasks performed outdoors only	• Use shroud around drill bit with a dust collection system. • Dust collector must have a filter with 99% or greater efficiency and a filter cleaning mechanism. • Use a HEPA-filtered vacuum when cleaning holes.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
9a	Vehicle-mounted drilling rigs for rock and concrete	• Use dust collection system with close capture hood or shroud around drill bit with a low-flow water spray to wet the dust at the discharge point from the dust collector.	None	None
9b	Vehicle-mounted drilling rigs for rock and concrete	• Operate from within an enclosed cab and use water for dust suppression on drill bit.	None	None
10a	Jackhammers and handheld powered chipping tools when used outdoors	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10b	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	• Use tool with water delivery system that supplies a continuous stream or spray of water at the point of impact.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
10c	Jackhammers and handheld powered chipping tools when used outdoors	• Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
		greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.		
10d	Jackhammers and handheld powered chipping tools when used indoors or in an enclosed area	• Use tool equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the tool manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask
11	Handheld grinders for mortar removal (i.e., tuckpointing)	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask	Powered Air-Purifying Respirator (PAPR) with P100 Filters
12a	Handheld grinders for uses other than mortar removal for tasks performed outdoors only	• Use grinder equipped with integrated water delivery system that continuously feeds water to the grinding surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
12b	Handheld grinders for uses other than mortar removal when used outdoors	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	None
12c	Handheld grinders for uses other than mortar removal when used indoors or in an enclosed area	• Use grinder equipped with commercially available shroud and dust collection system. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide 25 cubic feet per minute (cfm) or greater of airflow per inch of wheel diameter and have a filter with 99% or greater efficiency and a cyclonic pre-separator or filter-cleaning mechanism.	None	N95 (or Greater Efficiency) Filtering Facepiece or Half Mask

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
13a	Walk-behind milling machines and floor grinders	• Use machine equipped with integrated water delivery system that continuously feeds water to the cutting surface. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions.	None	None
13b	Walk-behind milling machines and floor grinders	• Use machine equipped with dust collection system recommended by the manufacturer. • Operate and maintain tool in accordance with manufacturer's instructions to minimize dust emissions. • Dust collector must provide the air flow recommended by the manufacturer, or greater, and have a filter with 99% or greater efficiency and a filter-cleaning mechanism. • When used indoors or in an enclosed area, use a HEPA-filtered vacuum to remove loose dust in between passes.	None	None
14	Small drivable milling machines (less than half-lane)	• Use a machine equipped with supplemental water sprays designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	None	None
15a	Large drivable milling machines (half-lane and larger) for cuts of any depth on asphalt only	• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	None	None
15b	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	• Use machine equipped with exhaust ventilation on drum enclosure and supplemental water sprays designed to suppress dust. • Operate and maintain machine to minimize dust emissions.	None	None
15c	Large drivable milling machines (half-lane and larger) for cuts of four inches in depth or less on any substrate	• Use a machine equipped with supplemental water spray designed to suppress dust. • Water must be combined with a surfactant. • Operate and maintain machine to minimize dust emissions.	None	None
16	Crushing machines	• Use equipment designed to deliver water spray or mist for dust suppression at crusher and other points where dust is generated (e.g., hoppers, conveyers, sieves/sizing or vibrating components, and discharge points). • Operate and maintain machine in accordance with manufacturer's instructions to minimize dust emissions.	None	None

Construction Task or Equipment Operation		Engineering and Work Practice Control Methods	Required Respiratory Protection	
			≤ 4 hours/shift	>4 hours/shift
		• Use a ventilated booth that provides fresh, climate-controlled air to the operator, or a remote control station.		
17a	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	• Operate equipment from within an enclosed cab.	None	None
17b	Heavy equipment and utility vehicles used to abrade or fracture silica-containing materials (e.g., hoe-ramming, rock ripping) or used during demolition activities involving silica-containing materials	• When employees outside of the cab are engaged in the task, apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
18a	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• Apply water and/or dust suppressants as necessary to minimize dust emissions.	None	None
18b	Heavy equipment and utility vehicles for tasks such as grading and excavating but not including demolishing, abrading, or fracturing silica-containing materials	• When the equipment operator is the only employee engaged in the task, operate equipment from within an enclosed cab.	None	None

When implementing the control measures specified in Table 1, Roemer Utility Services shall:

- For tasks performed indoors or in enclosed areas, provide a means of exhaust as needed to minimize the accumulation of visible airborne dust;
- For tasks performed using wet methods, apply water at flow rates sufficient to minimize release of visible dust;
- For measures implemented that include an enclosed cab or booth, ensure that the enclosed cab or booth:
    - Is maintained as free as practicable from settled dust;
    - Has door seals and closing mechanisms that work properly;
    - Has gaskets and seals that are in good condition and working properly;
    - Is under positive pressure maintained through continuous delivery of fresh air;
    - Has intake air that is filtered through a filter that is 95% efficient in the 0.3-10.0 µm range (e.g., MERV-16 or better); and
    - Has heating and cooling capabilities.
- Where an employee performs more than one task included on OSHA's Construction Standard Table 1 during the course of a shift, and the total duration of all tasks combined is more than four hours, the required respiratory protection for each task is the respiratory protection specified for more than four hours per shift. If the total duration of all tasks on Table 1 combined is less than four hours, the required respiratory protection for each task is the respiratory protection specified for less than four hours per shift.

Alternative Exposure Control Methods

Alternative Exposure Control Methods apply for tasks not listed in OSHA's Construction Standard Table 1, or where Roemer Utility Services cannot not fully and properly implement the engineering controls, work practices, and respiratory protection described in Table 1.

First, Roemer Utility Services will assess the exposure of each employee who is or may reasonably be expected to be exposed to Respirable Crystalline Silica at or above the Action Level in accordance with either the Performance Option or the Scheduled Monitoring Option.

- **Performance Option** – Roemer Utility Services will assess the 8-hour TWA exposure for each employee on the basis of any combination of air monitoring data or objective data sufficient to accurately characterize employee exposures to Respirable Crystalline Silica.

- **Scheduled Monitoring Option:**

    - Roemer Utility Services will perform initial monitoring to assess the 8-hour TWA exposure for each employee on the basis of one or more personal breathing zone air samples that reflect the exposures of employees on each shift, for each job classification, and in each work area. Where several employees perform the same tasks on the same shift and in the same work area, Roemer Utility Services will plan to monitor a representative fraction of these employees. When using representative monitoring, Roemer Utility Services will sample the employee(s) who are expected to have the highest exposure to Respirable Crystalline Silica.

    - If initial monitoring indicates that employee exposures are below the Action Level, Roemer Utility Services will probably discontinue monitoring for those employees whose exposures are represented by such monitoring.

    - Where the most recent exposure monitoring indicates that employee exposures are at or above the Action Level but at or below the PEL, Roemer Utility Services will repeat such monitoring within six months of the most recent monitoring.

    - Where the most recent exposure monitoring indicates that employee exposures are above the PEL, Roemer Utility Services will repeat such monitoring within three months of the most recent monitoring.

    - Where the most recent (non-initial) exposure monitoring indicates that employee exposures are below the Action Level, Roemer Utility Services will repeat such monitoring within six months of the most recent monitoring until two consecutive measurements, taken seven or more days apart, are below the Action Level, at which time Roemer Utility Services will probably discontinue monitoring for those employees whose exposures are represented by such monitoring, except when a reassessment is required. Roemer Utility Services will reassess exposures whenever a change in the production, process, control equipment, personnel, or work practices may reasonably be expected to result in new or additional exposures at or above the Action Level, or when Roemer Utility Services has any reason to believe that new or additional exposures at or above the Action Level have occurred.

Roemer Utility Services will ensure that all Respirable Crystalline Silica samples taken to satisfy the monitoring requirements of this program and OSHA are collected by a qualified individual (i.e. a Certified Industrial Hygienist) and the samples are evaluated by a qualified laboratory (i.e. accredited to ANS/ISO/IEC Standard 17025:2005 with respect to Crystalline Silica analyses by a body that is compliant with ISO/IEC Standard 17011:2004 for implementation of quality assessment programs).

Within five working days after completing an exposure assessment, Roemer Utility Services will individually notify each affected employee in writing of the results of that assessment or post the results in an appropriate location accessible to all affected employees.

Whenever an exposure assessment indicates that employee exposure is above the PEL, Roemer Utility Services will describe in the written notification the corrective action being taken to reduce employee exposure to or below the PEL.

Where air monitoring is performed, Roemer Utility Services will provide affected employees or their designated representatives an opportunity to observe any monitoring of employee exposure to Respirable Crystalline Silica. When observation of monitoring requires entry into an area where the use of protective clothing or equipment is required for any workplace hazard, Roemer Utility Services will provide the observer with protective clothing and equipment at no cost and shall ensure that the observer uses such clothing and equipment.

Once air monitoring has been performed, Roemer Utility Services will determine its method of compliance based on the monitoring data and the hierarchy of controls. Roemer Utility Services will use engineering and work practice controls to reduce and maintain employee exposure to Respirable Crystalline Silica to or below the PEL, unless Roemer Utility Services can demonstrate that such controls are not feasible. Wherever such feasible engineering and work practice controls are not sufficient to reduce employee exposure to or below the PEL, Roemer Utility Services will nonetheless use them to reduce employee exposure to the lowest feasible level and shall supplement them with the use of respiratory protection.

In addition to the requirements of this program, Roemer Utility Services will comply with other programs and OSHA standards (such as 29 CFR 1926.57 [Ventilation]), when applicable where abrasive blasting is conducted using Crystalline Silica-containing blasting agents, or where abrasive blasting is conducted on substrates that contain Crystalline Silica.

Control Methods

Roemer Utility Services will provide control methods that are either consistent with Table 1 or otherwise minimize worker exposures to Silica. These exposure control methods can include engineering controls, work practices, and respiratory protection. Listed below are control methods to be used when Table 1 is not followed:

Respiratory Protection

Where respiratory protection is required by this program, Roemer Utility Services will provide each employee an appropriate respirator that complies with the requirements of the company's Respiratory Protection Program and the OSHA Respiratory Protection Standard (29 CFR 1910.134).

Respiratory protection is required where specified by the OSHA Construction Standard Table 1, for tasks not listed in Table 1, or where the company has not fully and properly implemented the engineering controls, work practices, and respiratory protection described in Table 1. Situations requiring respiratory protection include:

- Where exposures exceed the PEL during periods necessary to install or implement feasible engineering and work practice controls;
- Where exposures exceed the PEL during tasks, such as certain maintenance and repair tasks, for which engineering and work practice controls are not feasible; and
- During tasks for which an employer has implemented all feasible engineering and work practice controls and such controls are not sufficient to reduce exposures to or below the PEL.

Housekeeping

Roemer Utility Services does not allow dry sweeping or dry brushing where such activity could contribute to employee exposure to Respirable Crystalline Silica unless wet sweeping, HEPA-filtered vacuuming, or other methods that minimize the likelihood of exposure are not feasible.

Roemer Utility Services does not allow compressed air to be used to clean clothing or surfaces where such activity could contribute to employee exposure to Respirable Crystalline Silica unless:

- The compressed air is used in conjunction with a ventilation system that effectively captures the dust cloud created by the compressed air; or
- No alternative method is feasible.

Written Exposure Control Plan

When employee exposure on a construction project is expected to be at or above the Action Level, a Written Exposure Control Plan (ECP) will be established and implemented. This ECP will contain at least the following elements:

- A description of the tasks in the workplace that involve exposure to Respirable Crystalline Silica;
- A description of the engineering controls, work practices, and respiratory protection used to limit employee exposure to Respirable Crystalline Silica for each task;
- A description of the housekeeping measures used to limit employee exposure to Respirable Crystalline Silica; and
- A description of the procedures used to restrict access to work areas, when necessary, to minimize the number of employees exposed to Respirable Crystalline Silica and their level of exposure, including exposures generated by other employers or sole proprietors.

The written ECP will designate a Competent Person to make frequent and regular inspections of job sites, materials, and equipment to ensure the ECP is implemented.

The written ECP will be reviewed at least annually to evaluate the effectiveness of it and update it as necessary. Having said this, ECP's are project specific and most project durations do not exceed a year. The written ECP will be readily available for examination and copying, upon request, to each employee covered by this program and/or ECP, their designated representatives, and OSHA.

Medical Surveillance

Medical surveillance will be made available for each employee who will be required to use a respirator for 30 or more days per year due to their Respirable Crystalline Silica exposure. Medical surveillance (i.e. medical examinations and procedures) will be performed by a PLHCP and provided at no cost to the employee at a reasonable time and place.

Roemer Utility Services will make available an initial (baseline) medical examination within 30 days after initial assignment, unless the employee has received a medical examination that meets the requirements of the OSHA Respirable Crystalline Silica Construction Standard within the last three years. The examination shall consist of:

- A medical and work history, with emphasis on past, present, and anticipated exposure to Respirable Crystalline Silica, dust, and other agents affecting the respiratory system in addition to any history of respiratory system dysfunction, including signs and symptoms of respiratory disease (e.g., shortness of breath, cough, wheezing), history of tuberculosis, and smoking status and history;

- A physical examination with special emphasis on the respiratory system;

- A chest X-ray (a single postero-anterior radiographic projection or radiograph of the chest at full inspiration recorded on either film [no less than 14 x 17 inches and no more than 16 x 17 inches] or digital radiography systems) interpreted and classified according to the International Labor Office (ILO) International Classification of Radiographs of Pneumoconiosis by a NIOSH-certified B Reader;

- A pulmonary function test to include forced vital capacity (FVC) and forced expiratory volume in one second (FEV1) and FEV1/FVC ratio, administered by a spirometry technician with a current certificate from a NIOSH-approved spirometry course;

- Testing for latent tuberculosis infection; and

- Any other tests deemed appropriate by the PLHCP.

Roemer Utility Services will make available medical examinations that include the aforementioned procedures (except testing for latent tuberculosis infection) at least every three years. If recommended by the PLHCP, periodic examinations can be more frequently than every three years.

Roemer Utility Services will ensure that the examining PLHCP has a copy of the OSHA Respirable Crystalline Silica Construction Standard, this program, and the following information:

- A description of the employee's former, current, and anticipated duties as they relate to the employee's occupational exposure to Respirable Crystalline Silica;

- The employee's former, current, and anticipated levels of occupational exposure to Respirable Crystalline Silica;

- A description of any personal protective equipment (PPE) used or to be used by the employee, including when and for how long the employee has used or will use that equipment; and

- Information from records of employment-related medical examinations previously provided to the employee and currently within the control of Roemer Utility Services.

Roemer Utility Services will ensure that the PLHCP explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of each medical examination performed. The written report shall contain:

- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment;
- Any recommended limitations on the employee's use of respirators;
- Any recommended limitations on the employee's exposure to Respirable Crystalline Silica; and;
- A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

Roemer Utility Services will also obtain a written medical opinion from the PLHCP within 30 days of the medical examination. The written opinion shall contain only the following in order to protect the employee's privacy:

- The date of the examination;
- A statement that the examination has met the requirements of the OSHA Respirable Crystalline Silica Construction Standard; and
- Any recommended limitations on the employee's use of respirators.

If the employee provides written authorization, the written opinion shall also contain either or both of the following:

- Any recommended limitations on the employee's exposure to Respirable Crystalline Silica; and/or
- A statement that the employee should be examined by a Specialist if the chest X-ray is classified as 1/0 or higher by the B Reader, or if referral to a Specialist is otherwise deemed appropriate by the PLHCP.

If the PLHCP's written medical opinion indicates that an employee should be examined by a Specialist, Roemer Utility Services will make available a medical examination by a Specialist within 30 days after receiving the PLHCP's written opinion. Roemer Utility Services will ensure that the examining Specialist is provided with all of the information that the employer is obligated to provide to the PLHCP.

Roemer Utility Services will ensure that the Specialist explains to the employee the results of the medical examination and provides each employee with a written medical report within 30 days of the examination. The written report will contain:

- A statement indicating the results of the medical examination, including any medical condition(s) that would place the employee at increased risk of material impairment to health from exposure to Respirable Crystalline Silica and any medical conditions that require further evaluation or treatment;
- Any recommended limitations on the employee's use of respirators; and
- Any recommended limitations on the employee's exposure to respirable crystalline Silica.

In addition, Roemer Utility Services will obtain a written opinion from the Specialist within 30 days of the medical examination. The written opinion shall contain the following:

- The date of the examination;
- Any recommended limitations on the employee's use of respirators; and
- If the employee provides written authorization, the written opinion shall also contain any recommended limitations on the employee's exposure to Respirable Crystalline Silica.

Hazard Communication

Roemer Utility Services will include Respirable Crystalline Silica in the company's Hazard Communication Program established to comply with the OSHA Hazard Communication Standard (29 CFR 1910.1200).

Roemer Utility Services will ensure that each employee has access to labels on containers of Crystalline Silica and those containers respective Safety Data Sheets (SDS's).

All employees will be trained in accordance with the provisions of the OSHA Hazard Communication Standard and the Training Section of this program. This training will cover concerns relating to cancer, lung effects, immune system effects, and kidney effects.

Roemer Utility Services will ensure that each employee with the potential to be exposed at or above the Action Level for Respirable Crystalline Silica can demonstrate knowledge and understanding of at least the following:

- The health hazards associated with exposure to Respirable Crystalline Silica;
- Specific tasks in the workplace that could result in exposure to Respirable Crystalline Silica;
- Specific measures Roemer Utility Services has implemented to protect employees from exposure to Respirable Crystalline Silica, including engineering controls, work practices, and respirators to be used;
- The contents of the OSHA Respirable Crystalline Silica Construction Standard;
- The identity of the Competent Person designated by Roemer Utility Services; and
- The purpose and a description of the company's Medical Surveillance Program.

Roemer Utility Services will make a copy of the OSHA Respirable Crystalline Silica Construction Standard readily available without cost to any employee who requests it.

Recordkeeping

Roemer Utility Services will make and maintain an accurate record of all exposure measurements taken to assess employee exposure to Respirable Crystalline Silica. This record will include at least the following information:

- The date of measurement for each sample taken;
- The task monitored;
- Sampling and analytical methods used;
- Number, duration, and results of samples taken;
- Identity of the laboratory that performed the analysis;
- Type of personal protective equipment (PPE), such as respirators, worn by the employees monitored; and
- Name, social security number, and job classification of all employees represented by the monitoring, indicating which employees were actually monitored.

Roemer Utility Services will ensure that exposure records are maintained and made available in accordance with 29 CFR 1910.1020. Exposure records will be kept for at least 30 years.

The employer shall make and maintain an accurate record of all objective data relied upon to comply with the requirements of the OSHA Respirable Crystalline Silica Construction Standard. This record shall include at least the following information:

- The Crystalline Silica-containing material in question;
- The source of the objective data;
- The testing protocol and results of testing;
- A description of the process, task, or activity on which the objective data were based; and
- Other data relevant to the process, task, activity, material, or exposures on which the objective data were based.

Roemer Utility Services will ensure that objective data are maintained and made available in accordance with 29 CFR 1910.1020. Objective data records will be kept for at least 30 years.

Roemer Utility Services will make and maintain an accurate record for each employee enrolled in the Medical Surveillance portion of this program. The record shall include the following information about the employee:

- Name and social security number;
- A copy of the PLHCPs' and/or Specialists' written medical opinions; and
- A copy of the information provided to the PLHCPs and Specialists.

Roemer Utility Services will ensure that medical records are maintained and made available in accordance with 29 CFR 1910.1020. Medical records will be kept under lock and key for at least the duration of employment plus 30 years. It is necessary to keep these records for extended periods because Silica-related diseases such as cancer often cannot be detected until several decades after exposure. However, if an employee works for an employer for less than one year, the employer does not have to keep the medical records after employment ends, as long as the employer gives those records to the employee.

PROGRAM EVALUATION

This program will be reviewed and evaluated on an annual basis by the Brad Revett unless changes to operations, the OSHA Respirable Crystalline Silica Construction Standard (29 CFR 1926.1153), or another applicable OSHA Standard require an immediate re-validation of this program.

APPLICABLE FORMS

Person Completing the Plan, Title: _____

Competent Person: _____
Date/Job site/location: _____
Description of Task: _____
_____

(Routine task, new task, Indoors/outdoors, task found on Table 1?)

☐ **Part 590, 1910.1053 General Industry (References Table 1)**

– review necessary? **Y** or **N**

☐ **Part 690, 1926.1153 Construction (Includes Table 1)**

- review necessary? **Y** or **N**

Engineering Controls: _____
_____

Any deviation from Table 1 = air monitoring is required. Engineering controls must be used at all times!

(Wet methods, continuous water feed, local exhaust ventilation w/ HEPA filters, commercially available shrouds, commercial dust collection system, cyclone pre-separator/filter cleaning system, surfactant used, and ventilation ≥ 25 cfm/inch of wheel diameter, enclosed cab w/ fresh climate controlled air to operator, employees outside of cabs applying water/dust suppressants, equipment maintained to minimize dust emissions.)

Work Practices: _____
_____

(Maintain equipment functionality – cleaned/spare filters, hoses to start; good connections; hoses with no holes, kinks, permanent bends, crushed; power source available; water source available, ensure ventilation is ≥ 25 cfm/inch of wheel diameter; water/exhaust ventilation lines safe from damage; shrouds/cowls fit correctly and not damaged; follow Manufacturer's instruction for filter cleaning/change out.)

Respiratory protection: _____
(e.g. Use respirator with APF = 10 the entire time the task is being performed – See Table 1)

See Part 451 – Respiratory Protection rule (1910.134) for information on selection, training and fit testing requirements, and proper use instruction for respirators (i.e., no facial hair interfering with the respirator sealing surface).

Housekeeping: _____
_____

(Dust containing silica on work surfaces/equipment must be cleaned up using wet methods or HEPA equipped vacuum**, No use of compressed air or dry sweeping** for removing dust and debris containing silica, dispose of used vacuum bags in a closed sealed container).
Procedures Used to Restrict Access to Work Area (Construction = required, GI = optional)**:**
_____
_____

(Signage, barricades, enclosures, spotters, work when area is cleared of other contractors to reduce risk of exposure.)
Objective data use (Optional) – **Yes** or **NO**

Data Source: _____
_____

Data conditions from the source exactly matches the work conditions? **Yes** or **No**
(Same conditions, equipment, process, controls, material silica %, environmental.)

Review this plan with all involved employees.
Keep a copy of this plan at the jobsite.
Provide this plan of action to the General Contractor.
Review and update annually.

Additional Notes:

Return-To-Work

Note:

This document is not designed as a substitute for reasonable accommodation under any applicable federal or state laws, such as Americans with Disabilities Act, The Rehabilitation Act of 1973, or other applicable laws.
To preserve the ability to meet company needs under changing conditions, this company
reserves the right to revoke, change, or supplement guidelines at any time with written notice. The policies and procedures in this return-to-work program are not intended to be
contractual commitments and they shall not be construed as such by our employees. This
policy is not intended as a guarantee of continuity of benefits or rights. No permanent employment for any term is intended or can be implied by this policy.

Objectives

Romer Utility Services has developed a return-to-work policy. Its purpose is to return workers
to employment at the earliest date following any injury or illness. We desire to speed recovery from injury or illness and reduce insurance costs. This policy applies to all workers and will be followed whenever appropriate. Romer Utility Services defines “transitional” work as temporary modified work assignments within the worker’s physical abilities, knowledge, and skills. Where feasible, transitional positions will be made available to injured employees in order
to minimize or eliminate time loss. For any business reason, at any time, we may elect to change the working shift of any employee based on the business needs of this company.
The physical requirements of transitional/temporary work will be provided to the attending
physician. Transitional/temporary positions are then developed with consideration of the worker’s physical abilities, the business needs of Romer Utility Services, and the availability of
transitional work.

In case of an on-the-job accident

If you have a work-related injury and are missing time from work, contact our Human Resources or Personnel Department or SAIF Corporation for details regarding time loss.

Transitional temporary work assignment

Romer Utility Services will determine appropriate work hours, shifts, duration, and locations of
all work assignments. Romer Utility Services reserves the right to determine the availability,
appropriateness, and continuation of all transitional assignments and job offers.

Communication
It is the responsibility of the worker and/or supervisor to immediately notify Personnel of any changes concerning a transitional/temporary work assignment. Personnel will then communicate with the insurance carrier and attending physician as applicable.

Employee responsibilities

Accident reporting
 An accident is any unplanned event that disrupts normal work activities and may or may not result in injury or property damage. All work-related accidents, injuries, and near misses must be reported immediately to Personnel.
 If an accident occurs, but **does not** require professional medical treatment, the supervisor should immediately be informed so that an accident analysis can be completed. If first-aid treatment is needed, it should be sought on-site.
 If an accident occurs which **requires professional medical treatment**, the worker should follow the emergency response plan. The worker must fill out a workers' compensation **801** form as soon as possible.

Worker's physical condition
 If professional medical treatment is sought, the worker should inform the attending physician that Romer Utility Services has a return-to-work program with light duty/modified
assignments available.
 The worker should obtain a **Release to Return-to-Work** form and completed **Job Description** form (if available) from Personnel. This should be provided to the treating physician and should be returned to Personnel following the initial medical treatment.

Worker able to return to work (employees are informed of the company's Safe Return to Work (Modified Duty) program.)
 If the attending physician releases the worker to return to work, as evidenced by completion of a **Release to Return-to-Work** form and **Job Description Form**, the form(s) must be returned to Personnel within 24 hours for assignment of light duty/modified work. The worker must report for work at the designated time.
 The **worker cannot return to work without a release** from the attending physician.
 If the worker returns to a transitional/temporary job, the worker must make sure that he or she does not go beyond either the duties of the job or the physician's restrictions. If the worker's restrictions change at any time, he or she must notify his or her supervisor at once and give the supervisor a copy of the new medical release.

Worker unable to return to work

 If the worker is unable to report for any kind of work, the worker must call in at least weekly to report medical status.
 While off work, it is the responsibility of the worker to supply Personnel with a current telephone number (listed or unlisted) and an address where the worker can be reached.
 The worker will notify Personnel within 24 hours of all changes in medical condition.

Employer responsibilities

Accident reporting

 The supervisor will conduct an accident analysis on all accidents, regardless of whether an injury occurs.
 When an accident occurs which results in injury requiring **professional medical treatment,** Personnel will forward a completed workers' compensation **801** form to the insurance carrier within five (5) calendar days of knowledge of the injury or illness.
 Other information will be forwarded as soon as developed, including:

o Name of worker's attending physician
o Completed **Release to Return-to-Work Form** from attending physician and medical documentation, if appropriate
o Completed transitional/modified or regular **Job Description**
o **Job Offer** letter and responses

 The supervisor will notify the insurance carrier of any changes in the worker's medical or work status as soon as possible.

Medical treatment and temporary/transitional duty physical condition

 A **Release to Return-to-Work** form and a completed **Job Description** form (if available) will be provided to the worker to take to the attending physician for completion and/or approval.
 At the time of first medical treatment the **Release to Return-to-Work** form must be completed and returned to Personnel. If one is not, Personnel will request one from the attending physician.
 The completed **Release to Return-to-Work** form will be reviewed by Personnel. A temporary/transitional **Job Description** form will be prepared from information obtained from the attending physician for review and approval.

- All Medical records for injured employee must be kept confidential
- All documentation related to the incident will be maintained by the employer

Job Offer letter

 Upon receipt of a signed temporary/transitional **Job Description** form from the attending physician, a written **Job Offer** letter will be prepared by the employer. It will be mailed by both regular and certified mail to the worker's last known address or presented to the worker.
 The letter will note the doctor's approval and will explain the job duties, report date, wage, hours, report time duration of transitional work assignment, phone number, and location of the transitional assignment.
 The worker will be asked to sign the bottom of the **Job Offer** letter indicating acceptance or refusal of the offered work assignment.
 Copies of the **Job Description, Work Releases**, and **Job Offer** letters will be forwarded to the insurance carrier.

Supervisor

 The supervisor will monitor the worker's performance to ensure the worker does not exceed the worker's physician release.
 The supervisor will monitor the worker's recovery progress through regular contact to assess when and how often duties may be changed. The supervisor will assess the company's ability to adjust work assignments upon receipt of changes in physical capacities.

Worker acknowledgment

 The return-to-work policy and procedures have been explained to me.
 I have read and fully understand all procedures and responsibilities.
 I agree to observe and follow these procedures.
 I have received a copy of this policy and procedure.
 I understand failure to follow these procedures may affect my re-employment, reinstatement, and vocational assistance rights.

_____

Worker signature Date

Scaffolding Safety Procedures for Construction

Purpose

It is this company's purpose in issuing these procedures to further ensure a safe workplace based on the following formal, written procedures for scaffold work. These procedures will be reviewed and updated as needed to comply with new OSHA regulations, new best practices in scaffolding, and as business practices demand. Safety Representative Safety Manager is the plan coordinator/manager and is responsible for its implementation. Copies of the written program may be obtained at the Safety Manager's office.

Application

This general scaffold plan applies to:

1. All employees who perform work while on a scaffold.
2. All employees who are involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting scaffolds.

General Procedures

The following general procedures apply to all scaffold and aerial lift operations for Romer Utility Services.

Capacity

Taking into account the OSHA rules we must apply and the engineering/manufacturing requirements of our scaffolds, the following rules apply.

1. Each scaffold and scaffold component we use will support, without failure, its own weight and at least four times the maximum intended load applied or transmitted to it.
2. When we use non-adjustable suspension scaffolds, each suspension rope, including connecting hardware, will support, without failure, at least six times the maximum intended load applied or transmitted to that rope.

3. 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.

4. 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.

5. 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.

6. The stall load of any scaffold hoist shall not exceed 3 times its rated load.

Scaffolds shall be designed by a qualified person and shall be constructed and loaded in accordance with that design.

Platform Construction

This section documents the procedures and safety requirements we use to construct our scaffold platforms.

The following safety rules apply for this 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, fabricated deck, 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 (2.5 cm) wide, except where the employer 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 the employer 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 1/2 inches (24.1 cm).

3. 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 scaffold erection or dismantling. In these situations, only the planking that the employer establishes is necessary to provide safe-working conditions is required.

4. 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 (46 cm) wide.

5. Each ladder jack scaffold, top plate bracket scaffold, roof bracket scaffold, and pump jack scaffold shall be at least 12 inches (30 cm) wide. There is no minimum width requirement for boatswains' chairs.

6. Where scaffolds must be used in areas that the employer can demonstrate are so narrow that platforms and walkways cannot be at least 18 inches (46 cm) 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.

7. 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 (36 cm) from the face of the work, unless guardrail systems 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.

8. The maximum distance from the face for outrigger scaffolds shall be 3 inches (8 cm).

9. The maximum distance from the face for plastering and lathing operations shall be 18 inches (46 cm).

10. Each end of a platform, unless cleated or otherwise restrained by hooks or equivalent means, shall extend over the centerline of its support at least 6 inches (15 cm).

11. Each end of a platform 10 feet or less in length shall not extend over its support more than 12 inches (30 cm) unless the platform is designed and installed so that the cantilevered 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.

12. Each platform greater than 10 feet in length shall not extend over its support more than 18 inches (46 cm), 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.

13. 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 preclude the use of common support members, such as "T" sections, to support abutting planks, or hook on platforms designed to rest on common supports.

14. On scaffolds where platforms are overlapped to create a long platform, the overlap shall occur only over supports, and shall not be less than 12 inches (30 cm) unless the platforms are nailed together or otherwise restrained to prevent movement.

15. At all points of a 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.

16. 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.

17. Scaffold components manufactured by different manufacturers shall not be intermixed unless the components fit together without force and the scaffold's 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.

18. Scaffold components made of dissimilar metals shall not be used together 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 (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.

1. 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 (6.1 m) or less thereafter for scaffolds 3 feet (0.91 m) wide or less, and every 26 feet (7.9 m) or less thereafter for scaffolds greater than 3 feet (0.91 m) 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 (9.1 m) (measured from one end [not both] towards the other).

1. 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 mudsills or other adequate firm foundation.

3. Footings shall be level, sound, rigid, and capable of supporting the loaded scaffold without settling or displacement.

4. Unstable objects shall not be used to support scaffolds or platform units.

5. Unstable objects shall not be used as working platforms.

6. 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.

7. Forklifts shall not be used to support scaffold platforms unless the entire platform is attached to the fork and the forklift is not moved horizontally while the platform is occupied.

8. Supported scaffold poles, legs, posts, frames, and uprights shall be plumb and braced to prevent swaying and displacement.

Suspension Scaffolds

1. All suspension scaffold support devices, such as outrigger beams, cornice hooks, parapet clamps, and similar devices, shall rest on surfaces capable of supporting at least 4 times the load imposed on them by the scaffold operating at the rated load of the hoist (or at least 1.5 times the load imposed on them by the scaffold at the stall capacity of the hoist, whichever is greater).

2. Suspension scaffold outrigger beams, when used, shall be made of structural metal or equivalent strength material, and shall be restrained to prevent movement.

3. The inboard ends of suspension scaffold outrigger beams shall be stabilized by bolts or other direct connections to the floor or roof deck, or they shall have their inboard ends stabilized by counterweights, except masons' multi-point adjustable suspension scaffold outrigger beams shall not be stabilized by counterweights.

4. Before the scaffold is used, direct connections shall be evaluated by a competent person who shall confirm, based on the evaluation, that the supporting surfaces are capable of supporting the loads to be imposed. In addition, masons' multi-point adjustable suspension scaffold connections shall be designed by an engineer experienced in such scaffold design.

5. Counterweights shall be made of non-flowable material. Sand, gravel and similar materials that can be easily dislocated shall not be used as counterweights.

6. Only those items specifically designed, as counterweights shall be used to counterweight scaffold systems. Construction materials such as, but not limited to, masonry units and rolls of roofing felt, shall not be used as counterweights.

7. Counterweights shall be secured by mechanical means to the outrigger beams to prevent accidental displacement.

8. Counterweights shall not be removed from an outrigger beam until the scaffold is disassembled.

9. Outrigger beams which are not stabilized by bolts or other direct connections to the floor or roof deck shall be secured by tiebacks.

10. Tiebacks shall be equivalent in strength to the suspension ropes.

11. Outrigger beams shall be placed perpendicular to its bearing support (usually the face of the building or structure). However, where the employer can demonstrate that it is not possible to place an outrigger beam perpendicular to the face of the building or structure because of obstructions that cannot be moved, the outrigger beam may be placed at some other angle, provided opposing angle tiebacks are used.

12. Tiebacks shall be secured to a structurally sound anchorage on the building or structure. Sound anchorages include structural members, but do not include standpipes, vents, other piping systems, or electrical conduit.

13. Tiebacks shall be installed perpendicular to the face of the building or structure, or opposing angle tiebacks shall be installed. Single tiebacks installed at an angle are prohibited.

14. Suspension scaffold outrigger beams shall be:

    1. Provided with stop bolts or shackles at both ends;

    1. Securely fastened together with the flanges turned out when channel iron beams are used in place of I-beams;

    1. Installed with all bearing supports perpendicular to the beam center line;

    1. Set and maintained with the web in a vertical position; and

    1. When an outrigger beam is used, the shackle or clevis with which the rope is attached to the outrigger beam shall be placed directly over the centerline of the stirrup.

15. Suspension scaffold support devices such as cornice hooks, roof hooks, roof irons, parapet clamps, or similar devices shall be:

    1. Made of steel, wrought iron, or materials of equivalent strength;

    2. Supported by bearing blocks; and

    3. Secured against movement by tiebacks installed at right angles to the face of the building or structure, or opposing angle tiebacks shall be installed and secured to a structurally sound point of anchorage on the building or structure. Sound points of anchorage include structural members, but do not include standpipes, vents, other piping systems, or electrical conduit.

    4. Tiebacks shall be equivalent in strength to the hoisting rope.

16. When winding drum hoists are used on a suspension scaffold, they shall contain not less than four wraps of the suspension rope at the lowest point of scaffold travel. When other types of hoists are used, the suspension ropes shall be long enough to allow the scaffold to be lowered to the level below without the rope end passing through the hoist, or the rope end shall be configured or provided with means to prevent the end from passing through the hoist.

17. The use of repaired wire rope as suspension rope is prohibited.

18. Wire suspension ropes shall not be joined together except through the use of eye splice thimbles connected with shackles or cover plates and bolts.

19. The load end of wire suspension ropes shall be equipped with proper size thimbles and secured by eye splicing or equivalent means.

20. Ropes shall be inspected for defects by a competent person prior to each work shift and after every occurrence, which could affect a rope's integrity. Ropes shall be replaced if any of the following conditions exist:

    1. Any physical damage, which impairs the function and strength of the rope.

    1. Kinks that might impair the tracking or wrapping of rope around the drum(s) or sheave(s).

    1. Six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay.

    1. Abrasion, corrosion, scrubbing, flattening or peening causing loss of more than one-third of the original diameter of the outside wires.

    1. Heat damage caused by a torch or any damage caused by contact with electrical wires.

    1. Evidence that the secondary brake has been activated during an over speed condition and has engaged the suspension rope.

21. Swaged attachments or spliced eyes on wire suspension ropes shall not be used unless they are made by the wire rope manufacturer or a qualified person.

22. When wire rope clips are used on suspension scaffolds:

    1. There shall be a minimum of 3 wire rope clips installed, with the clips a minimum of 6 rope diameters apart;

    2. Clips shall be installed according to the manufacturer's recommendations;

    3. Clips shall be retightened to the manufacturer's recommendations after the initial loading;

    4. Clips shall be inspected and retightened to the manufacturer's recommendations at the start of each work shift thereafter;

5. U-bolt clips shall not be used at the point of suspension for any scaffold hoist;

6. When U-bolt clips are used, the U-bolt shall be placed over the dead end of the rope, and the saddle shall be placed over the live end of the rope.

23. Suspension scaffold power-operated hoists and manual hoists shall be tested by a qualified testing laboratory.

24. Gasoline-powered equipment and hoists shall not be used on suspension scaffolds.

25. Gears and brakes of power-operated hoists used on suspension scaffolds shall be enclosed.

26. In addition to the normal operating brake, suspension scaffold power-operated hoists and manually operated hoists shall have a braking device or locking pawl which engages automatically when a hoist makes either of the following uncontrolled movements: an instantaneous change in momentum or an accelerated over speed.

27. Manually operated hoists shall require a positive crank force to descend.

28. Two-point and multi-point suspension scaffolds shall be tied or otherwise secured to prevent them from swaying, as determined to be necessary based on an evaluation by a competent person. Window cleaners' anchors shall not be used for this purpose.

29. Devices whose sole function is to provide emergency escape and rescue shall not be used as working platforms. This provision does not preclude the use of systems, which are designed to function, both as suspension scaffolds and emergency systems.

Gaining Access to Scaffolds

We know that getting to the working platform is critical to the safety of our employees. This section outlines the mechanical requirements for gaining access to scaffold platforms such as: (1) ladders, (2) ramps and walkways, (3) stair rails, and (4) direct access from another scaffold. This section is divided into two parts. The first part is for workers gaining access to scaffold platforms to do work; the second part is access for employees erecting and dismantling scaffolds.

Working Employees

1. When scaffold platforms are more than 2 feet (0.6 m) above or below a point of access, portable ladders, hook-on ladders, attachable ladders, stair towers (scaffold stairways/towers), stairway-type ladders (such as ladder stands), ramps, walkways, integral prefabricated scaffold access, or direct access from another scaffold, structure, personnel hoist, or similar surface shall be used. Cross braces shall not be used as a means of access.

2. Portable, hook-on, and attachable ladders (Additional requirements for the proper construction and use of portable ladders are contained in subpart X of this part -- Stairways and Ladders):

    1. Portable, hook-on, and attachable ladders shall be positioned so as not to tip the scaffold;

    1. Hook-on and attachable ladders shall be positioned so that their bottom rung is not more than 24 inches (61 cm) above the scaffold supporting level;

    1. When hook-on and attachable ladders are used on a supported scaffold more than 35 feet (10.7 m) high, they shall have rest platforms at 35-foot (10.7 m) maximum vertical intervals.

    1. Hook-on and attachable ladders shall be specifically designed for use with the type of scaffold used;

    1. Hook-on and attachable ladders shall have a minimum rung length of 11 1/2 inches (29 cm); and

    1. Hook-on and attachable ladders shall have uniformly spaced rungs with a maximum spacing between rungs of 16 3/4 inches.

3. Stairway-type ladders shall:

    1. Be positioned such that their bottom step is not more than 24 inches (61 cm) above the scaffold supporting level;

    2. Be provided with rest platforms at 12 foot (3.7 m) maximum vertical intervals;

    3. Have a minimum step width of 16 inches (41 cm), except that mobile scaffold stairway-type ladders shall have a minimum step width of 11 1/2 inches (30 cm); and

4. Have slip-resistant treads on all steps and landings.

4. Stair towers (scaffold stairway/towers) shall be positioned such that their bottom step is not more than 24 inches (61 cm.) above the scaffold supporting level.

    1. A stair rail consisting of a top rail and a midrail shall be provided on each side of each scaffold stairway.

    1. The top rail of each stair rail system shall also be capable of serving as a handrail, unless a separate handrail is provided.

    1. Handrails, and top rails that serve as handrails, shall provide an adequate handhold for employees grasping them to avoid falling.

    1. Stair rail systems and handrails shall be surfaced to prevent injury to employees from punctures or lacerations, and to prevent snagging of clothing.

    1. The ends of stair rail systems and handrails shall be constructed so that they do not constitute a projection hazard.

    1. Handrails, and top rails that are used as handrails, shall be at least 3 inches (7.6 cm) from other objects.

    1. Stair rails shall be not less than 28 inches (71 cm) nor more than 37 inches (94 cm) from the upper surface of the stair rail to the surface of the tread, in line with the face of the riser at the forward edge of the tread.

    1. A landing platform at least 18 inches (45.7 cm) wide by at least 18 inches (45.7 cm) long shall be provided at each level.

    1. Each scaffold stairway shall be at least 18 inches (45.7 cm) wide between stair rails.

    1. Treads and landings shall have slip-resistant surfaces.

    1. Stairways shall be installed between 40 degrees and 60 degrees from the horizontal.

    1. Guardrails meeting the requirements of paragraph (g)(4) of this section shall be provided on the open sides and ends of each landing.

1. Riser height shall be uniform, within 1/4 inch, (0.6 cm) for each flight of stairs. Greater variations in riser height are allowed for the top and bottom steps of the entire system, not for each flight of stairs.

1. Tread depth shall be uniform, within 1/4 inch, for each flight of stairs.

5. Ramps and walkways.

    1. Ramps and walkways 6 feet (1.8 m) or more above lower levels shall have guardrail systems which comply with subpart M of this part -- Fall Protection;

    2. No ramp or walkway shall be inclined more than a slope of one (1) vertical to three (3) horizontal (20 degrees above the horizontal).

    3. If the slope of a ramp or a walkway is steeper than one (1) vertical in eight (8) horizontal, the ramp or walkway shall have cleats not more than fourteen (14) inches (35 cm) apart which are securely fastened to the planks to provide footing.

6. Integral prefabricated scaffold access frames shall:

    1. Be specifically designed and constructed for use as ladder rungs;

    1. Have a rung length of at least 8 inches (20 cm);

    1. Not be used as work platforms when rungs are less than 11 1/2 inches in length, unless each affected employee uses fall protection, or a positioning device, which complies with 1926.502;

    1. Be uniformly spaced within each frame section;

    1. Be provided with rest platforms at 35-foot (10.7 m) maximum vertical intervals on all supported scaffolds more than 35 feet (10.7 m) high; and

    1. Have a maximum spacing between rungs of 16 3/4 inches (43 cm). Non-uniform rung spacing caused by joining end frames together is allowed, provided the resulting spacing does not exceed 16 3/4 inches (43 cm).

7. Steps and rungs of ladder and stairway type access shall line up vertically with each other between rest platforms.

8. Direct access to or from another surface shall be used only when the scaffold is not more than 14 inches (36 cm) horizontally and not more than 24 inches (61 cm) vertically from the other surface.

Erecting and Dismantling

Our company shall provide safe means of access for each employee erecting or dismantling a scaffold where the provision of safe access is feasible and does not create a greater hazard. We shall have a competent person determine whether it is feasible or would pose a greater hazard to provide, and have employees use a safe means of access. This determination shall be based on site conditions and the type of scaffold being erected or dismantled.

1. Hook-on or attachable ladders shall be installed as soon as scaffold erection has progressed to a point that permits safe installation and use.

2. When erecting or dismantling tubular welded frame scaffolds, (end) frames, with horizontal members that are parallel, level and are not more than 22 inches apart vertically may be used as climbing devices for access, provided they are erected in a manner that creates a usable ladder and provides good hand hold and foot space.

3. Cross-braces on tubular welded frame scaffolds shall not be used as a means of access or egress.

Short Service Employee Policy

The objective of the ROMER UTILITY SERVICES SSE Policy is to prevent personal injuries due to new employees not being identified, supervised, or mentored. ROMER UTILITY SERVICES uses a few key practices to ensure crew makeup ensures for a safe working environment for our Short Service Employees. A "Short Service Employee" if he/she has less than 6 months experience with his/her present employer, or in his/her present role.

Crew Makeup

- A single person crew cannot be made up solely of a Short Service Employee.
- Crew Sizes of less than 6 employees will not have more than two SSE.
- Crews that have more than 20 percent SSE personnel will only be permitted with written variance from the safety department and Site Superintendent.

SSE Notification

- The SSE crew make up must be outlined to the Safety Department as well as to the Operator before right of way mobilization.
- Crew Foreman will submit the appropriate SSE forms for approval prior to assigning an SSE his/her job duty.

Identification

- SSE personnel will be identifiable by the Green SSE Sticker that will be affixed on their hard hat.

SSE Monitoring

- Foreman will be responsible for monitoring their crews that are made up of SSE personnel. This additional oversight will continue for 6 months. If the SSE has shown no signs of violations of either Health or Environmental policies, he/she can be removed from the SSE program by the Site safety and Company Representing Superintendent. A copy of such a change will be forward to the Operator that ROMER UTILITY SERVICES is working for.

SSE Mentoring

- All SSE personnel will be accompanied by a minimum of one employee not part of the SSE program. The Mentor must be on site at all times if the SSE personnel are working and have a full understanding of the job he is mentoring.
- The mentor will be responsible for providing proper guidance and aid in the development of the SSE personnel.
- Each mentor will only be responsible for one SSE.
- Exhibit the ability to recognize hazards and have the ability to make the situation safe again.
- Report any personnel that are not complying with company policy.

High Hazard Areas

- In certain situations, SSE personnel will not be allowed to operate due to the highly hazardous aspects of the job. These areas may include but are not limited to (hydro-testing, hot cuts, confined space work as well as critical lifts).

Responsibilities

- **Safety Department/Management**
  Communicate the SSE policy to and company expectations at the pre-job meeting.

- **Foreman**
  Validates Crew Makeup and Experience level
  Submit the proposed crew make up and SSE forms to the Site Safety and Onsite Superintendent.

- **Site Safety Officer**
  Approves SSE forms and variances.
  Pays close attention to crews made up of SSE personnel.
  Removes SSE personnel from the field and retrains if necessary.

- **Site Superintendent**
  Approves SSE forms.

  Subcontractors Must manage their Short Service Employees in accordance with the requirements of the Short Service Employee program

SHORT SERVICE EMPLOYEE FORM

Crew Foreman must complete and submit form to site safety manager for approval prior to allowing SSE personnel to work on the right of way. Copies of this form are to be kept onsite as well as forwarded to the main office.

Crew Name :	Request Date:
SSE Name:	
Date of Employment:	Current Job possition:
Years in Related Experience:	
Name of SSE Mentor:	
Mentors years of Experience:	
SSE Identification Sticker Assigned:	
Approved by:	Safety Department
Approved by:	Superintendent

SSE Review and Approval:

Supervisor:	
Employee Removal from SSE Program:	**Date:**
Justification for early removal from SSE Program:	

Spill Prevention/Response

The following guidelines are to be followed by all Romer Utility Services Employees any sub-contractors that may be working on a location under the control of Romer Utility Services. Any questions regarding this policy should be directed to Safety Representative or the main office.

All spills are to be reported immediately to a supervisor regardless of size, source or quantity. It is important to recognize that spilled materials may be dangerous and should only be handled by personnel with the proper training. Once a spill is noticed the spill will be communicated to Safety Representative so it can be characterized and the proper clean up measures can be made. If outside sources are required to aid in the cleanup Safety Representative will make those calls, any further notification required as a result of a spill will be made by Safety Representative as well.

Chemical substances should be stored in proper containers to minimize the potential for a spill. Whenever possible, chemicals should be kept in closed containers and stored so they are not exposed to storm water all material being stored must be stored in a manor to minimize the chance of a spill. Observation of this rule will be monitored by the company conduction a monthly inspection of the chemical storage areas. Areas found out of compliance with this section will corrected at the time they are identified.

A proper spill kit must contain the appropriate supplies for materials that may be spilled. Supplies must be easily accessible when required, and considerations must be made for both the type and quantity of materials. Some supplies that may be in the spill kit are absorbent pads, rubber gloves, disinfectant, plastic bags for proper disposal, and safety goggles. These kits shall be kept at each facility, and contents shall be replenished as used.

Employees will be instructed on the proper response procedures for spilled materials. Training will include materials available for use, proper waste disposal, and communication procedures. Areas where chemicals may be used or stored must be maintained using good housekeeping best management practices. This includes, but is not limited to, clean and organized storage, labeling, and secondary containment where necessary. This training is part of the annual training that is provided to all employees of Romer Utility Services.

Subcontractor Management Program

Romer Utility Services

The Romer Utility Services of this program is to ensure that Romer Utility Services continues to improve subcontractor health, safety and environmental performance and to establish a standard for pre-qualification, evaluation/selection and development of our subcontractors.

Scope

This program applies to all subcontractors and all Romer Utility Services locations.

General Requirements

All Romer Utility Services subcontractors are to be managed in accordance with this program.

The use of subcontractors must be pre-approved by Romer Utility Services Approval requirements include:

- A formal safety review of the subcontractor being performed by Romer Utility Services safety department.
- The scope of the review was commensurate with the hazards and risk exposure.
- Subcontractor has been/will be oriented to the safety policies, expectations and requirements of Romer Utility Services
- The subcontractor agrees to abide by our Drug and Alcohol policy and onsite safety rules throughout the duration of the work.

Any subcontractor that has a “Non-Approved” safety status will not be used on any Romer Utility Services site.

Procedure

Pre-Qualification of Subcontractors

Subcontractors will be pre-qualified by reviewing their safety programs, safety training documents and safety statistics.

How Acceptable Safety Metrics will be Used as a Criteria for Selecting Subcontractors

Acceptable safety metrics will be used as criteria for prequalifying and selecting subcontractors in the following manner. The safety metrics and scoring will consider:

- Romer Utility Services Subcontractor Safety Pre-Qualification Form responses and subcontractor safety program documents review 60% (Rated from 0-60 total points)
- Subcontractor safety training documents review 20% (Rated from 0-20 total points)
- Subcontractor safety statistics review 20% (Rated from 0-20 total points)

Evaluation Rating and Acceptance

The subcontractor rating system will have five designations:

- Equal to or Greater than 90 points = A – no restrictions.
- Between 85 and 89 points = B – Mitigation plan must be documented and approved by Romer Utility Services Safety.
- Between 81 and 84 points = C – Mitigation plan must be documented and approved by Romer Utility Services Safety; management approval in writing.
- Between 71 and 80 points = D – Mandatory commitment meeting with senior subcontractor management present; mitigation plan documented and approved by Romer Utility Services Safety; management approval in writing; trained subcontractor safety personnel on site during work regardless of number of workers.
- Less than 70 points = F – not to be used.

Once each subcontractor has been evaluated and scored, Romer Utility Services safety will provide management the scores/ranking.

Romer Utility Services reserves the right to change a subcontractor's status to "Non-Approved" if the subcontractor shows insufficient progress towards accepted mitigation plan or other agreed upon criteria.

Subcontractor Involvement

Contractors are required to follow or implement the work practices and systems described below while performing work at Romer Utility Services worksites:

- Attend a safety orientation, pre-job meeting or kick-off meeting provided by Romer Utility Services prior to any work beginning
- Monitor employees for substance abuse and report nonconformities to Romer Utility Services
- Ensure personnel have the required training and competency for their work

- Participate in Romer Utility Services tailgate safety meetings, job safety analysis or hazard assessments and on the job safety inspections.
- Perform a pre-job safety inspection that includes equipment
- Participate in the BBS hazard reporting system
- Report all injuries, spills, property damage incidents and near misses
- Comply with onsite and Owner Client safety rules
- Implement Romer Utility Services safety practices and processes as applicable
- Clean up and restore the worksite after the job is over
- Ensure compliance with regulations at all times
- Post job safety performance reviews shall be conducted for subcontractors.

SUBCONTRACTOR SAFETY PRE-QUALIFICATION FORM

GENERAL INFORMATION			
1. Subcontractor Information:			
Subcontractor Name:		Telephone Number:	
Street Address:		Fax Number:	
City:		Website Address:	
Province/State:		Postal Code/Zip:	
2. Officers			
President:			
Vice President:			
Treasurer:			
3. How many years has your organization been in business under your present firm's name?			
4. Parent Firm Name:			
City:	Province/State:	Postal Code/Zip:	
Subsidiaries:			
5. Under current management since (Date): (please enter date as mm/dd/yyyy)			
6. Contact for Insurance Information:			
Title:	Telephone:	Fax:	Email:

7. Insurance Carrier(s):		
Name	Type of Coverage	Telephone

8. Worker's Compensation Account Status (Please enclose a copy of your workers compensation insurance certificate.
Account Number: Industry Code:

9. Contact for requesting bids:			
Title:	Telephone:	Fax: .	Email:
10. Contractor Evaluation form completed by:			
Title:	Telephone:	Fax:	Email:

HEALTH, SAFETY AND ENVIRONMENTAL PERFORMANCE

Health, Safety and Environmental Performance

Provide the following data for your firm using your record keeping forms from the past three (3) years.
If the data is not available please reply with Not Available - N/A.

Safety Performance Definitions and Guidance

a. **Hours Worked** Employee hours worked last three years. Please report actual scheduled total hours worked and total overtime hours worked. If actual hours worked are not available for certain individuals' hours worked may be estimated. A default of 2000 hours per individual per year can be used as an estimate.

b. **Recordable Incidents** Recordable cases are those that involve any work-related injury or illness, including death but excluding first-aid injuries.

c. **Lost Workday Cases** A Lost Workday Case is a medical case that involves fatalities, days away from work cases or restricted work activity cases.

- **Days Away from Work Case** Where the employee is away from scheduled work day one day or more after the day of a work-related injury or illness. The day of the incident does not count as lost workday. Stop count when total days away and restricted duty days reach 180 or employee leaves the firm.
- **Restricted Work Activity Case** Where the employee as result of work-related injury or illness:
  - ◊ Assigned to another job on a temporary or permanent basis or
  - ◊ Worked at their permanent job but less than a full day
  - ◊ Could not perform routine functions associated with their permanent job

  The day of the incident is not counted as a Restricted Duty day. Stop count when total days away or restricted duty days reach 180 or if employee leaves the firm.

d. **Motor Vehicle Incident** A motor vehicle is any mechanically or electrically powered devices (excluding one moved by human power), upon which or by which any person or property may be transported upon a land roadway.

- **Motor Vehicle Incident** Includes any event involving a motor vehicle that is owned, leased or rented by the firm that results in death, injury or property damage unless the vehicle is properly parked.

Health and Safety Incidents	2016	2017	2018
a. Total Hours Worked			
b. Total Recordable Incidents # Fatalities # Medical Aids # Days Away from Work Cases # Restricted Work Activity Cases			
c. Total Recordable Incident Rate (TRIR) Total # Recordable Incidents x 200,000 Total # Hours worked			
d. Lost Workday Cases (LWC) # Fatalities # Days Away from Work Case # Restricted Work Activity Case			
e. Lost Workday Incident Rate (LWDR) Total # Lost Workday Incidents x 200,000 Total # Hours Worked			

HEALTH, SAFETY AND ENVIRONMENTAL PERFORMANCE			
Health and Safety Incidents - continued	**2016**	**2017**	**2018**
f. Motor Vehicle Incidents (MVI) # Motor Vehicles Incidents # Kilometers/Miles driven			
g. Motor Vehicle Incident Frequency Rate (MVIFR) Total # of Firm's Motor Vehicle Incidents x 1,000,000 Total # Kilometers/Miles driven			
Environmental Incidents	**2016**	**2017**	**2018**
Total # Spills to Water **a. Petroleum Spills** # spills Sheen (est. volume as 0.1 bbl. To < 1bbl. # spills 1 bbl. To < 100 bbls. # spills 100 bbls. or more **b. Chemical Spills** # spills 1 bbl./160 kg. to < 100 bbls./16,000 kg. # spills 100 bbls./16,000 or more			
Total # Spills to Land **a. Petroleum spills** # spills 1 bbl. To < 100 bbls. # spills 100 bbls. or more **b. Chemical Spills** # spills 1 bbl./160 kg. to < 50 bbls./8,000 kg # spills 50 bbls./8,000 kg. or more			
Enforcement Actions	**2016**	**2017**	**2018**
Citations # Health and Safety # Environmental Please provide details			
Fines Total # Fines Total $$ Paid Please provide details			

HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT		
Highest ranking HSE professional in the firm: Name/Title: Email:		Telephone Numbers
Do you have a written Basic Safety / HSE Program?	Yes ☐	No ☐
Does your Basic Safety/HSE Program include the following?		
a. HSE Policy statement signed by management	Yes ☐	No ☐
b. Management Involvement and Commitment	Yes ☐	No ☐
c. Hazard Identification and Risk Control	Yes ☐	No ☐
d. Rules and Work Procedures	Yes ☐	No ☐
e. Training	Yes ☐	No ☐
f. Communications	Yes ☐	No ☐
g. Incident and Accident Reporting and Investigation	Yes ☐	No ☐
Does the program include work practices and procedures such as?		
a. Permit to Work including Isolation of Energy	Yes ☐	No ☐
b. Confined Space Entry	Yes ☐	No ☐
c. Injury and Illness Recording	Yes ☐	No ☐
d. Fall Protection	Yes ☐	No ☐
e. Personal Protective Equipment	Yes ☐	No ☐
f. Portable Electrical/Power Tools	Yes ☐	No ☐
g. Motor Vehicle/Driving Safety	Yes ☐	No ☐
h. Compressed Gas Cylinders	Yes ☐	No ☐
i. Electrical Equipment Grounding Assurance	Yes ☐	No ☐
j. Powered Industrial Vehicles (Cranes, Forklifts, Etc.)	Yes ☐	No ☐
k. Housekeeping	Yes ☐	No ☐
l. Accident/Incident Reporting and Investigations	Yes ☐	No ☐
m. Unsafe Condition Reporting	Yes ☐	No ☐
n. Emergency Preparedness, Including Evacuation Plan	Yes ☐	No ☐
o. Waste Disposal and Pollution Prevention	Yes ☐	No ☐
p. Regular Workplace Inspection / Audits	Yes ☐	No ☐
Do you have a Drug and Alcohol program?		
a. Pre-employment Testing	Yes ☐	No ☐
b. Reasonable Cause Testing	Yes ☐	No ☐
c. Post-rehabilitation/Return to Work Testing	Yes ☐	No ☐
	Yes ☐	No ☐

HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT				
Do you have a Job Safety Analysis (JSA) process in place?		Yes ☐	No ☐	
Is there a Root Cause Analysis process used for investigations, near misses, environmental spills?		Yes ☐	No ☐	
Is there a Management of Change (MOC) Process in place?		Yes ☐	No ☐	
Do you have programs for the following?				
a. Respiratory Protection		Yes ☐	No ☐	
b. Where applicable, have employees been:				
• Trained		Yes ☐	No ☐	
• Fit tested		Yes ☐	No ☐	
• Medically approved		Yes ☐	No ☐	
c. Hazard communication/WHMIS		Yes ☐	No ☐	
d. Programs for potential high hazard work such as Highly Hazardous Chemicals; Explosives and Blasting Agents		Yes ☐	No ☐	
Do you have a corrective action process for addressing individual/employee safety and health performance deficiencies?		Yes ☐	No ☐	
Medical				
a. Do you conduct medical examinations for:				
• Pre-placement Job Capability		Yes ☐	No ☐	
• Pulmonary		Yes ☐	No ☐	
• Respiratory		Yes ☐	No ☐	
b. Describe how you intend to provide first aid and other medical services while on-site.				
Do you have personnel trained to perform first aid and CPR?		Yes ☐	No ☐	
Personal Protective Equipment (PPE)				
a. Is applicable PPE provided for employees?		Yes ☐	No ☐	
b. Do you have a program to assure that PPE is inspected and maintained?		Yes ☐	No ☐	
HSE Meetings				**Frequency**
a. Do you hold site HSE meetings for?				
• Field Supervisors	Yes ☐	No ☐		
• Employees	Yes ☐	No ☐		
• New Hires	Yes ☐	No ☐		
• Subcontractors	Yes ☐	No ☐		

HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT			
Inspections and Audits			**Frequency**
a. Do you conduct internal HSE Inspections?	Yes ☐	No ☐	
b. Do you conduct internal HSE program audits?	Yes ☐	No ☐	
c. Are corrections or deficiencies to internal HSE program or equipment communicated and documented until closure?	Yes ☐	No ☐	
Equipment and Materials:			
a. Do you own or lease Equipment and Materials? If yes, please complete the following questions:	Yes ☐	No ☐	
b. Do you have a system for establishing applicable health, safety, and environmental specifications for acquisition of materials and equipment?	Yes ☐	No ☐	
c. Do you conduct inspections on operating equipment (e.g., cranes, forklifts) in compliance with regulatory requirements?	Yes ☐	No ☐	
d. Do you maintain operating equipment in compliance with regulatory requirements?	Yes ☐	No ☐	
e. Do you maintain the applicable inspection and maintenance certification records for operating equipment?	Yes ☐	No ☐	
f. Do you document corrections or deficiencies from equipment inspections and maintenance?	Yes ☐	No ☐	
Subcontractor Management			
a. Do you subcontract any work? If the answer is yes, please completing the following questions:	Yes ☐	No ☒	
b. Do you have a written contractor safety management process?	Yes ☐	No ☐	
c. Do you use HSE performance criteria in selection of subcontractors?	Yes ☐	No ☐	
d. Do you evaluate the ability of subcontractors to comply with applicable HSE requirements as part of the selection process?	Yes ☐	No ☐	
e. Do your subcontractors have a written HSE Program?	Yes ☐	No ☐	
f. Do you include your subcontractors in:			
• HSE Orientation	Yes ☐	No ☐	
• HSE Meetings	Yes ☐	No ☐	
• HSE Equipment Inspections	Yes ☐	No ☐	
• HSE Program Audits	Yes ☐	No ☐	
• Are corrections or deficiencies documented	Yes ☐	No ☐	

HEALTH, SAFETY AND ENVIRONMENTAL MANAGEMENT				
Employee and Trades Training				
a. Have employees been trained in appropriate job skills?	Yes ☐		No ☐	
b. Are employees' job skills certified where required by regulatory or industry consensus standards?	Yes ☐		No ☐	
c. List trades/crafts which have been certified:				
Health, Safety and Environmental Orientation	**New Hires**		**Supervisors**	
a. Do you have an HSE Orientation Program for new hires and newly hired or promoted supervisors?	Yes ☐	No ☐	Yes ☐	No ☐
b. Does the program provide instruction on the following:				
•New worker orientation	Yes ☐	No ☐	Yes ☐	No ☐
•Safe Work Practices	Yes ☐	No ☐	Yes ☐	No ☐
•Safety Supervision	Yes ☐	No ☐	Yes ☐	No ☐
•Toolbox meetings	Yes ☐	No ☐	Yes ☐	No ☐
•Emergency Procedures	Yes ☐	No ☐	Yes ☐	No ☐
•First Aid Procedures	Yes ☐	No ☐	Yes ☐	No ☐
•Fire Protection and Prevention	Yes ☐	No ☐	Yes ☐	No ☐
•Safety Intervention	Yes ☐	No ☐	Yes ☐	No ☐
•Hazard Communication/WHMIS	Yes ☐	No ☐	Yes ☐	No ☐
Health, Safety and Environmental Training				
a. Do you know the regulatory HSE training requirements for your employees?	Yes ☐		No ☐	
b. Have your employees received the required HSE training and re-training	Yes ☐		No ☐	
c. Do you have a specific HSE training program for supervisors?	Yes ☐		No ☐	
Training Records				
a. Do you have HSE and training records for your Employee's?	Yes ☐		No ☐	
b. Do the training records include the following:				
• Employee identification	Yes ☐		No ☐	
• Date of training	Yes ☐		No ☐	
• Name of trainer	Yes ☐		No ☐	
• Method used to verify understanding	Yes ☐		No ☐	
c. How do you verify understanding of training? (Check all that apply)				
☐ Written test ☐ Oral test ☐ Performance test ☐ Job Monitoring ☐ Other (List)				

Stop Work Authority Program

Policy and Program Overview

This program formally establishes the Stop Work Authority (SWA) of all Company employees and contractors to suspend individual tasks or group operations when the control of HSE risk is not clearly established or understood.

It is the policy of this Company that:

- All employees and its contractors have the authority and obligation to stop any task or operation where concerns or questions regarding the control of HSE risk exist,
- No work will resume until all stop work issues and concerns have been adequately addressed, and
- Any form of retribution or intimidation directed at any individual or company for exercising their authority as outlined in this program will not be tolerated.

As with any policy, accountability for non-compliance will follow established Company procedures or contract requirements.

Roles and Responsibilities

Persons in the following roles have responsibilities in support of this program:

- **Company employees and contractors** are responsible to initiate a "stop work" intervention when warranted, support the intervention of others and properly report all "stop work" actions.
- **Line Supervisors** are responsible to create a culture where SWA is exercised freely, honor request for 'stop work', work to resolve issues before operations resume, recognized proactive participation and ensure that all "stop work" actions are properly reported with required follow-up completed.
- **Senior Leaders** must establish the clear expectation to exercise SWA, create a culture where SWA is exercised freely, resolve SWA conflicts when they arise and hold those accountable that chose not to comply with established SWA policies.
- **HSE** in support of operations is responsible for monitoring compliance with the requirements of this program, maintenance of associated documents, processes and training materials, identification of trends, sharing of learning's and publication of required scorecards.

Intervention Protocol

In general terms, the SWA process involves a stop, notify, correct and resume approach for the resolution of a perceived unsafe work actions or conditions.

Much like behavior-based safety processes, a workforce that clearly understands how to initiate, receive and respond to a "stop work" intervention is more likely to participate. Though obvious to some, the following protocol creates an environment where people know how to act and respond.

Though situations may differ, the following steps should be the framework for all stop work interventions.

Step	Protocol Instruction
1	When a person identifies a perceived unsafe condition, act, error, omission, or lack of understanding that could result in an undesirable event, a “stop work intervention shall be immediately initiated with the person(s) potentially at risk.
2	If the supervisor is readily available and the affected person(s) are not in immediate risk, the “stop work action” should be coordinated through the supervisor. If the supervisor is not readily available or the affected person(s) are in immediate risk, the “stop work” intervention should be initiated directly with those at risk.
3	“Stop work” interventions should be initiated in a positive manner by briefly introducing yourself and starting a conversation with the phrase “I am using my stop work authority because…”. Using this phrase will clarify the user’s intent and set expectations as detailed in this procedure.
4	Notify all affected personnel and supervision of the stop work issue. If necessary, stop associated work activities, remove person(s) from the area, stabilize the situation and make the area as safe as possible.
5	All parties shall discuss and gain agreement on the stop work issue.
6	If determined and agreed that the task or operation is OK to proceed as is (i.e., the stop work initiator was unaware of certain facts or procedures) the affected persons should thank the initiator for their concern and proceed with the work.
7	If determined and agreed that the stop work issue is valid, then every attempt should be made to resolve the issue to all affected person’s satisfaction prior to the commencement of work.
8	If the stop work issue cannot be resolved immediately, work shall be suspended until proper resolution is achieved. When opinions differ regarding the validity of the stop work issue or adequacy of the resolution actions, the location’s “person in charge” shall make the final determination. Details regarding differences of opinion and resolution actions should be included in the documented report.
9	Positive feedback should be given to all affected employees regarding resolution of the stop work issue. Under no circumstances should retribution be directed at any person(s) who exercise in good faith their stop work authority as detailed in this program.
10	All stop work interventions and associated detail shall be documented and reported as detailed in this program.

Reporting

All “stop work” interventions exercised under the authority of this program shall be documented as a near miss utilizing existing reporting protocols. The near miss report shall contain the words “STOP WORK” at the beginning of the incident description in order to differentiate it from traditional near miss reports.

“STOP WORK” reports shall be reviewed by line supervision in order to:

- Measure participation
- Determine quality of interventions and follow-up
- Trend common issues and identify opportunities for improvement
- Facilitate sharing of learning’s
- Feed recognition programs.

The HSE department will regularly publish incident details regarding the number of “stop work” actions reported by location as well as details regarding common trends and learning’s.

Follow-up

It is the desired outcome of any ‘stop work’ intervention that the identified safety concerns be addressed to the satisfaction of all involved persons prior to the resumption of work. Although most issues can be adequately resolved in a timely fashion at the job site, occasionally additional investigation and corrective actions may be required to identify and address root causes.

“Stop Work” interventions that required additional investigation or follow-up will be handled utilizing existing protocols and procedures for incident investigation and follow-up.

Recognition

In order to build and reinforce a culture in which SWA is freely exercised and accepted, line supervisors are encouraged to positively recognize employee and contractor participation in the program.

Minimally, each line supervisor should informally recognize individuals when they exercise their authority to “stop work” or demonstrate constructive participation in a “stop work” intervention. This informal recognition need be no more than an expression of appreciation for a job well done or the awarding of a nominal item (hat, gloves, flashlight, gift certificates, etc.) of recognition. Additionally, formal recognition of selected examples of “stop work” interventions and those responsible should be made during regularly scheduled safety meetings.

The HSE department will regularly publish selected “stop work” actions that occurred throughout the company, recognizing those responsible for their support of the SWA program and contribution to HSE continuous improvement.

Training

Training regarding this SWA Policy and Program will be conducted as part of all new employee and contractor orientations. Additionally, a review of the SWA Policy shall be completed as part of all field location safety briefings and regularly in safety meetings.

Documentation of all training and reviews shall be maintained as per established procedures.

Approval

This program is fully endorsed by the President and CEO of The Company.

Signed: _____ Date: _____

Appendix II – SWA Best Practices - *The following are best practices that should be considered when implementing an effective SWA process and culture.*

- SWA policy statements should be part of the overall "Corporate" HSE Policy statement and should include not only the "authority" to stop work, but also the "obligation" or "expectation" to do so. The policy should be endorsed by senior management, routinely communicated and conspicuously posted for all to see.

- A review of the SWA policy and program should be included in all general and site-specific employee and contractor orientations. The most senior operations leader available should conduct SWA policy reviews.

- Often, laminated cards are issued to document completion of orientation/training or to provide quick reference to HSE related rules and procedures. Including the SWA policy on the back of such cards is an effective way to reinforce management's commitment and expectations. The following is an example:

Figure 1 – SWA Card Back:

Roemer Utility Services

STOP WORK AUTHORITY

You are authorized and expected to stop any task or operation where you perceive that the control of risk to people, environment or assets is not being properly controlled. Your intervention will be welcomed and recognized. **There will be no repercussions to you!**

- SWA authority and expectations should be included as a standard line item in all Job Safety Analysis (JSA) exercises.

- Conduct “SWA drills” to help establish a culture where SWA is freely exercised. A SWA drill is conducted much like any other traditional drill in which a scenario is developed and then role-played. A line supervisor identifies a coworker to initiate a work intervention. A designated person (s) observes the interaction and response of all involved individuals. The drills should be announced at first, then progress to unannounced as the process matures. The exercise demonstrates to the work group how to properly conduct SWA interventions as well as make them more willing to do so as they become familiar with established protocols. Opportunities for behavior and process improvements can be identified during the drill critique.

- Positive recognition to individuals that proactively initiate and respond to SWA interventions is key to reinforcing proper behaviors. Public recognition and awarding of “items of appreciation” have worked well in this regard.

- Instead of establishing a separate form for documenting SWA interventions, consider modifying existing BBS or near miss reporting forms. Simply adding a “check box” to existing BBS or near miss reporting forms to designate a SWA intervention works well and takes advantage of existing programs. Whatever form is used, details regarding the reason for the intervention and resolution action should be documented at a minimum.

- Summaries of SWA actions (what happened and how was it resolved) should be discussed routinely throughout the company in order to share identified learning’s, reinforce program value, and recognize participating locations and individuals. (See Figure 2.)

Figure 2 – SWA Monthly Summary

June Stop Work Intervention Summary

:

Name	*Employer*	*Location*	*SWA Description*

Appendix IV

Stop Work Authority Quiz

Name: _____

1. ***Stop Work Authority*** establishes the ***'authority and obligation'*** of any individual to suspend a single work task or group operation when the control of HSE risk is not clearly established or understood.

    a. True
    b. False

2. Invoking ***Stop Work Authority*** is your:

    a. Right
    b. Responsibility
    c. Obligation
    d. All of the above

3. Which of the following individuals have the authority to "Stop Work"?
    a. Craftsmen, professionals, experts
    b. Short service employees
    c. Individuals of different employers
    d. All of the above

4. Under the ***Stop Work Authority*** program, it is everyone's responsibility to:

    a. Initiate a 'stop work' intervention when warranted
    b. Support the intervention of others
    c. Report all "stop work" interventions completed
    d. All of the above

5. If someone refuses to stop working after you have invoked your ***Stop Work Authority*****,** you:

    a. Write the incident up as a near miss
    b. Write the incident up as a Hazard ID
    c. Avoid conflict and return to your normal duties
    d. Immediately contact your immediate supervisor or local HSE representative

6. By exercising your ***Stop Work Authority***, you are potentially subject to:

    a. Termination
    b. Recognition
    c. Written reprimand
    d. Removal from the project

7. When you exercise your ***Stop Work Authority***, it is an expectation that co-workers, supervisors and managers:

    a. Ignore you
    b. Reprimand you
    c. Support your intervention
    d. Recognize you
    e. Both c & d

8. Most “stop work” issues can be adequately resolved in a timely fashion at the job site. Occasionally, additional investigation and corrective actions may be required to identify and address root causes.

    a. True
    b. False

9. After “stop work” intervention has been exercised, the work can resume:

    a. Never
    b. Following hitch
    c. Only after the unsafe condition, act or issue has been satisfactorily resolved
    d. After a permit has been issued

10. If you see a risk that others take, that’s put their health or life at stake. You should:

    a. Choose to look the other way
    b. Choose not to argue over a safety rule
    c. Choose not to make another worker sore
    d. Stop the task and never have to say, I could have saved a life that day

Trenching / Shoring / Excavations

One of the preventable hazards of site work is the danger of trench cave-ins. Yet every year in the U.S., there are an estimated 75 to 200 deaths and more than 1,000 lost workdays per year from trenching accidents. Other hazards associated with trenches include contact with numerous underground utilities, hazardous atmospheres, water accumulation, and collapse of adjacent structures. For these reasons, we have written Excavation Procedures for both our daily and occasional excavation workers. It is the policy at Romer Utility Services to permit only trained and authorized personnel to create or work in excavations.

Definitions

Aluminum hydraulic shoring means an engineered shoring system comprised of aluminum hydraulic cylinders (cross braces), used in conjunction with vertical rails (uprights) or horizontal rails (walers). Such a system is designed specifically to support the sidewalls of an excavation and prevent cave-ins.

Benching means a method of protecting employees from cave-ins by excavating the sides of an excavation to form one or a series of horizontal levels or steps, usually with vertical or near-vertical surfaces between levels.

Cave-in means the separation of a mass of soil or rock material from the side of an excavation, or the loss of soil from under a trench shield or support system, and its sudden movement into the excavation, either by falling or sliding, in sufficient quantity so that it could entrap, bury, or otherwise injure and immobilize a person.

Competent person means one who is capable of identifying existing and predictable hazards in the surroundings, or working conditions that are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. All competent persons must complete the 4-hour Physical Plant trenching and shoring class, successfully pass the exam, and be certified for successful completion of the class. A competent person should have and be able to demonstrate the following:

Training, experience, and knowledge of:

- Soil analysis,
- Use of protective systems, and
- Requirements of 29 CFR 1926 Subpart P.

Ability to detect:

- Conditions that could result in cave-ins,
- Failures in protective systems,
- Hazardous atmospheres, and
- Other hazards including those associated with confined spaces.

Authority to take prompt corrective measures to eliminate existing and predictable hazards and to stop work when required.

Excavation means any man-made cut, cavity, trench, or depression in an earth surface, formed by earth removal.

Registered professional engineer means a person who is registered as a professional engineer.

Shield (shield system) means a structure that is able to withstand the forces imposed on it by a cave-in and thereby protect employees with the structure. Shields can be permanent structure or can be designed to be portable and moved along as work progresses. Also known as trench box or trench shield.

Shoring (shoring system) means a structure such as a metal hydraulic, mechanical or timber shoring system that supports the sides of an excavation and which is designed to prevent cave-ins.

Sloping (sloping system) means a method of protecting employees from cave-ins by excavating to form sides of an excavation that are inclined away from the excavation so as to prevent cave-ins. The angle of incline varies with differences in such factors as the soil type, environmental conditions of exposure, and application of surcharge loads.

Trench (trench excavation) means a narrow excavation (in relation to its length) made below the surface of the ground. In general, the depth is greater than the width, but the width of a trench is not greater than 15 feet. If forms or other structures are installed or constructed in an excavation as to reduce the dimension measured from the forms or structure to the side of the excavation to 15 feet or less, the excavation is also considered to be a trench.

Administrative Duties

Safety Representative, is responsible for developing and maintaining the written Excavation Procedures. These procedures are kept in the Safety Manager's office.

Our Excavation Procedures are administered under the direction of our competent person(s), someone capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them. These competent persons include Safety Representative and all Site Supervisors.

Before Excavating

Before anyone at this company begins excavating, we follow the steps below:

1. Contact the utility companies or property owners and ask the companies or owners to find the exact location of the underground installations in the area.

2. If the utility companies or owners do not respond within 24 hours or the period established by law or ordinance, or if they cannot establish the location of the utility lines, the excavation may proceed with caution. In this situation, provide employees with detection equipment or other safe and acceptable means to locate utility installations.

3. Remove or adequately support the following objects (i.e., trees, rocks, and sidewalks) in the excavation area that could create a hazard to employees.

4. Using Appendix, A to 29 CFR 1926, Subpart P, classify the type of soil and rock deposits at the site as either stable rock, Type A, Type B, or Type C soil. The soil classification is based on the results of at least one visual and at least one manual analysis conducted by a competent person. Details of the acceptable visual and manual analyses are to be found in Appendix A of 29 CFR 1926, Subpart P. NOTE: Soil classification is not necessary if the excavation will be sloped to an angle of one and one-half horizontal to one vertical.

5. Have the competent person choose the appropriate method for protective support systems, as necessary. See the Protective Support Systems section for the procedures he/she used for selecting this system.

Testing Methods

The competent person in charge of the excavation shall be responsible for determining whether the soil is Type B or C. The competent person shall use a visual test coupled with one or more manual tests (see appendices for Soil Analysis Checklist).

Visual test

In addition to checking the items on the trench inspection form, the competent person should perform a visual test to evaluate the conditions around the site. In a visual test, the entire excavation site is observed, including the soil adjacent to the site and the soil being excavated. The competent person also checks for any signs of vibration.

During the visual test, the competent person should check for crack-line openings along the failure zone that would indicate tension cracks, look for existing utilities that indicate that the soil has been previously disturbed, and observe the open side of the excavation for indications of layered geologic structuring.

This person should also look for signs of bulging, boiling, or sloughing, as well as for signs of surface water seeping from the sides of the excavation or from the water table.

In addition, the area adjacent to the excavation should be checked for signs of foundations or other intrusions into the failure zone, and the evaluator should check for surcharging and the spoil distance from the edge of the excavation.

Manual tests

- Thumb penetration test- Attempt to press the thumb firmly into the soil in question. If the thumb penetrates no further than the length of the nail, it is probably Type B soil. If the thumb penetrates the full length of the thumb, it is Type C. It should be noted that the thumb penetration test is the least accurate testing method.

- Dry strength test- Take a sample of dry soil. If it crumbles freely or with moderate pressure into individual grains it is considered granular (Type C). Dry soil that falls into clumps that subsequently break into smaller clumps (and the smaller clumps can only be broken with difficulty) it is probably clay in combination with gravel, sand, or silt (Type B).

- Plasticity or Wet Thread Test- Take a moist sample of the soil. Mold it into a ball and then attempt to roll it into a thin thread approximately 1/8 inch in diameter by two inches in length. If the soil sample does not break when held by one end, it may be considered Type B.

- A pocket penetrometer, shearvane, or torvane may also be used to determine the unconfined compression strength of soils.

Spoil

Temporary spoil shall be placed no closer than 2 feet from the surface edge of the excavation, measured from the nearest base of the spoil to the cut. This distance should not be measured from the crown of the spoil deposit. This distance requirement ensures that loose rock or soil from the temporary spoil will not fall on employees in the trench.

Spoil should be placed so that it channels rainwater and other run-off water away from the excavation. Spoil should be placed so that it cannot accidentally run, slide, or fall back into the excavation.

Permanent spoil should be placed some distance from the excavation.

Surface Crossing of Trenches

Surface crossing of trenches should not be made unless absolutely necessary. However, if necessary, they are only permitted under the following conditions:

Vehicle crossings must be designed by and installed under the supervision of a registered professional engineer.

Walkways or bridges must: have a minimum clear width of 20 inches, be fitted with standard rails, and extend a minimum of 24 inches past the surface edge of the trench.

Ingress and Egress

Trenches 4 feet or more in depth shall be provided with a fixed means of egress allowing for self-rescue if a hazardous condition arises.

Spacing between ladders or other means of egress must be such that a worker will not have to travel more than 25 feet laterally to the nearest means of egress.

Ladders must be secured and extend a minimum of 36 inches above the landing.

Metal ladders should be used with caution, particularly when electric utilities are present.

Protective Support Systems

The company protects each employee in an excavation from cave-ins during an excavation by an adequate protective system designed in accordance with OSHA standards. Protective system options include proper sloping or benching of the sides of the excavation; supporting the sides of the excavation with timber shoring or aluminum hydraulic shoring; or placing a shield between the side of the excavation and the work area. Romer Utility Services has the following standard operating procedures regarding protective support systems for excavations, in accordance with safe practices and procedures and OSHA excavation regulations:

- If the excavation is made entirely of stable rock, then no protective system is necessary or used.
- If the excavation is less than 5 feet in depth (provided there is no indication of a potential cave-in), then no protective system is necessary or used.
- If the excavation is less than or equal to 20 feet in depth, then * A competent person chooses the most practical design approach (that meets required performance criteria) for the particular circumstance, and/or
- A registered professional engineer designs all protective systems for use in the excavation.

Sloping

When sloping is used to protect against cave-ins, these options can be chosen for designing sloping systems:

1. If a soil classification is not made, then slope the sides of the excavation to an angle not steeper than one and one-half horizontal to one vertical (34 degrees). A slope of this gradation or less is considered safe for any type of soil.
2. Use Appendices A and B of 29 CFR 1926, Subpart P to determine the maximum allowable slope and allowable configurations for sloping systems. The soil type must be determined in order to use this option.

3. Use other tabulated data approved by a registered professional engineer.

4. Have an engineer design and approve the system to be used.

   - There are a number of exceptions or special cases to these general sloping guidelines, which can be utilized by your company if the conditions meet the exception's requirements. The exceptions and conditions are outlined below:

   - In Type A soil, simple slope excavations which are open 24 hours or less (short term) and which are 12 feet high or less in depth may have a maximum allowable slope of 1/2 horizontal to 1 vertical.

   - In Type A soil, all excavations 8 feet or less in depth, which have unsupported vertically sided lower portions must have a maximum vertical side of 3.5 feet.

   - In Type A soil, excavations over 8 feet but less than 12 feet in depth with unsupported vertically sided lower portions must have a maximum allowable slope of 1H: 1V and a maximum vertical side of 3.5 feet.

   - In Type A soil, excavations 20 feet or less with vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of 3/4 H:1V. The support or shield system must extend at least 18 inches above the top of the vertical side.

   - In Type B soil, all excavations 20 feet or less which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. The excavation shall have a maximum allowable slope of 1H:1V.

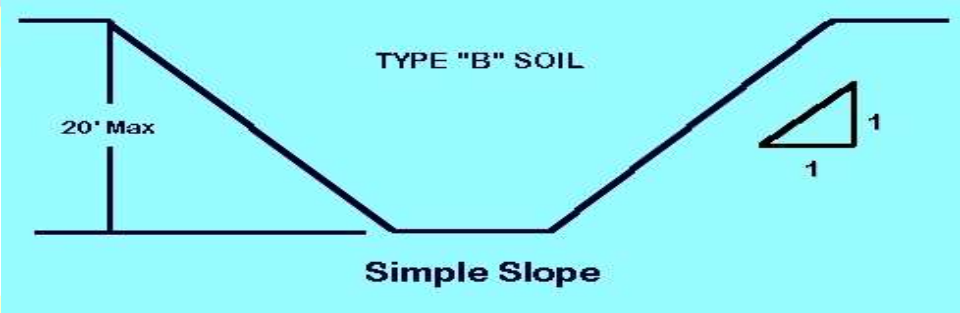
   - In Type C soil, all excavations 20 feet or less which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. The excavation shall have a maximum allowable slope of 1-1/2 H:1V.

– When an excavation contains layers of different types of soils, the general sloping requirements do not apply. The excavation must be sloped according to Appendix B-1.4 of 29 CFR 1926, Subpart P.

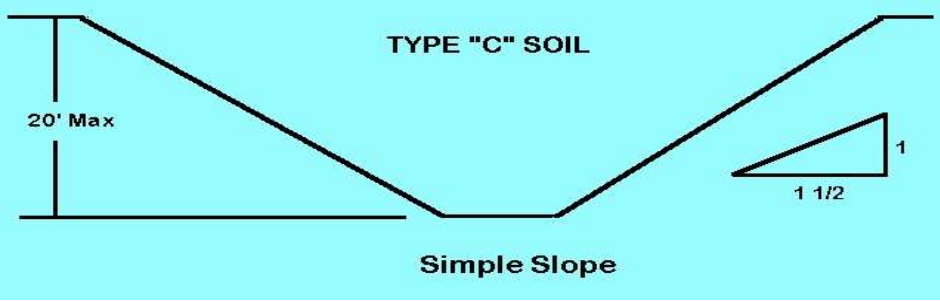
Maximum allowable slopes for excavations less than 20' based on soil type and angle to the horizontal are as follows:

Soil Type	**Height/depth ratio**	**Slope angle**
Type B	1:1	45 degrees
Type C	1 1/2:1	34 degrees

A 10-foot-deep trench in Type B soil would have to be sloped to a 45-degree angle, or sloped 10 feet back in both directions. Total distance across a 10-foot-deep trench would be 20 feet, plus the width of the bottom of the trench itself.



In Type C soil, the trench would be sloped at a 34-degree angle, or 15 feet back in both directions for at least 30 feet across, plus the width of the bottom of the trench itself. All simple slope excavations 20 feet or less in depth shall have a maximum allowable slope of 1 1/2:1.



The competent person chooses the best option for sloping for the job at hand.

Benching

When benching is used to protect against cave-ins, these options can be chosen for designing benching systems:

1. Use Appendices A and B of 29 CFR 1926, Subpart P to determine the maximum allowable slope and allowable configurations for benching systems. The soil type must be determined in order to use this option.

2. Use other tabulated data approved by a registered professional engineer.

3. Have an engineer design and approve the system to be used.

There are a number of exceptions or special cases to these general benching guidelines, which should be utilized by your company if the conditions meet the exception's requirements. The exceptions and conditions are outlined below:

- In Type A soil, simple slope excavations which are open 24 hours or less (short term) and which are 12 feet high or less in depth may have a maximum allowable slope of 1/2 horizontal to 1 vertical.

- In Type a soil, all excavations 8 feet or less in depth, which have unsupported vertically sided lower portions must have a maximum vertical side of 3.5 feet.

- In Type A soil, excavations over 8 feet but less than 12 feet in depth with unsupported vertically sided lower portions must have a maximum allowable slope of 1H:1V and a maximum vertical side of 3.5 feet.

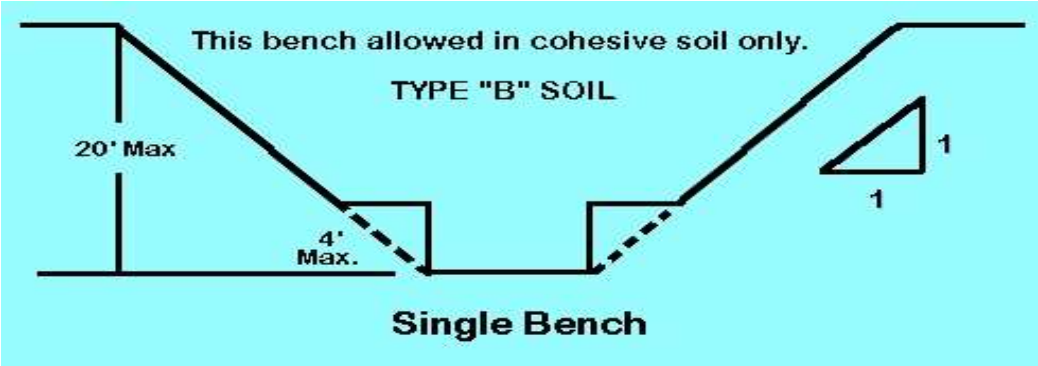
- In Type A soil, excavations 20 feet or less with vertically sided lower portions that are supported or shielded shall have a maximum allowable slope of 3/4H:1V. The support or shield system must extend at least 18 inches above the top of the vertical side.

- In Type B soil, all excavations 20 feet or less which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. The excavation shall have a maximum allowable slope of 1H:1V.

- In Type C soil, all excavations 20 feet or less which have vertically sided lower portions shall be shielded or supported to a height at least 18 inches above the top of the vertical side. The excavation shall have a maximum

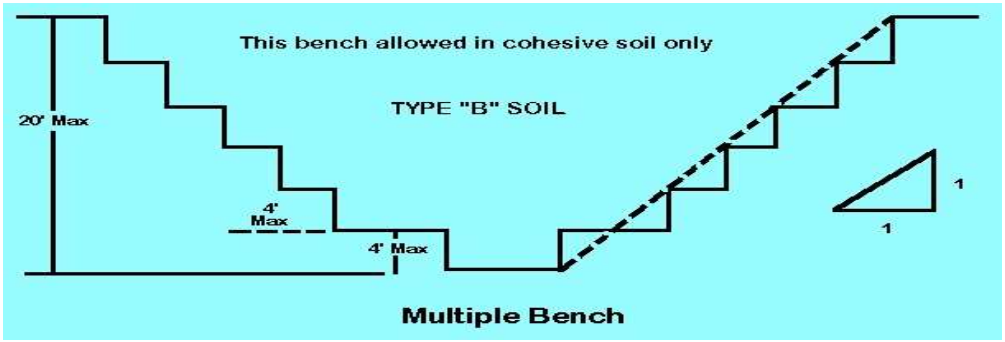
allowable slope of 1-1/2 H:1V.

– When an excavation contains layers of different types of soils, the general sloping requirements do not apply. The excavation must be sloped according to Appendix B-1.4 of 29 CFR 1926, Subpart P.



There are two basic types of benching, single and multiple, which can be used in conjunction with sloping.

All benched excavations 20 feet or less in depth shall have a maximum allowable slope of 1:1. In Type B soil, the vertical height of the benches must not exceed 4 feet. Benches must be below the maximum allowable slope for that soil type. In other words, a 10-foot deep trench in Type B soil must be benched back 10 feet in each direction, with the maximum of a 45-degree angle.



Benching is not allowed in Type C soil.

The competent person chooses the best option for sloping for the job at hand.

Support Systems, Shield Systems, and Other Protective Systems

Timber Shoring

When trenches do not exceed 20 feet, timber shoring according to OSHA design specifications may be used. Designs for timber shoring in trenches for company work sites are determined by the competent person using the following method(s):

1. Use the requirements set forth by OSHA in Appendices A and C of the 29 CFR 1926, Subpart P. The design specifications for timber shoring provided by OSHA may be found in Tables C-1.1 through C-1.3 of Appendix C of 29 CFR 1926, Subpart P. These tables refer to the actual dimensions and not nominal dimensions of the timber. If the competent person chooses to use nominal size shoring, he/she must use the additional tables found in Appendix C of 29 CFR 1926, Subpart P. The soil type in which the excavation is made must be determined in order to use the OSHA data.

NOTE: The specifications do not apply in every situation experienced in the field; the data were developed to apply to most common trenching situations. If the specifications do not apply to the situation encountered in the field, the competent person will make a determination of what approach to use to allow safe protective support of the excavation.

2. Use data provided by the manufacturer of the support system.
3. Use other tabulated data approved by an engineer.
4. Have a registered professional engineer design the system.

Aluminum Hydraulic Shoring

Determined by the competent person, each design for aluminum hydraulic shoring is based upon the following method(s):

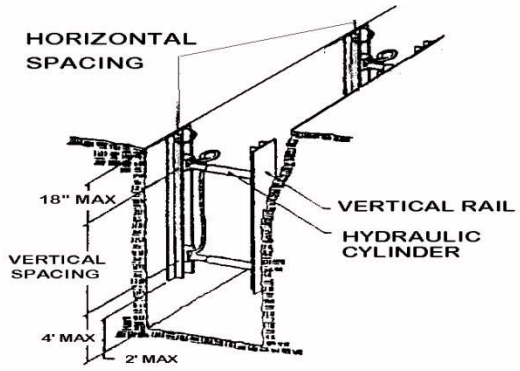
1. Use the manufacturer's tabulated data and design in accordance with the manufacturer's specifications, recommendations, and limitations. Deviations from the manufacturer's specifications, recommendations, or limitations are only allowed upon written approval of the manufacturer, which must be obtained by the competent person prior to implementation. The written approval is kept at the job site during construction of the protective system.

2. Use the OSHA specifications found in Appendix D of 29 CFR 1926, Subpart P, if the manufacturer's tabulated data cannot be utilized. NOTE: Before using the OSHA data, the soil type must be determined.

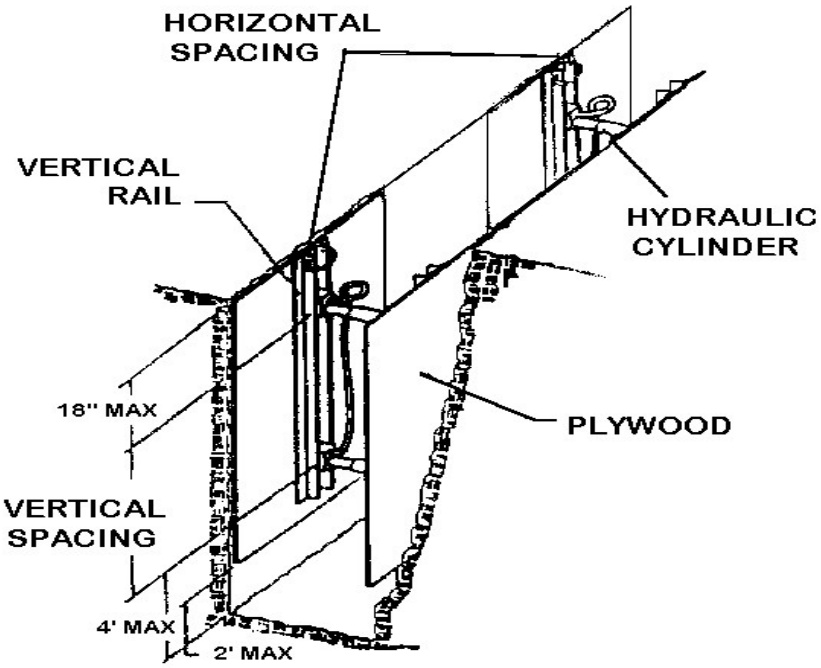
3. Use other tabulated data approved by an engineer.

Here are some typical installations of aluminum hydraulic shoring:

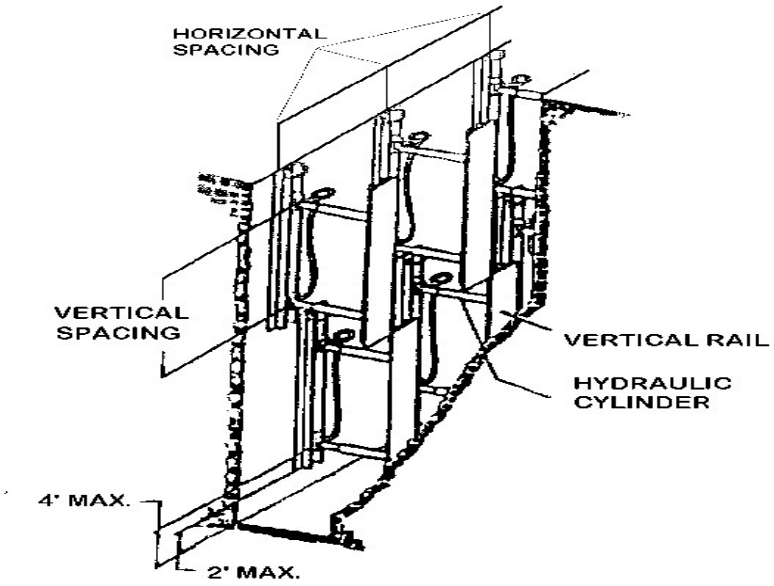
- Vertical aluminum hydraulic shoring (spot bracing)



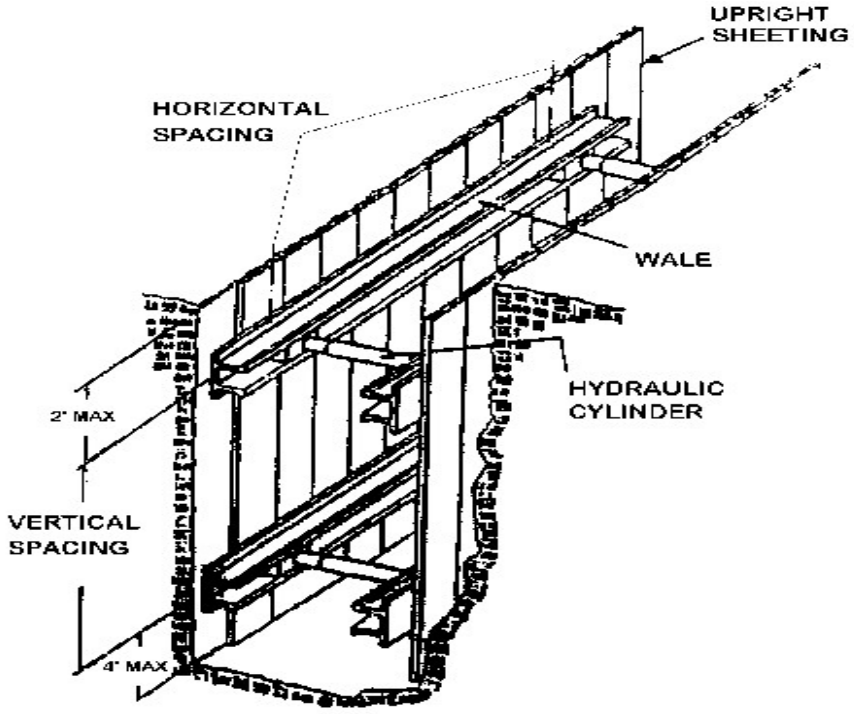
- Vertical aluminum hydraulic shoring (with plywood)



- Vertical aluminum hydraulic shoring (stacked)



- Aluminum hydraulic shoring walker system (typical)



Other Support Systems

Designs for our support systems are determined by the competent person using the following method(s):

1. Use data provided by the manufacturer of the support system.
2. Use other tabulated data approved by an engineer.
3. Have a registered professional engineer design the system.

Shielding

Determined by the competent person, designs for shielding are based upon the following method(s):

1. Use data provided by the manufacturer of the support system.

2. Use other tabulated data approved by an engineer.

3. Have a registered professional engineer design the system.

Other Protective Systems

Designs for our protective systems are determined by the competent person using the following method(s):

1. Use data provided by the manufacturer of the support system.

2. Use other tabulated data approved by an engineer.

3. Have a registered professional engineer design the system.

General Requirements for Excavations

The following rules are to be followed at all times by all employees working on, in, or near excavations, as applicable:

- Employees exposed to public vehicular traffic with in a 50’ distance must wear warning vests or other suitable garments made of reflectorized or high-visibility material.

- Employees will be protected while working near or around power lines by way of the lines being identified with signage as well as a spotter to be used to be sure the adequate distance is maintained while working around the power lines. All lines are to be treated as hot. There is to be a three-step process used to warn and make aware all affected employees of the presence of overhead power line hazards.

- Examples are Signage, Spotters as well as goal post style of barriers that identify clearance hazards.

- The competent person inspects the excavation and the adjacent areas on a daily basis for possible cave-ins, failure of protective systems and equipment, hazardous atmospheres, or other hazardous conditions (see appendices for Daily Inspection Checklist. Inspections are also required after the occurrence of any natural (such as rain) or man-made events (such as blasting) that could increase the potential for hazards. Employees may not begin work until after being informed by the competent person that these inspections are complete.

- A warning system is used to alert operators of heavy equipment and other employees at the work site of the edge of an excavation.

- Adequate protection is provided to protect employees from falling rock, soil, or other materials and equipment. Protection is provided by placing and keeping such materials or equipment at least 2 feet from the edge of excavations, or by the use of retaining devices that are sufficient to prevent materials or equipment from falling or rolling into excavations, or by a combination of both if necessary.

- Employees are not permitted under loads that are handled by lifting or digging equipment. Employees are not allowed to work in the excavation above other employees unless the lower level employees are adequately protected.

- While the excavation is open, underground installations are protected, supported, or removed as necessary to safeguard employees. Adjacent structures are supported to prevent possible collapse.

- Employees are not permitted to work in excavations where water has accumulated or is accumulating unless adequate precautions have been taken. Diversion ditches, dikes, or other means are used to prevent surface water from entering an excavation and to provide drainage to the adjacent area.

- Before an employee enters an excavation greater than 4 feet in depth, the competent person must test the atmosphere where oxygen deficiency or a hazardous atmosphere exists or could reasonably exist (i.e., excavations in landfill areas or excavations in areas where hazardous substances are stored nearby). Emergency rescue equipment is readily available and attended when hazardous atmospheric conditions exist or may develop.

- Sufficient means for exiting excavations 4 feet deep or more are provided and are within 25 feet of lateral travel for employees.

- Guardrails are provided if there are walkways or bridges crossing over an excavation.

Training

The safety department, will identify all new employees in the employee orientation program and make arrangements with management to schedule training. The following person(s) will conduct initial training and evaluation: Safety Representative and/or the Site Supervisor. These instructor(s) have the necessary knowledge, training, and experience to train excavation workers.

Training Certification

After an employee has completed the training program, our company keeps records certifying that each excavation worker has successfully completed excavation training. The certificate includes the name of the worker, the date(s) of the training, and the signature of the person who did the training. Safety Manager is responsible for keeping a copy of all training certification records.

Current Certified Excavation Workers

Under no circumstances shall an employee create or work in an excavation until he/she has successfully completed this company's excavation training program. This includes all new excavation workers regardless of claimed previous experience.

Inspection Procedures

Our competent person inspects excavations daily and during poor weather. Our inspection checklist is attached to these written Excavation Procedures. Site Supervisor is responsible for retaining completed inspection checklists.

Personal Protective Equipment

All excavation workers required to wear all required personal protective equipment and are trained when it is necessary; what equipment is necessary; how to properly put on, take off, adjust, and wear it; limitations of the equipment; and proper care, maintenance, useful life, and disposal of PPE.

Recordkeeping

We keep a copy of the following documents at the job site during construction of a particular excavation protective system and then store them in the Safety Manager's office at company headquarters where they will be readily available to OSHA upon request:

- Tabulated data for designing any of our sloping or benching systems
- Designs of any sloping or benching systems approved by a registered professional engineer
- Manufacturer's specifications, recommendations, and limitations for designs of support systems, shield systems, and other protective systems drawn from manufacturer's tabulated data
- Manufacturer's approval to deviate from the specifications, recommendations, and limitations for designs of support systems, shield systems, and other protective systems drawn from manufacturer's tabulated data
- Tabulated data for designing any of our support systems, shield systems, and other protective systems
- Designs of all support systems, shield systems, and other protective systems approved by a registered professional engineer

Appendix

We have attached the following documents to these written Excavation Procedures:

- DAILY EXCAVATION CHECKLIST
- Soil Analysis Checklist

Daily Excavation Safety Checklist

Company		**Date**	
Project Name		**Approx. Temp.**	
Project Location		**Approx. Wind Dir.**	
Job Number		**Safety Rep**	
Excavation Depth & Width		**Soil Classification**	
Protective System Used			
Activities In Excavation			
Competent Person			

Excavation > 4 feet deep? ___Yes ___No

If *YES,* fill out a Confined Space Permit *PRIOR* to *ANY* person entering the excavation.

***NOTE:* Trenches over 4 feet in depth are considered excavations. Any items marked *NO* on this form *MUST* be remediated prior to any employees entering the excavation.**

YES	NO	N/A	DESCRIPTION
			GENERAL
			Employees protected from cave-ins & loose rock/soil that could roll into the excavation
			Spoils, materials & equipment set back at least 2 feet from the edge of the excavation.
			Engineering designs for sheeting &/or manufacturer's data on trench box capabilities on site
			Adequate signs posted and barricades provided
			Training (toolbox meeting) conducted w/ employees prior to entering excavation
			UTILITIES
			Utility company contacted & given 24 hours' notice &/or utilities already located & marked
			Overhead lines located, noted and reviewed with the operator
			Utility locations reviewed with the operator, & precautions taken to ensure contact does not occur
			Utilities crossing the excavation supported, and protected from falling materials
			Underground installations protected, supported or removed when excavation is open

WET CONDITIONS			
			Precautions taken to protect employees from water accumulation (continuous dewatering)
			Surface water or runoff diverted /controlled to prevent accumulation in the excavation
			Inspection made after every rainstorm or other hazard increasing occurrence
HAZARDOUS ATMOSPHERES			
			Air in the excavation tested for oxygen deficiency, combustibles, other contaminants
			Ventilation used in atmospheres that are oxygen rich/deficient &/or contains hazardous substances
			Ventilation provided to keep LEL below 10 %
			Emergency equipment available where hazardous atmospheres could or do exist
			Safety harness and lifeline used
			Supplied air necessary (if yes, contact safety department)
ENTRY & EXIT			
			Exit (i.e. ladder, sloped wall) no further than 25 feet from ANY employee
			Ladders secured and extend 3 feet above the edge of the trench
			Wood ramps constructed of uniform material thickness, cleated together @ the bottom
			Employees protected from cave-ins when entering or exiting the excavation

Soil Analysis Checklist

Client		Date	
Project Name		Job Number	
Project Location		Weather	
Competent Person			
Where was the sample taken from			
Excavation length, depth and width	L:	D:	W:

VISUAL TEST					
Particle type	Fine Grained (Cohesive)	Granular (sand/silt or gravel)	Other:		
Water Conditions	Wet	Dry	Seeping Water	Surface Water present	Submerged
Notes					

Yes	No	N/A	Description
			Layered Soils Dipping Into excavation? If yes, describe:
			Excavation exposed to vibrations? If yes, describe:
			Previously disturbed soils?
			Crack like openings or sprawling observed?
			Underground utilities? If yes, what type:
			Layered soils? (Note: the least stable layer controls the soil type)

MANUAL TEST					
Plasticity	Cohesive	Non-cohesive	Dry Strength	Cohesive (broken w/ difficulty)	Granular
Wet Shake	Water comes to surface (granular material)			Surface remains dry (clay material)	

THUMB TEST Note: Used to estimate unconfined compression strength of cohesive soil.			
Test Performed	Yes	No	N/A, Explain:
Soil indented by thumb with very great effort?			Type A
Soil indent by thumb with some effort?			Type B
Soil easily penetrated several inches by thumb with little or no effort. NOTE: If soil is submerged, seeping water, subjected to surface water, runoff, exposed to wetting.			Type C

PENETROMETER or SHEARVANE TEST Note: Used to estimate unconfined compressive strength of cohesive soils.			
Test Performed	Yes	No	Device Used / Serial Number:
Soil with unconfined compressive strength of 1.5 tsf of greater			Type A
Soil with unconfined compressive strength of greater than 0.5 tsf and less than 1.5 tsf.			Type B
Soil with unconfined compressive strength of 0.5 tsf or less. Note: if the soil is submerged, seeping water, subjected to surface water, runoff, exposed to wetting.			Type C

No soil is Type A if fissured, subject to vibration, previously disturbed, layered dipping into excavation on a slope of 4h:1v

SOIL CLASSIFICATION			
Stable Rock	Type A	Type B	Type C
SELECTION OF PROTECTIVE SYSTEM (Refer to Appendix F of 29CFR1926)			
Sloping (Appendix B) Specify angle:	Timber Shoring (Appendix C)	Trench Shield Max depth in this soil:	Hydraulic Shoring (Appendix D)

Vacuum Truck Safety

1 Status

1.1 Update Safe operations for Romer Utility Services Employees

2 Purpose

2.1 To ensure safe operation of vacuum trucks used on our job sites

3 Applicability

3.1 This policy applies to all subsidiary companies and departments of The Romer Utility Services Companies.

3.2 All organizations are required to comply with the provisions of this policy and procedure. Any deviation, unless spelled out specifically in the policy, requires the permission of the Safety Officer or designee.

4 Definitions

4.1

4.2

5 Policy

5.1 All subcontractors and/or Romer Utility Services team members will meet the requirements of this policy, the client, and the manufacturer for the use of vacuum trucks.

6 Responsibilities

6.1 The top Romer Utility Services manager on the job site is responsible for the implementation of this policy on the project.

6.2 The corporate safety department is responsible for maintaining this document.
Policy:

7 Vacuum Truck Safety Index

Though Romer Utility Services does not own or operate vacuum trucks, we often contract with subcontractors who do use vacuum trucks to perform operations on our sites. This policy provides both requirements and guidelines for safe operation of vacuum trucks. The requirements of this policy are mandatory for vacuum truck operations for petroleum related activities and any activity involving flammable liquids.

7.1 Planning and Operation

7.1.1 A hazard analysis/Job Safety Analysis if required prior to performing the task and must be reviewed and signed by the crew. The hazard analysis must consider all of the hazards listed in Section 7.2.

7.1.2 If the subcontractor will be performing tasks on multiple days then a daily activity plan or equivalent is required each day.

7.1.3 Consult the manufacturer's instructions to confirm that the vacuum equipment is designed for the particular transfer operation.

7.1.4 Ensure that vacuum trucks, equipment, and loading/off-loading sites are inspected prior to beginning the work to assure safe operations.

7.1.5 Emergency evacuation procedures must be reviewed with all team members prior to beginning the work each day.

7.1.6 Monitor tank-level indicators to avoid overfilling and over-pressurizing receiving tanks or creating excessive vacuum in supply tanks.

7.1.7 Run vacuum hoses out of walking and working areas if possible, to avoid tripping on hoses and to avoid injuries due to movement of the hoses (can jump if there is a blockage). If hoses must be run in a walkway, then they must be secured so that they can't move unexpectedly. Avoid running hoses through doorways that are used for access.

7.1.8 Set up equipment to minimize spills. Follow the site spill plan if a spill occurs. Consider using collapsible drive on containment underneath the trucks.

7.1.9 Noise levels can be very high around these trucks. The noise level at the operator's control panel is likely to exceed 85 dB and the levels in other areas around the vehicle will be even higher. Noise levels can still equal or exceed 85 DB up to 300 feet away. In addition, the noise levels around the vacuum hoses can easily exceed 85 dB especially where the hose changes diameter. Ensure the operators and other personnel in the area are adequately protected from the noise. To protect team members from the noise, keep all unnecessary team members outside of the high noise areas. Use noise monitors to determine the limits of the high noise areas if a monitor is available. In all cases, remind team members to follow the rule of thumb for noise: If you have to raise your voice to carry on a conversation with the person beside you, then the noise level is at or above 85 dB.

7.2 Potential Hazards

Vacuum truck owners and operators, must be aware of the numerous potential hazards associated with vacuum truck operations in petroleum facilities, including but not limited to:

- Sources of ignition
- Flammable atmospheres
- Potential hazards associated with the surrounding area
- Toxic vapors and their PEL's and STEL's including H2S
- Hazards of mixing of materials
- Slips, trips, and falls
- Spills and releases
- Fires and explosions
- Accidents within the facility or on the highway

- **Suction at the end of the hose**
- **Inadvertent movement of hoses walking or working areas**
- **Noise**
- **Body position and ergonomics when handling the hoses**
- **Working in confined spaces**

7.3 Permits

Before beginning operations, vacuum truck operators shall obtain any permits required by the client. If the client does not require permits, it is recommended that we require a hot work permit for operations involving flammable liquids and potentially flammable atmospheres prior to bringing the truck into the area.

7.4 Flammable and Toxic Vapors and Atmospheric Testing

7.4.1 The areas where vacuum trucks will operate must be free of hydrocarbon vapors in the flammable range.

7.4.2 The areas where the vacuum truck operator and others work without respirators must also be at or below air - contaminant PEL's/STEL's.

7.4.3 If there is any question whether the area is vapor-or toxic gas free, atmospheric testing shall be performed by a qualified person using properly calibrated and adjusted detectors. Testing shall be conducted prior to starting any operations, and if necessary, during operations, including but not limited to the following: When operations in the area are subject to change such as automatic pump start-up or product receipt into, or transfer out of, a tank located in the vicinity of the transfer operations; when off-loading; when atmospheric conditions change such as wind direction, when an emergency situation, such as product release, occurs in within the facility that may affect atmospheric conditions in the transfer area.

7.4.4 Maintain a log of transported fluids and any potential residue to identify any possible chemical reactions from mixing.

7.5 Use of Conductive Hoses and Materials

Vacuum hose constructed of conductive material or thick-walled hose with imbedded conductive wiring, shall be used when transferring flammable and combustible liquids when the potential for a flammable atmosphere exists in the area of operations.

Conductive hose shall provide suitable electrical conductance less than or equal to 1 mega ohm per 100 feet **(as** determined by the hose manufacturer). Thin walled metallic spiral wound conductive hoses should not be used because of the potential for electrical discharge through the thin plastic that covers the metal spiral.

7.6 Bonding and Grounding

7.6.1 The complete vacuum transfer system needs to be bonded so that there is a continuous conductive path from the vacuum truck through the hose and nozzle to the tank or source container and grounded to dissipate stray currents to earth (ground)

7.6.2 Always ground the truck. Prior to starting transfer operations, vacuum trucks need to be grounded directly to the earth or bonded to another object that is inherently grounded (due to proper contact with the earth) such as a large storage tank or underground piping. A safe and proper ground to earth may be achieved by connecting to any properly grounded object including but not limited to any one or more of the following examples: a metal frame of a building, tank, or equipment that is grounded.

An existing facility grounding system such as that installed at a loading rack. Fire hydrants metal light posts, or underground metal piping with at least 10' of contact with earth. A corrosion free metal ground rod of suitable length and diameter (approximately 9' long and 5/8-in. diameter), driven 8' into the earth (or to the water table, if less).

7.7 Venting

Under normal conditions, the absence of oxygen minimizes the risk of ignition in a vacuum truck. However, operating rotary lobe blowers and vacuum pumps at high speeds creates high air movement and high vacuum levels, resulting in high discharge air temperatures and high discharge vapor concentrations that can present potentially ignitable conditions. In addition, inadvertent mixing of chemicals can occur in the truck which can produce toxic or flammable vapors.

7.7.1 The following methods can be used by vacuum truck operators to safely vent vacuum pump exhaust vapors:

- Locating the vacuum truck upwind of vapor sources and by extending the vacuum pump discharge away from the diesel engine air intake.

- Vapors may be returned to the source container using conductive and closed connections; vapors may be vented into the atmosphere to a safe location using a safety venture.

• Vacuum truck operators may provide vertical exhaust stacks, extending approximately 12' above the vacuum truck (or higher if necessary), to dissipate the vapors before they reach ignition sources or other potential hazards and personnel.

• Vacuum truck operators may attach a length of exhaust hose to the vacuum exhaust that is long enough to reach an area that is free from potential hazards, sources of ignition, and personnel. The hose should be preferably extended 50' downwind of the truck and away from the source of the liquids.

7.8 Manual handling of Hoses

When the hose is handled manually, you must have systems to protect from the suction created at the hose end.

7.8.1 Vacuum Release

• There are three release areas available with a truck, including a remote release, a manual release near the truck itself and an inline "T."

• The larger the diameter of the hose, the bigger the force you have. If a 27" hose gets stuck to your body it can be fatal.

• An inline "T" is the mechanical device placed in the hose near the suction end that kills the vacuum in the hose.

• Nearly every injury in our industry occurs because those devices aren't working or aren't operative. If all 3 are working, you won't have injuries.

7.8.2 Ergonomics and body position

Consider the following to reduce exposure to ergonomic hazards.

• Use mechanical means to handle hoses and equipment whenever possible.

• Get help to move hoses and equipment.

• Rotate workers between jobs that have different muscle group requirements.

• Train team members to work with their body in neutral positions.

7.9 Training

7.9.1 Vacuum truck personnel shall be:

• Trained in the safe operation of the vacuum equipment.

• Familiar hazards of the petroleum products, by-products, wastes and materials being transferred, aware of relevant government and facility safety procedures, the contents of this policy, and emergency response requirements.

• Contents of the SDS's for the products they are handling.

• Trained in the use of required PPE for the products they are handling.

• All personnel shall leave the vacuum truck cab during loading and off-loading operations.

• When transferring flammable liquids or hazardous materials, vacuum truck operators shall remain positioned between the vacuum truck and the source or receiving tank, vessel, or container and within 25' of the vacuum truck throughout the duration. Vacuum truck operators shall monitor the transfer operation and be ready to quickly close the product valve and stop the pump in the event of a blocked line or release of material through a broken hose or connection;

• Remove any other source of ignition within at least 100' if the possibility of flammable vapors exists (depending on local procedures and atmospheric conditions of the truck, the discharge of the vacuum pump, or any other vapor source).

• Trained in the requirements of confined spaces if have to enter tanks, vessels, manholes, tank of the vacuum truck, etc.

7.10 Qualified Operators

Vacuum truck operators shall be trained and properly licensed in accordance with applicable regulations:

7.10.1 Vacuum trucks shall not enter into tank dike area until such areas have been checked/monitored and rendered safe.

7.10.2 Vacuum trucks cargo tanks shall be depressurized.

7.10.3 Vacuum truck operators must be aware of the effect of speeds, turns and the changing center of gravity.

7.10.4 Vacuum truck operators shall maintain proper distances when operating vacuum trucks inside facilities with restricted clearances.

7.11 Required Documentation

The following documentation must be obtained from the Vacuum Truck subcontractor prior to starting work. These requirements are in addition to documentation required of all subcontractors such as proof of insurance and a written safety program.

7.11.1 A hazard analysis/JHA for Vacuum truck operations.

7.11.2 Proof of Training for hazards associated with the operation of vacuum trucks including the possibility of both flammable and toxic atmospheres.

7.11.3 Proof of training and/or certification for the Truck Operator.

7.12 Waste Disposal

7.12.1 Identify the generator Owner, subcontractor, Romer Utility Services if it is our waste.

7.12.2 Ensure the waste goes to the proper disposal facility.

Welding, Cutting, Hot Work Practices Program

Romer Utility Services will ensure that work practices that involve Welding, Cutting and Brazing equipment/operations are evaluated to determine if proper safety precautions are instituted. The Occupational Safety and Health Administration (OSHA) recommends that certain guidelines be adhered to regarding these hazards. This standard practice instruction is intended to address comprehensively the issues of; evaluating and identifying the specific hazards where hot work is performed, communicating information concerning these hazards, and establishing appropriate procedures, and protective measures for our employees.

Safety Representative is solely responsible for all facets of this program and has full authority to make necessary decisions to ensure success of the program. The Safety Officer will develop written detailed instructions covering each of the basic elements in this program, and is the sole person authorized to amend these instructions. This company has expressly authorized the Safety Officer to halt any operation of the company where there is danger of serious personal injury.

Contents of the Welding, Cutting, and Brazing Safety-Related Work Practices Program

Romer Utility Services Welding, Cutting and Brazing Safety-Related Work Practices Program

1. Written Program. Romer Utility Services will review and evaluate this standard practice instruction on an annual basis, or when changes occur to 29 CFR 1910.251 - 252, that prompt revision of this document, or when facility operational changes occur that require a revision of this document. Effective implementation of this program requires support from all levels of management within this company. This written program will be communicated to all personnel that are affected by it. It encompasses the total workplace, regardless of number of workers employed or the number of work shifts. It is designed to establish clear goals, and objectives.

2. Fire prevention and protection. Fire and explosion pose a serious risk to our employees during welding, cutting, and brazing operations. Sparks can travel as much as 35 feet, and spatter can bounce on the floor or fall through openings creating hazards in other work areas of our facility.

2.1 Basic safety precautions. The below listed basic safety precautions will be followed by company employee's performing welding, cutting, and brazing operations. The basic precautions for fire prevention in welding or cutting work are:

2.1.1 Fire hazards. If the object to be welded or cut cannot readily be moved, all movable fire hazards in the vicinity shall be taken to a safe place.

2.1.2 Guards. 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.

2.1.3 Restrictions. If the requirements stated in paragraphs 2.1.1 and 2.1.2 cannot be followed then welding and cutting shall not be performed.

2.2 Special precautions. When the nature of the work to be performed requires the use of guarding devices certain additional precautions may be necessary:

2.2.1 Combustible material. Wherever there are floor openings or cracks in the flooring that cannot be closed, precautions shall be taken so that no readily combustible materials on the floor below will be exposed to sparks, which might drop through the floor. The same precautions shall be observed with regard to cracks or holes in walls, open doorways and open or broken windows.

2.2.2 Fire extinguishers. Suitable fire extinguishing equipment shall be maintained in a state of readiness for instant use. Such equipment may consist of pails of water, buckets of sand, hose or portable extinguishers depending upon the nature and quantity of the combustible material exposed.

2.2.3 Fire watch.

2.2.3.1 Fire watchers shall be required whenever welding or cutting is performed in locations where other than a minor fire might develop, or any of the following conditions exist:

2.2.3.1.1 Appreciable combustible material, in building construction or contents, closer than 35 feet (10.7 m) to the point of operation.

2.2.3.1.2 Appreciable combustibles are more than 35 feet (10.7 m) away but are easily ignited by sparks.

2.2.3.1.3 Wall or floor openings within a 35-foot (10.7 m) radius expose combustible material in adjacent areas including concealed spaces in walls or floors.

2.2.3.1.4 Combustible materials are adjacent to the opposite side of metal partitions, walls, ceilings, or roofs and are likely to be ignited by conduction or radiation.

2.2.3.2 Firewatchers shall have fire-extinguishing equipment readily available and be trained in its use. They shall be familiar with facilities for sounding an alarm in the event of a fire. They shall watch for fires in all exposed areas, try to extinguish them only when obviously within the capacity of the equipment available, or otherwise sound the alarm. A fire watch shall be maintained for at least a half hour after completion of welding or cutting operations to detect and extinguish possible smoldering fires.

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2.2.4 Authorization. Before cutting or welding is permitted, the area shall be inspected by the individual responsible for authorizing cutting and welding operations. He/she shall designate precautions to be followed in granting authorization to proceed preferably in the form of a written permit.

2.2.5 Floors. Where combustible materials such as paper clippings, wood shavings, or textile fibers are on the floor, the floor shall be swept clean for a radius of 35 feet (10.7 m). Combustible floors shall be kept wet, covered with damp sand, or protected by fire-resistant shields. Where floors have been wet down, personnel operating arc welding or cutting equipment shall be protected from possible shock.

2.2.6 Prohibited areas. Cutting or welding shall not be permitted in the following situations:

2.2.6.1 In areas not authorized by management.

2.2.6.2 In sprinklered buildings while such protection is impaired.

2.2.6.3 In the presence of explosive atmospheres (mixtures of flammable gases, vapors, liquids, or dusts with air), or explosive atmospheres that may develop inside unclean or improperly prepared tanks or equipment which have previously contained such materials, or that may develop in areas with an accumulation of combustible dusts.

2.2.6.4 In areas near the storage of large quantities of exposed, readily ignitable materials such as bulk sulfur, baled paper, or cotton.

2.2.7 Relocation of combustibles. Where practicable, all combustibles shall be relocated at least 35 feet (10.7 m) from the work site. Where relocation is impracticable, combustibles shall be protected with flameproofed covers or otherwise shielded with metal or asbestos guards or curtains.

2.2.8 Ducts. Ducts and conveyor systems that might carry sparks to distant combustibles shall be suitably protected or shut down.

2.2.9 Combustible walls. Where cutting or welding is done near walls, partitions, ceiling or roof of combustible construction, fire-resistant shields or guards shall be provided to prevent ignition.

2.2.10 Noncombustible walls. If welding is to be done on a metal wall, partition, ceiling or roof, precautions shall be taken to prevent ignition of combustibles on the other side, due to conduction or radiation, preferably by relocating combustibles. Where combustibles are not relocated, a fire watch on the opposite side from the work shall be provided.

2.2.11 Combustible cover. Welding shall not be attempted on a metal partition, wall, ceiling or roof having a combustible covering nor on walls or partitions of combustible sandwich-type panel construction.

2.2.12 Pipes. Cutting or welding on pipes or other metal in contact with combustible walls, partitions, ceilings or roofs shall not be undertaken if the work is close enough to cause ignition by conduction.

2.2.13 Management. Management shall recognize its responsibility for the safe usage of cutting and welding equipment on its property and:

2.2.13.1 Based on fire potentials of plant facilities, establish areas for cutting and welding, and establish procedures for cutting and welding, in other areas.

2.2.13.2 The Site Supervisor will be responsible for authorizing cutting and welding operations in areas not specifically designed for such processes.

2.2.13.3 Ensure that cutters or welders and their supervisors are suitably trained in the safe operation of their equipment and the safe use of the process.

2.2.13.4 Advise all contractors about flammable materials or hazardous conditions of which they may not be aware.

2.2.14 Supervisor. The first line supervisor:

2.2.14.1 Shall be responsible for the safe handling of the cutting or welding equipment and the safe use of the cutting or welding process.

2.2.14.2 Shall determine the combustible materials and hazardous areas present or likely to be present in the work location.

2.2.14.3 Shall protect combustibles from ignition by the following:

2.2.14.3.1 Have the work moved to a location free from dangerous combustibles.

2.2.14.3.2 If the work cannot be moved, have the combustibles moved to a safe distance from the work or have the combustibles properly shielded against ignition.

2.2.14.3.3 See that cutting and welding are so scheduled that plant operations that might expose combustibles to ignition are not started during cutting or welding.

2.2.14.4 Shall secure authorization for the cutting or welding operations from Site Supervisor and or Safety Representative

2.2.14.5 Shall determine that the cutter or welder secures his approval that conditions are safe before going ahead.

2.2.14.6 Shall determine that fire protection and extinguishing equipment are properly located at the site.

2.2.14.7 Where fire watches are required, he/she shall see that they are available at the site.

2.2.15 Fire prevention precautions. Cutting or welding shall be permitted only in areas that are or have been made fire safe. When work cannot be moved practically, as in most construction work, the area shall be made safe by removing combustibles or protecting combustibles from ignition sources.

2.3 Welding or cutting containers.

2.3.1 Used containers. No welding, cutting, or other hot work shall be performed on used drums, barrels, tanks or other containers until they have been cleaned so thoroughly as to make absolutely certain that there are no flammable materials present or any substances such as greases, tars, acids, or other materials which when subjected to heat, might produce flammable or toxic vapors. Any pipe lines or connections to the drum or vessel shall be disconnected or blanked.

2.3.2 Venting and purging. All hollow spaces, cavities or containers shall be vented to permit the escape of air or gases before preheating, cutting or welding. Purging with inert gas is recommended.

2.4 Confined spaces.

2.4.1 Accidental contact. When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine be disconnected from the power source.

2.4.2 Torch valve. In order to eliminate the possibility of gas escaping through leaks or improperly closed valves, when gas welding or cutting, the torch valves shall be closed and the gas supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practicable, the torch and hose shall also be removed from the confined space.

3. Protection of personnel.

3.1 General

3.1.1 Railings. Employee's working on platforms, scaffolds, or runways shall be protected against falling. This may be accomplished by the use of railings, safety belts, lifelines, or some other equally effective safeguards.

3.1.2 Welding cables. Employees shall place welding cables and other equipment so that it is clear of passageways, ladders, and stairways.

3.1.3 Respiratory equipment must be used when hazardous fumes, gases or dust may be present.

3.1.4 All hot work equipment is to be inspected, if found defective, it must be removed from service.

3.2 Eye protection.

3.2.1 Selection.

3.2.1.1 Helmets or hand shields shall be used during all arc welding or arc cutting operations, excluding submerged arc welding. Helpers or attendants shall be provided with proper eye protection.

3.2.1.2 Goggles or other suitable eye protection shall be used during all gas welding or oxygen cutting operations. Spectacles without side shields, with suitable filter lenses are permitted for use during gas welding operations on light work, for torch brazing or for inspection.

3.2.1.3 All operators and attendants of resistance welding or resistance brazing equipment shall use transparent face shields or goggles, depending on the particular job, to protect their faces or eyes, as required.

3.2.1.4 Eye protection in the form of suitable goggles shall be provided where needed for brazing operations.

3.2.2 Specifications for protectors.

3.2.2.1 Helmets and hand shields shall be made of a material, which is an insulator for heat and electricity. Helmets, shields and goggles shall be not readily flammable and shall be capable of withstanding sterilization.

3.2.2.2 Helmets and hand shields shall be arranged to protect the face, neck and ears from direct radiant energy from the arc.

3.2.2.3 Helmets shall be provided with filter plates and cover plates designed for easy removal.

3.2.2.4 All parts shall be constructed of a material, which will not readily corrode or discolor the skin.

3.2.2.5 Goggles shall be ventilated to prevent fogging of the lenses as much as practicable.

3.2.2.6 All glass for lenses shall be tempered, substantially free from striate, air bubbles, waves and other flaws. Except when a lens is ground to provide proper optical correction for defective vision, the front and rear surfaces of lenses and windows shall be smooth and parallel.

3.2.2.7 Lenses shall bear some permanent distinctive marking by which the source and shade may be readily identified.

3.2.2.8 The following is a guide for the selection of the proper shade numbers. These recommendations may be varied to suit the individual's needs.

Welding operation	Shade No.
Shielded metal-arc welding:	
1/16-, 3/32-, 1/8-, 5/32-inch electrodes	10
Gas-shielded arc welding (nonferrous):	
1/16-, 3/32-, 1/8-, 5/32-inch electrodes	11
Gas-shielded arc welding (ferrous)	
1/16-, 3/32-, 1/8-, 5/32-inch electrodes	12
Shielded metal-arc welding:	
3/16-, 7/32-, 1/4-inch electrodes	12
5/16-, 3/8-inch electrodes	14
Atomic hydrogen welding:	10-14
Carbon arc welding:	14
Soldering:	2
Torch brazing:	3 or 4
Light cutting, up to 1 inch:	3 or 4
Medium cutting, 1 inch to 6 inches:	4 or 5
Heavy cutting, 6 inches and over:	5 or 6
Gas welding (light) up to 1/8 inch:	4 or 5
Gas welding (medium) 1/8 inch to 1/2 inch:	5 or 6
Gas welding (heavy) 1/2 inch and over:	6 or 8

Note: In gas welding or oxygen cutting where the torch produces a high yellow light, it is desirable to use a filter or lens that absorbs the yellow or sodium line in the visible light of the operation.

3.2.2.8 All filter lenses and plates purchased by this company shall meet the test for transmission of radiant energy prescribed in ANSI Z87.1--1968--American National Standard Practice for Occupational and Educational Eye and Face Protection.

3.2.3 Protection from arc welding rays. Where the work permits, the welder should be enclosed in an individual booth painted with a finish of low reflectivity such as zinc oxide (an important factor for absorbing ultraviolet radiation) and lamp

black, or shall be enclosed with noncombustible screens similarly painted. Booths and screens shall permit circulation of air at floor level. Workers or other persons adjacent to the welding areas shall be protected from the rays by noncombustible or flameproof screens or shields or shall be required to wear appropriate goggles.

3.3 Protective clothing. General requirements. Supervisors will ensure that employees exposed to the hazards created by welding, cutting, or brazing operations be protected by personal protective equipment in accordance with the requirements of 29 CFR 1910.132 (Personal Protective Equipment, General Requirements). Appropriate protective clothing required for any welding operation will vary with the size, nature and location of the work to be performed.

*DECISION POINT Confined space operations require a written company program. If your company has hot work requirements that will involve confined spaces, a Confined Space Entry program needs to be developed.

3.4 Work in confined spaces.

3.4.1 General. As used herein confined space is intended to mean a relatively small or restricted space such as a tank, boiler, pressure vessel, or small compartment of a ship.

3.4.2 Ventilation. Ventilation is a prerequisite to work in confined spaces. The company confined space procedures will delineate ventilation requirements for specific operations where welding or cutting is required.

3.4.3 Securing cylinders and machinery. When welding or cutting is being performed in any confined spaces the gas cylinders and welding machines shall be left on the outside. Before operations are started, heavy portable equipment mounted on wheels shall be securely blocked to prevent accidental movement.

3.4.4 Lifelines. Where a welder must enter a confined space through a manhole or other small opening, means shall be provided for quickly removing him in case of emergency. When safety belts and lifelines are used for this purpose, they shall be so attached to the welder's body that his body cannot be jammed in a small exit opening. An attendant with a preplanned rescue procedure (see company confined space procedures) shall be stationed outside to observe the welder at all times and be capable of putting rescue operations into effect.

3.4.5 Electrode removal. When arc welding is to be suspended for any substantial period of time, such as during lunch or overnight, all electrodes shall be removed from the holders and the holders carefully located so that accidental contact cannot occur and the machine disconnected from the power source.

3.4.6 Gas cylinder shutoff. In order to eliminate the possibility of gas escaping through leaks of improperly closed valves, when gas welding or cutting, the torch valves shall be closed and the fuel-gas and oxygen supply to the torch positively shut off at some point outside the confined area whenever the torch is not to be used for a substantial period of time, such as during lunch hour or overnight. Where practicable the torch and hose shall also be removed from the confined space.

Warning signs. After welding operations are completed, the welder shall mark the hot metal or provide some other means of warning other workers.

4. Health protection and ventilation.

4.1 General

4.1.1 Contamination. The requirements for contamination control have been established on the basis of the following three factors in arc and gas welding which govern the amount of contamination to which welders may be exposed:

4.1.1.1 Dimensions of space in which welding is to be done (with special regard to height of ceiling).

4.1.1.2 Number of welders.

4.1.1.3 Possible evolution of hazardous fumes, gases, or dust according to the metals involved.

4.1.2 Screens. When welding must be performed in a space entirely screened on all sides, the screens shall be so arranged that no serious restriction of ventilation exists. It is desirable to have the screens so mounted that they are about 2 feet (0.61 m) above the floor unless the work is performed at so low a level that the screen must be extended nearer to the floor to protect nearby workers from the glare of welding.

4.1.3 Maximum allowable concentration. Local exhaust or general ventilating systems shall be provided and arranged to keep the number of toxic fumes, gases, or dusts below the maximum allowable concentration as specified in 29 CFR 1910.1000 (Toxic and Hazardous Substances.

4.1.4 Precautionary labels. A number of potentially hazardous materials are employed in fluxes, coatings, coverings, and filler metals used in welding and cutting or are released to the atmosphere during welding and cutting. Supervisors will ensure employees under their control are familiar with the Safety Data Sheets (SDS) applicable to the welding materials they are using.

4.2 Ventilation for general welding and cutting.

4.2.1 General. Mechanical ventilation shall be provided when welding or cutting is done on metals other than the following: Fluorine compounds, Zinc, Lead, Beryllium, Cadmium, Mercury, and stainless steels.

4.2.1.1 In a space of less than 10,000 cubic feet (284 m3) per welder.

4.2.1.2 In a room having a ceiling height of less than 16 feet (5 m).

4.2.1.3 In confined spaces or where the welding space contains partitions, balconies, or other structural barriers to the extent that they significantly obstruct cross ventilation.

4.2.2 Minimum rate. Such ventilation shall be at the minimum rate of 2,000 cubic feet (57 m3) per minute per welder, except where local exhaust hoods and booths provide an equivalent or better rate, or airline respirators approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health, pursuant to the provisions of 30 CFR part 11, are provided. Natural ventilation is considered sufficient for welding or cutting operations where the following restrictions are not present.

4.2.2.1 In a space of less than 10,000 cubic feet (284 m3) per welder.

4.2.2.2 In a room having a ceiling height of less than 16 feet (5 m).

4.2.2.3 In confined spaces or where the welding space contains partitions, balconies, or other structural barriers to the extent that they significantly obstruct cross ventilation.

4.3 Local exhaust hoods and booths. Mechanical local exhaust ventilation may be by means of either of the following:

4.3.1 Hoods. Freely movable hoods intended to be placed by the welder as near as practicable to the work being welded and provided with a rate of air-flow sufficient to maintain a velocity in the direction of the hood of 100 linear feet (30 m) per minute in the zone of welding when the hood is at its most remote distance from the point of welding. The rates of ventilation required to accomplish this control velocity using a 3 inch (7.6 cm) wide flanged suction opening are shown in the following table:

Welding zone	Minimum air flow *(1) cubic feet/ minute	Duct diameter, inches *(2)
4 to 6 inches from arc or torch	150	3
6 to 8 inches from arc or torch	275	3 1/2
8 to 10 inches from arc or torch	425	4 1/2
10 to 12 inches from arc or torch	600	5 1/2

{Footnote}*(1) When brazing with cadmium bearing materials or when cutting on such materials increased rates of ventilation may be required.

{Footnote}*(2) Nearest half-inch duct diameter based on 4,000 feet per minute velocity in pipe.

4.3.2 Fixed enclosure. A fixed enclosure with a top and not less than two sides which surround the welding or cutting operations and with a rate of airflow sufficient to maintain a velocity away from the welder of not less than 100 linear feet (30 m) per minute.

4.4 Ventilation in confined spaces.

4.4.1 Air replacement. All welding and cutting operations carried on in confined spaces shall be adequately ventilated to prevent the accumulation of toxic materials or possible oxygen deficiency. This applies not only to the welder but also to helpers and other personnel in the immediate vicinity. All replacement air shall be clean and respirable.

4.4.2 Airline respirators. In such circumstances where it is impossible to provide such ventilation, airline respirators or hose masks approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health, shall be used.

4.4.3 Self-contained units. In areas immediately dangerous to life and health (IDLH), hose masks with blowers or self-contained breathing equipment shall be used. The breathing equipment shall be approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health.

4.4.4 Outside helper. Where company welding operations are carried on in confined spaces and where welders and helpers are provided with hose masks, hose masks with

blowers, or self-contained breathing equipment approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health, a worker shall be stationed on the outside of such confined spaces to insure the safety of those working within. This will be done in accordance with the company confined space standard practice instructions.

4.4.5 Oxygen for ventilation. Because of its flammable properties, Oxygen shall never be used for ventilation.

4.5 Fluorine compounds.

4.5.1 General. In confined spaces, welding or cutting involving fluxes, coverings, or other materials which contain fluorine compounds shall be done in accordance with the safety precautions and work practices delineated on the SDS. A fluorine compound is one that contains fluorine, as an element in chemical combination, not as a free gas.

4.5.2 Maximum allowable concentration. The need for local exhaust ventilation or airline respirators for welding or cutting in other than confined spaces will depend upon the individual circumstances. However, experience has shown such protection to be desirable for fixed-location production welding and for all production welding on stainless steels. Where air samples taken at the welding location indicate that the fluorides liberated are below the maximum allowable concentration, such protection is not necessary.

4.6 Zinc.

4.6.1 Confined spaces. In confined spaces welding or cutting involving zinc-bearing base or filler metals or metals coated with zinc-bearing materials shall be done in accordance with the "Ventilation in confined space" section of this SPI.

4.6.2 Indoors. Indoor welding or cutting involving zinc-bearing base or filler metals coated with zinc-bearing materials shall be done in accordance with the "Local exhaust hoods and booths" section of this SPI.

4.7 Lead.

4.7.1 Confined spaces. In confined spaces, welding involving lead-base metals (erroneously called lead-burning) shall be done in accordance with the "Ventilation in confined space" section of this SPI.

4.7.2 Indoors. Indoors, welding involving lead-base metals shall be done in accordance with the "Local exhaust hoods and booths" section of this SPI.

4.7.3 Local ventilation. In confined spaces or indoors, welding or cutting involving metals containing lead, other than as an impurity, or involving metals coated with lead-bearing materials, including paint shall be done using local exhaust ventilation or airline respirators. Outdoors such operations shall be done using respiratory protective equipment approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health. In all cases, workers in the immediate vicinity of the cutting operation shall be protected as necessary by local exhaust ventilation or airline respirators.

4.8 Beryllium. Welding or cutting indoors, outdoors, or in confined spaces involving beryllium-containing base or filler metals shall be done using local exhaust ventilation and airline respirators unless atmospheric tests under the most adverse conditions have established that the workers' exposure is within the acceptable concentrations defined by 29 CFR 1910.1000. In all cases, workers in the immediate vicinity of the welding or cutting operations shall be protected as necessary by local exhaust ventilation or airline respirators.

4.9 Cadmium.

4.9.1 General. Welding or cutting indoors or in confined spaces involving cadmium-bearing or cadmium-coated base metals shall be done using local exhaust ventilation or airline respirators unless atmospheric tests under the most adverse conditions have established that the workers' exposure is within the acceptable concentrations defined by 29 CFR 1910.1000. Outdoors such operations shall be done using respiratory protective equipment such as fume respirators approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health.

4.9.2 Confined space. Welding (brazing) involving cadmium-bearing filler metals shall be done using ventilation in accordance with the "Ventilation in confined space" and the "Local exhaust hoods and booths" section of this SPI.

4.10 Mercury. Welding or cutting indoors or in a confined space involving metals coated with mercury-bearing materials including paint, shall be done using local exhaust ventilation or airline respirators unless atmospheric tests under the most adverse conditions have established that the workers' exposure is within the acceptable concentrations defined by 29 CFR 1910.1000. Outdoors such operations shall be done using respiratory protective equipment approved by the Mine Safety and Health Administration and the National Institute for Occupational Safety and Health.

4.11 Cleaning compounds.

4.11.1 Manufacturer's instructions. In the use of cleaning materials, because of their possible toxicity or flammability, appropriate precautions such as manufacturer's instructions shall be followed.

4.11.2 Degreasing. Degreasing and other cleaning operations involving chlorinated hydrocarbons shall be so located that no vapors from these operations will reach or be drawn into the atmosphere surrounding any welding operation. In addition, trichloroethylene and perchloroethylene should be kept out of atmospheres penetrated by the ultraviolet radiation of gas-shielded welding operations.

4.12 Cutting of stainless steels. Oxygen cutting, using either a chemical flux or iron powder or gas-shielded arc cutting of stainless steel, shall be done using mechanical ventilation adequate to remove the fumes generated.

4.13 First-aid equipment. First-aid equipment shall be available at all times. All injuries shall be reported to the employee's supervisor in accordance with Sites Health and Safety Plan as soon as possible for medical attention. First aid shall be rendered until medical attention can be provided, do not delay in the care while waiting to contact the supervisor.

5. Industrial applications.

5.1 Transmission pipeline.

5.1.1 General. The requirements of the "Protection of personnel" and the "Health protection and ventilation" sections of this SPI shall be observed.

5.1.2 Field shop operations. Where field shop operations are involved for fabrication of fittings, river crossings, road crossings, and pumping and compressor stations the requirements of the "Fire prevention and protection", "Protection of personnel" and the "Health protection and ventilation" sections of this SPI shall be observed.

5.1.3 Electric shock. When arc welding is performed in wet conditions, or under conditions of high humidity, special protection against electric shock shall be supplied.

5.1.4 Pressure testing. In pressure testing of pipelines, the workers and the public shall be protected against injury by the blowing out of closures or other pressure restraining devices. Also, protection shall be provided against expulsion of loose dirt that may have become trapped in the pipe.

5.1.5 Construction standards. The welded construction of transmission pipelines shall be conducted in accordance with the Standard for Welding Pipe Lines and Related Facilities, API Std. 1104--1968.

5.1.6 Flammable substance lines. The connection, by welding, of branches to pipelines carrying flammable substances shall be performed in accordance with Welding or Hot Tapping on Equipment Containing Flammables, API Std. PSD No. 2201--1963.

5.1.7 X-ray inspection. The use of X-rays and radioactive isotopes for the inspection of welded pipeline joints shall be carried out in conformance with the American National Standard Safety Standard for Non-Medical X-ray and Sealed Gamma-Ray Sources, ANSI Z54.1--1963.

5.2 Mechanical piping systems

5.2.1 General. The requirements of the "Fire prevention and protection", "Protection of personnel" and the "Health protection and ventilation" sections of this SPI shall be observed.

5.2.2 X-ray inspection. The use of X-rays and radioactive isotopes for the inspection of welded piping joints shall be in conformance with the American National Standard Safety Standard for Non-Medical X-ray and Sealed Gamma-Ray Sources, ANSI Z54.1--1963.

6. Training.

6.1 Types of training. Supervisors will determine whether training required for specific jobs will be conducted in a classroom or on-the-job. The degree of training provided shall be determined by the complexity of the welding, brazing, or cutting requirements of the individual job and the associated hazards.

6.1.1 Initial Training. Prior to job assignment, this employer shall provide training to ensure that the hazards associated with welding, brazing, and cutting operations are understood by employees and that the knowledge and skills required for the safe application, usage, of work place equipment, are acquired by employees. The training shall include the following:

6.1.1.1 Each authorized employee shall receive training in the recognition of applicable hazards involved with particular job. The methods and means necessary for safe work.

6.1.1.2 Each affected employee shall be instructed in the purpose and use of confined space entry procedures (where required).

6.1.1.3 All other employees whose work operations are or may be in an area where welding, brazing, or cutting is to be performed, shall be instructed about the procedure, and about the prohibitions relating to working in that area.

6.1.2 Refresher Training. Scheduled refresher training will be conducted on an annual basis.

6.1.2.1 Retraining shall be provided for all authorized and affected employees whenever there is a change in their job assignments, a change in welding equipment, equipment or processes that present a new hazard, when their work takes them into hazardous areas, or when there is a change in the confined space entry procedures (when used).

6.1.2.2 Additional retraining shall also be conducted whenever a periodic inspection reveals, or whenever this employer has reason to believe, that there are deviations from or inadequacies in the employee's knowledge of known hazards, or use of equipment or procedures.

6.1.2.3 The retraining shall reestablish employee proficiency and introduce new equipment, or revised control methods and procedures, as necessary.

6.1.3 Certification. This employer shall certify that employee training has been accomplished and is being kept up to date. The certification shall contain a synopsis of the training conducted, each employee's name, and dates of training.

6. **Selection and use of work practices**. Supervisors shall develop and ensure use of standardized safety-related work practices to prevent injuries resulting from hot-work accidents. The specific safety-related work practices shall be consistent with the nature and extent of the associated hot-work hazards.

8. Welding safety checklist.

8.1 General safety requirements.

- Has the employee had sufficient training to accomplish the job safely?

Action Taken: **YES (___) NO (___)**

_____

_____

- Has the employee been briefed on hazards unique to this particular job?

Action Taken: **YES (___) NO (___)**

_____

_____

- Has the employee read the manufacturer's instructions, cylinder labels, and SDSs.?

Action Taken: **YES (___) NO (___)**

_____

_____

- Is heat and impact resistant clothing being used?

Action Taken: **YES (___) NO (___)**

_____

_____

- Is the proper clothing being worn to reduce skin burns.

Action Taken: **YES (___) NO (___)**

_____

_____

- Are leather aprons, leggings, and sleeves worn for very hot work?

Action Taken: **YES (___) NO (___)**

_____

_____

- Are dry welders gloves used during arc welding?

Action Taken: **YES (___) NO (___)**

_____

- Are proper respirators used when welding cadmium, lead or other materials where toxic fumes could form?

Action Taken: **YES (___) NO (___)**

_____

_____

- Have fire resistant shields been place over floors, walls, or other objects that could potentially catch fire?

Action Taken: **YES (___) NO (___)**

_____

_____

- Have all flammable items in the hot work area been removed or covered?

Action Taken: **YES (___) NO (___)**

_____

_____

- Is consumption (eating, drinking, smoking) prohibited while hot work is in progress?

Action Taken: **YES (___) NO (___)**

_____

_____

- Have all ducts that could carry sparks been closed?

Action Taken: **YES (___) NO (___)**

_____

_____

- Is adequate ventilation present in the hot work area?

Action Taken: **YES (___) NO (___)**

_____

_____

- Where welding is conducted near combustible material is a firewatcher routinely posted with operational fire extinguishers?

Action Taken: **YES (___) NO (___)**

_____

_____

8.2 Gas welders:

- Are cylinders regularly checked for leaks?

Action Taken: **YES (___) NO (___)**

_____

_____

- In storage, are cylinders stored upright and secured in a separate, dry, ventilated, fireproof room?

Action Taken: **YES (___) NO (___)**

_____

_____

- Are cylinders always turned off after use?

Action Taken: **YES (___) NO (___)**

_____

_____

- Are workers briefed to never roll or drop cylinders?

Action Taken: **YES (___) NO (___)**

_____

_____

- Are workers briefed to never use oxygen to blow dust away?

Action Taken: **YES (___) NO (___)**

_____

_____

- Is smoking forbidden during welding operations?

Action Taken: **YES (___) NO (___)**

_____

_____

- Do workers regularly review the SDSs for the gases they are using?

Action Taken: **YES (___) NO (___)**

_____

_____

- Do workers know the proper lubricants to use on compressed oxygen cylinder connections?

Action Taken: **YES (___) NO (___)**

_____

_____

8.3 Arc welders:

- Are welders de-energized before touching electrical parts?

Action Taken: **YES (___) NO (___)**

_____

_____

- Are objects to be welded on, separately grounded?

Action Taken: **YES (___) NO (___)**

_____

_____

- Do welders know the correct size cable, with intact insulation to use for a given operation?

Action Taken: **YES (___) NO (___)**

_____

_____

- Do welders know that jewelry should not be worn when welding?

Action Taken: **YES (___) NO (___)**

_____

_____

- Is the work surface, floor, and object dry before starting to weld?

Action Taken: **YES (___) NO (___)**

_____

_____

- Is it forbidden to weld in the rain?

Action Taken: **YES (___) NO (___)**

_____

_____

8.4 Confined spaces:

- Is the atmosphere tested before entering and while working?

Action Taken: **YES (___) NO (___)**

_____

_____

- Do gas cylinders remain outside at all times?

Action Taken: **YES (___) NO (___)**

_____

_____

- Is the space properly ventilated?

Action Taken: **YES (___) NO (___)**

_____

_____

- Are written procedures available?

Action Taken: **YES (___) NO (___)**

_____

- Has Personal Protective Equipment (PPE) be considered?

Action Taken: **YES (___) NO (___)**

_____

_____

- Are safety attendants properly equipped and is first aid equipment readily available?

Action Taken: **YES (___) NO (___)**

_____

_____

9. Definitions.

Welder and welding operator mean, any operator of electric or gas welding and cutting equipment.

Approved means, listed or approved by a nationally recognized testing laboratory. Refer to 29 CFR 1910.155 for definitions of listed and approved, and 29 CFR 1910.7 for nationally recognized testing laboratory.

All other welding terms are used in accordance with American Welding Society.